A SWEDISH DATA PROCESSING POLICY

By Tomas Ohlin

In different countries different attitudes have been taken towards governmental planning of the data processing (DP) growth.

Some countries, like Western Germany, France, Canada, and to come extent Japan, have developed more or less complete official formulas, based on comprehensive investigations of the industrial as well as the market and user competence in the country. In others, like US and quite a few European countries not mentioned above, policy measures are taken on a more ad hoc basis, but according to general understandings about the direction of desired activities.

The expectations concerning the results from governmental data processing policies have in many countries been large. This is primarily because of the fact that the market itself apparently seems incapable of adjusting the lack of balance that is the consequence of IBM's position. Secondly, in many respects the exceptionally weak position of the users, as compared to the manufacturers, motivates measures from an outside force. Thus even principal opponents of "governmental regulations" have paid attention to and sometimes requested efforts from representatives of the public sector in these considerations.

The two problems just mentioned call for strong measures, if any result at all is to be expected. Unfortunately, many such measures do not harmonize very well with the melody of free markets. As a consequence, protectionism is now moving in, not only in many industrialized countries, but – in the data processing field – even in declarations from the EEC, the former standard bearer of European free market thinking. EEC representatives call these declarations "temporary", but it is certainly to be questioned what time scale they then are referring to.

The Concept of Data Processing Policy

As mentioned, the industrial situation has been a primary cause for coordinated action. Representatives of public administrations have had a natural understanding for these aspects. Only recently has this attitude been complemented with the need for planning also concerning the *use* of computing in society at large, the art of constructing and use of the often large information systems to serve individuals as well as administrations.

A data processing policy can be regarded as a concept collecting objectives and measures for many points of contact between individuals and computing. This includes efforts concerning:

–production of computing equipment (soft/hardware) as well as

–use of computing in society.

In certain countries it is more or less explicitly stated that this development shall be related to the over-all political objectives of the country. Only in some cases, however, attempts have been made to quantify these relations, and to try to solve the possible conflicts that different measures may induce.

Balance of Policy Contents

In different countries it might be said that the maturity differs concerning the proposed policy contents.

The refined form of energy that is computing power needs further adjustment in order to be used to its capacity. This adjustment includes construction of application systems as well as use of telecommunication facilities. The value of computing in an environment can be stated only as the value of its applications at the site of the end user.

The above mentioned maturity concerns the degree of policy emphasis that is being placed on these two fundamental parts of computing:

- construction of application systems
- use of telecommunication facilities

Naturally, application systems include computers of adequate capacity. The questions concerning promotion of the applications industry, software as well as hardware, are usually tackled with concern. However, only few countries have yet formulated explicit policies regarding how to bring this fruit to the user, i.e. public policies for production and use of telecommunication facilities, as carriers of computing services.

To date, primarily Canada has taken action along these lines. However, it is to be expected that this switch of interest should influence policy formulas in several other countries in the years to come.

The Swedish Background

As a matter of fact, as early as in 1953 a Swedish electronic computer called BESK from several international sources was considered as the world's internally fastest calculator. This machine had been built with the support from governmental funds. The know-how from this development, and from the software and hardware that successively was attached to it, formed a definite opportunity for computer industrial development in the country.

A decreasing interest from the part of the possible sponsors, industrial as well as governmental, of a continued development unfortunately put an end to this successful industrial start. It was not until ten years later that the next important steps were taken. By that time the international competition was heavy enough for Swedish computer industry to find itself in certain difficulties, a situation that has continued since then.

Thus, the Swedish background for policy planning in 1971 resembled that of other western countries: a heavy market influence from the US, a small and struggling home-industry, and in addition a to some extent conscious public understanding of the need for coordinated planning of the future development.

After fairly rigid considerations it was decided in the fall of 1971 that the public data processing policies would be investigated by two separate committees. One would look at possible measures in order to strengthen the competition power of Swedish computer industry, as well as how to increase the efficiency in the private sector's use of computing.

The other committee would investigate the problems of coordinating public information systems, with all its aspects concerning public computing in Sweden.

The two committees were named Data-industriutredningen and Datasamordningskommittén, respectively. Parallel to these committees, considerations of the legal personal integrity problems in the light of data processing was carried out by a special public force. This led to the formulation of a Data Act, which was constitutionalised by the Swedish Parliament in 1973. For the control according to this law, a public board called the Data Inspection was created at the same time.

Activities

The terms of reference for Datasamordnings-kommitten, include the following "basic task":

". . . on the grounds of existing or planned databanks, and taking account to the foreseeable technical development, to illustrate what coordination – primarily within the public sector but also elsewhere – that is possible and desired at present as well as in the near future".

This apparently leaves the committee rather free hands to investigate several problems of importance to public use of data processing. The work to-date has included surveying of comprehensive background material, and structuring of future investigation needs. Also, material has been produced concerning specific areas of interest, i.e.

