Changes in organization and process of work in administrations

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1. "Interface" and "Gateway" have become important terms in informatics. They denote interchangeability between different systems.

In the following, I would like to concentrate on the interface between public administration and informatics:

- What is the potential of modern information technology to influence tasks and procedures of public administration?

  Is public administration utilizing this potential adequately? If not: Will it do so in the future?

- What influences of public administration on informatics are to be expected?

  How can special requirements of public authorities brought to bear on the suppliers of information technology?

Those two aspects, the influence of modern information technology on public administration and vice versa, are the subjects of "administrative informatics" as a discipline which is in itself a new interface between two older fields of scientific interest.

2. Looking at technical progress and its impact on the environment in general, one can observe at least three interesting features:

- First, the technical invention itself undergoes definite changes in response to the requirements of its environment. Take the automobile as an example, and it becomes very clear how the special needs of the various customer groups have contributed to the transition from the

original motor-driven stage-coach to cars, trucks, golf-carts and the like of our days.

- Second, technical invention is not enough. In order to be able to utilize it, we need additional inventions in e.g. infrastructure. Without street systems, maintenance chains, traffic law or car insurance would not exist the "automobile society", as we know it today. High-tech, apparently, is not enough: We need "High-Org" and "High-Norm" as well.

- Third, after some time of rationalizing the given world with the help of a technical invention, we usually switch the perspective: We start to experiment with the new technology and try to change the world in a creative way. Once more the autobomile can serve as an example: Obviously we didn't stop having made the horse-drawn carriage a little bit faster. Rather we created new ways of behaviour, as can be noticed by looking at the arrangement of working and living areas in cities or at just-in-time production in manufacturing companies.

Before this background we should expect micro-electronics as a technical invention and public administration as the part of its environment we are looking into today, to interact in a similar way.

However, I would like to mention already here, that I regard information technology as a catalyst, comparable to a chemical substance which makes *other* substances interact whith each other. Information technology, like the catalyst, is not able to bring about administrative changes or administrative reforms by itself.

3. The technical invention, in order to be able to allow creative applications, must have reached a respective stage of development. In the case of EDP we can observe four broad development stages: The 60ies were dominated by big and expensive computers; in the 70ies, those mainframes were joined by smaller and cheaper minicomputers; in the 80ies the personal computer wave spread virtually through all offices; an the 90ies will see the expansion of local and wide area networks.

Now we have reached a state of information technology which is characterized by both - desk orientation and communication orientation. In addition, data of all types can be processed: written data, spoken data and images. Given this

"state of the art", almost all phases of the typical work flow in public offices can be supported: the handling of incoming documents; the storage of documents; the communication process necessary to prepare a decision; the control of the work flow between cooperating units; the preparation of letters, decisions, or orders; and the dispatching of those. A product family, typical for this potential, is CSCW (Computer Supported Cooperative Work).

Therefore the result is obvious: information technology, as a catalyst, allows us to design our public administrations in ways different from those we have known in the past.

4. I would like to start my look into such administrative reforms with a hypothesis: Administrative behaviour is, among others, dependent on the available working techniques. The tasks we would like our public authorities to fullfill, the administrative procedures, and the working techniques available in offices - they are interdependent.

This phenomenon did not catch our eye as long as change in office methods was slow. However, confronted with today's leaping progress in information and communication technologies, such interdependencies become more and more apparent.

The reason behind this phenomenon is known as "means/ends-interrelation". Everybody knows at least one aspect of it by personal experience: The more money you have, the more wishes of yours can be fullfilled - and the other way round, as someone noticed who compared the defense efforts of various states and came to the conclusion: What is good for the USA is not necessarily good for Liechtenstein ...

There are several versions of means/ends-interrelation. I shall concentrate on just two: conflicting ends or goals and goal innovation.

The first decades of EDP in public administration were, at least in this country, characterized by discussions of negative side-effects which the new technology imposed on administrative work. Observers claimed that because of EDP, economy might have been improved, but that, on the other hand, division of labour went up, delivery periods between computer centers and public agencies became longer, client/administration-relations deteriorated and so on.

The headline was "EDP is going to affect good administrative behaviour in a negative way".

Although it is still necessary to observe and control those conflicting goals, technical progress has given us the chance to shift the focus of our observations to goal innovation as another aspect of means/ends-interrelations. Let me start with an example.

It has become a general feature of public administration that it normally grants services on application only. This means that citizens

- must inform themselves about potential services
- must check the respective regulations for requirements
- must support their own files in order to proove that their personal situation complies with the regulation
- must find out which public agency is in charge
- must fill in application forms
- must file the application
- and the like.

When you consider the costs and benefits of the traditional "application principle" which has become an important part of our administrative culture, you might call it a benefit that citizens are not treated as wards of public administration, that they rather have the autonomy to decide and act, and you might call it a cost that quite a few persons entitled, don't make use of their rights because they don't master the necessary information work.

My point is, however, that one reason behind the principle of application is work technology. In order to follow the opposite strategy - public services granted ex officio, that means: without application - one would need "millions" of civil servants who would have to check the files in order to find out who could be entitled to what public service. And the big change brought about by modern information technology is that we in fact do have such "millions" of civil servants at our disposal - computers.