- technical standards
- today's telecommunication situation
- centralized/decentralized public computing
- computer technology of today and tomorrow.

The committee has contributed to a number of projects that are carried out in cooperation with other public institutions.

In an interim report of June, 1973, the committee stated the following headings for continued investigations:

- coordination of data in public data banks, including coordinated data collection
- technical and organizational structure of public data processing
- methodology and techniques for data processing systems
- security in information systems
- impact from information systems on public administration and society.

Further Measures

The committee to investigate the production and use of computing equipment primarily concerning the private sector, recently (April 1974) put forward its proposals for policy measures.

It may seem unexpected to separate the interests of the public and the private sectors in two different public committees, data processing

being of such a broad and overlapping nature. The primary reason for doing this was in fact not due to departmental or personal responsibility difficulties. Instead the split-up emanated from a knowledge of the wide scope of the problems concerned, and of the need for some kind of rather immediate public activities concerning the Swedish data processing industry. The committee to deal with this latter problem, as well as to put forward proposals to support efficient use of computing in the private sector, has tried to build its suggestions on a nonprotectionistic base, although this has not been easy. Thus, for example, public procurement is handled very cautiously, with experience from other European efforts in mind.

The proposals and measures suggested are expected to be on the Parliament's agenda in the general governmental budget plan for 1975 (presented in January 1975). These measures are proposed to be based on the following four *general guiding principles* for Swedish data processing:

1. Computer applications are to be subordinated to the citizens' general demands on society development.
2. The data processing policy aims at maintaining a broad technical competence in the computing field, in order to make possible active planning for the expected development and thus efficiently use computing techniques in new fields of application.
3. Within the frames that are decided by the first guiding principle, the data processing policy aims at stimulating of data processing applications as a means to increase the productivity for industry and public administration.
4. The data processing policy aims at encouraging a competitive Swedish data processing industry.

Without intention to discuss precedence relations and to solve possible conflicts that may arise when implementing measures according to these guiding principles, the committee puts forward a number of proposals, in line with its scope of interest.

Proposals

1. It is stressed that expanded *computer education* forms the base for all other activities in the field. In accordance with this, proposals for strengthening of computer education is proposed for primary as well as secondary school, and the immediate need for six new university professorships is stressed. Three aspects for the education are introduced:

–The education should on all levels be oriented towards computer *applications.* This means that the primary and secondary school pupils should concentrate on interactive terminal communication with readymade application program packages, rather than to learn programming techniques.

–Solid investments in computing equipment, especially software, are necessary, whether this leads to large scale aquirement of minicomputers to schools, or to increased contacts with the computer service industry.

–The importance of computer-aided-instruction (CAI) techniques is stressed.

2. Substantial governmental support for *research and development* is proposed. For the next five years a total of 75 million US $ of public support is considered to be needed for the Swedish computer industry and for research and development projects carried out within universities and by users.

For these activities it is stated that long-range and high complexity research should be supported, and that compatibility and data base methodology as well as computer network techniques should be given priority. Furthermore it is stressed that research and development efforts in a broad sense should take into account technology assessment aspects, in order to avoid that technology will lead the development in unhuman directions. Among projects suggested for cooperation between users, universities and Swedish computer industry are mentioned library systems, employment exchange systems, environment control systems, national registration and taxation systems, computer aided instruction systems, health care systems and traffic control systems.

3. Regarding *public procurement* it is stated that the market forces form the firm base. However, a conflict of interest may occur between the principle of least-cost and the desire to support employment and technical development within the country. If such a conflict can be foreseen at an early stage, i.e. if public needs can be established at an early stage in the procurement process, governmental support at that time can come in question, either for users or for industry. Also, the question of a possible public leasing company for health care computer systems is taken up for consideration.

4. *User support* is considered as a substantial part of any public data processing policy. However, as users so far seem to be much too loosely organized, measures that are efficient enough are difficult to formulate without too strong interference. In Sweden as in many other countries users have organized themselves in societies with different objectives. The committee has taken a positive approach to a uniting of these organizations, but does not consider it its duty to push too hard on such efforts that mainly concern the private sector.

Also, a concentration of com-

puting activities within universities is recommended.

5. As mentioned, *data communication* is of fundamental importance to future data processing. The committee gives general recommendations for this development, but considers it too early to express details in this matter. Further policy is expected to be formulated as practical experience becomes available from the testing of a limited public data network, that at present is being done. For discussions about this, a user council is proposed to complement the activities carried out by the PTT in Sweden. It is hoped that an open discussion about the plans and possibilities for a general public data network in Sweden will stimulate the development for use of these facilities.

6. Like the matter of user support, *standardization* is considered to be of great importance, but suffers from lack of practical opportunities. A small country cannot alone establish new and desired standards, but has to rely on increased and coordinated international efforts. As support for such efforts the committee proposes additional resources for the Swedish Standardization Office, supplemented by introductory investigations by specialized personnel.