I hasten to report a practical example right away: A couple of years back, our Federal Government introduced a Child Education Grant (Bundeserziehungsgeld): For at least six months after a birth the mother gets a certain amount of money. When it came to administrating this new service by the states, one of our social ministers came up with a surprising idea. She said: Why should we wait for applications? We have all the necessary data in our computers anyway. Let's fill in applications forms ex officio and let's waive the presentation of birth certificates and the like, because all this is in our machines from other sources already.

The important point is that it is office technique which makes the difference! Without modern information technology this change in perception of a public agency would not have been possible. Looking at costs and benefits again, you might call it a benefit that beneficiaries really get what they are entitled to, you might call it a cost, however, that government probably needs more money now for the same type of service. It is obvious also, that the change in work technique has led us into the middle of political and controversal considerations of the role and perception of public administration.

Now I can summarize my hypothesis as follows: Modern information technology allows new administrative procedures. But to change those, we need to shake up given means/ends-relations. Therefore, political decisions have to be taken with regard to the preferable model (Leitbild) of the respective agency. Only then can the new procedures be designed and implemented and safeguarded by rules and regulations.

This interdependence of work technique on the one hand and goals, norms, and procedures of public administration on the other should prevent from now on that people still claim "for me, modern information technology is just a working technique..."

5. One way of looking into the practical consequences of this phenomenon for public administration, is by distinguishing four layers of change induced by information technology as a catalyst: Change in data structures, in organizational structures, in personnel structures, and in task structures.

On the level of data structures we notice that data become ubiquitous. Whereas we are used to paper files which are unique unless we take special

efforts to copy or mail them, electronic files are available anywhere on the globe, unless we take special efforts to protect their accessibility.

This is a prerequisite for change on the next level: organization. Not only can data be transfered via telecommunication lines, but so can jobs. A striking example is the citizen's office "BürgerBüro" in our state Lower Saxony. From here, the citizen in rural areas, supported by a civil servant, can communicate with remote federal, state and local agencies and, in addition, with private companies like banks or insurance firms as well. This way, those agencies and companies, having moved their physical locations into bigger cities, are at least "tele-present" in rural areas, and the citizens can do some of their business with them from a local office, the citizens office. Please note, that this is a definite change in organization or in the way tasks are assigned to agencies and positions. Such transfers of tasks via telecommunication lines to differrent positions can be noticed quite often. In general, this leads to holistic typs of organization with less division of labor.

When you remember the civil servants in the citizen's office, one possible influence of information technology on personnel structures is quite apparent: The demand for qualification rises. Holistic patterns of organization require multiple qualifications and should have, in addition, an effect on status and payment of the employees. Another effect is higher motivation because of the higher influence and power which is given to civil servants in holistic forms of organization.

Finally, looking at the task structures we notice efforts to combine services in one hand which used to be separated and spread among specific agencies. Having ubiquitous data and software, it is, e.g., no longer necessary that a person who has moved adresses the citizen registration agency, the motor vehicles department, the school district, the post office, the telephone company, the tax agency, the utility company a.s.o.; from the point of view of modern information technology all these services can be offered as one service package - and this package can be offered by *any* of the traditional agencies mentioned. Please notice that such an organizational pattern means competition between agencies which used to be sovereign and monopolistic. Similar changes are going on with respect to regional jurisdictions of agencies. A county, in charge of vehicle registration, converted its paper files to optical storage devices. Having made those files ubiquituos this way, it was possible to

open up additional offices and to leave it to the car owners in which of the offices they wanted to register their vehicles. It is apparant that citizen/administration relations can be improved by such new arrangements of task structures. Also, citizen information systems and executive information systems can be mentioned as examples of change induced by information technology on this fourth level.

6. Comparing this potential of modern information technology to change the organization and the processes of work in public administration on the one hand and reality on the other, it is probably fair to say that we still are faced with a "damming up of innovation". Without doubt, one can detect quite innovative public agencies, but those still are pioneers. I think, the explanation is obvious: It lies in the very nature of such organizational changes. In the past computer support, more or less, required only to single out a certain area of administrative work, like payment, and to transfer it basically unchanged to the machine; now an integrative and holistic view is necessary. Reorganize before you automate, is the message. However, to redefine positions obviously can affect the interests of many employees and requires intensive leadership. However, given today's high demands for a raising productivity in public administration, for working environments which match the expectations of the public service, and for closer citizen/administration relations, public administration has no other choice than to utilize the potential of information technology for change.

7. As a last point I would like to reflect briefly on the consequences of this for public management. In my opinion, decisions about a working technique having so severe political implications as modern information technology, must be the matter of regular public managers. A side-hierarchy for EDP as it can be found sometimes, is not able to handle the intensive relations between goals, norms, and procedures of administrative activities adequately. Rather each public manager must take responsibility, to answer three questions for her or his jurisdiction:

- Do we have, in my sphere of responsibility, adequat technical support?
- Do we utilize the available "data capital" sufficiently?
- Do we make use of the reform potential of information technology?

These topics should no longer be delegated but should be part of the regular duties of each public manager.

Of course, staff support in those three areas will normally be required. In one form or the other we need

- staff units to bring order into the technical infrastructure
- staff units to bring order into data resources, and
- staff units to bring order into administration in terms of tasks, organization, and personell.

But, as we have seen already, decisions in these fields are the matter of regular public managers. Given the difficulties to change organization and work processes in public administration they should apply Management by Vision and Management by Opportunities. Visions or models of preferable future states of an agency are useful as guideposts, and Management by opportunities is a strategy trying to approach those visions step by step and by gaining allies through convincing examples.