7. As a new item in Swedish public activities it is proposed that a fund for industrial *marketing support* is created. It is said that the lack of market balance in the data processing field hampers the prospects for Swedish computer industry, primarily concerning export efforts. The US industry, for example, can build its marketing as well as its research and development activities on a solid home market, where foreign products hardly have a competitive chance, because of the applied procurement policy. Thus, for Swedish industry to be able to follow up opportunities in interesting markets, i.e. in Eastern and Southern Europe, public marketing support is proposed to be available.

8. The part of the proposals that initially has attracted most interest by industry and the specialist press, concerns the committee's statements about the desired *structure* of Swedish computer industry. In this matter, the committee divided itself in a majority and a minority statement. Common to both groups is the view that increased coordination is needed in this industry. The majority's view – in fact the published view of the committee – discusses possible coordination from the starting point of industry's own initiative, whereas the minority holds as its view that a fusion between the two Swedish companies of primary interest, privately owned Datasaab and half-publicly owned Stansaab, is immediately needed.

It is pointed out that coordination with the help of public support at present primarily is of interest for the hardware industry, but that software and services soon may come into focus.

Organization and Resources

The committee does not leave these proposals with the feeling that all problems now are solved. On the contrary, it stresses the need for continuous efforts of similar kind. As a final proposal in its report it therefore suggests creation of a permanent *Advisory council*, with considerations concerning industrial and market development on its agenda.

The financial resources proposed by committee for industrial data processing policy are as follows:

	Total additional public support 1975-79, million US $
Education (incomplete, see below)	75
Research and development	75
Other activities (mentioned above)	11
	161 million US $

Concerning the educational support it should be added that the amount mentioned is not the total additional amount needed. The proposals contain several measures that at present cannot be quantified in terms of financial resources. It can be estimated that a true figure would exceed the one given above by at least one-half. This would indicate a total support of close to 200 million US $. However, the amount for educational activities naturally is proportional to the chosen level of ambition, which at the moment cannot be specified.

Conclusion

It must be stressed that the measures and estimated resources that are mentioned above so far only are given as proposals. One cannot exclude certain modifications, especially of financial nature, before the collected activities will be accepted by Parliament.

A comparison between Swedish data processing policy and corresponding activities in other countries would indicate:

1. Sweden could probably be judged to be in the front line in realizing the need for explicit public planning of the data processing development.

2. The contents of Swedish data processing policy activities is fairly complete, although certain aspects are not stressed as heavily as could have been. This naturally connects to the specific computing personality of the country.

(Continued on page 45)

ANNIVERSARIES

During the years 1973 and 1974 the following members of the Society observed anniversaries ending in "0" or "5" after having attained the halfway mark of 50 years. The Bulletin extends hearty congratulations and best wishes to each and every one of them.

1973

90
N. I. A. Malmstrom

85
Ole M. Halse

80
Frank Forsberg
G. W. E. Nicholson
Harold Sjowall
Melcher C. Stamberg

75
John Cetrule
K. Birger Kihlander
Sven Hedin
Odd Albert
Uno G. Fryklund

70
Gustaf Holmberg
Evert Blomgren
Sven G. Johansson
Tore Lundahl
Martin S. Mansson
Sven W. Johnson

65
Gunnar Lundert
Joel Aversten
Ray U. Strandberg

60
Gunnar C. F. Asker
Kjell Lagerström
Ernst L. Hellstedt
Cyril O. Benson

55
Erik Hagglund
Georg Agrell
Eric G. Messler

50
Per T. Lindeqvist
Tage Jonsson
Carl Reuterskiold
Elmer R. Andersson
Ernest A. Arvidsson
Raoul Larson

1974

75
Curt Rosenblad
Fritiof E. Ekstrom

70
Eric Y. Munson
Uno Lamm
Anker Anderson
Andrew T. Russel
Carl G. Ekstrom

65
Holger Olson
Gunnar A. Akerlindh
Bo Adlerbert

60
Carl Erik Foogde
T. Olof Dormsjo

55
Eric G. Newberg, Jr.

50
Eric G. M. Tornqvist
Paul Axell
Gerhard Nordin
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(Continued from page 8)

3. An important step has been taken towards an understanding of the potential social contents of data processing, i.e. the solid impact on society that inevitably will materialize.

It should again be stressed that, because of the existing market bias, data processing too rapidly is becoming another field where protectionism sets its touch on several public activities. As has been mentioned, Swedish policy in the field tries to avoid this. However, a small country like Sweden cannot alone bring about miracles. It is definitely an understatement to state hopes that national and/or international cooperation soon will influence the market balance in a positive direction. Here, the software and service industries show great prospects. With a clear consciousness on the part of all citizens concerned the problems of balance can and must be solved in time.

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CONTENTS

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