

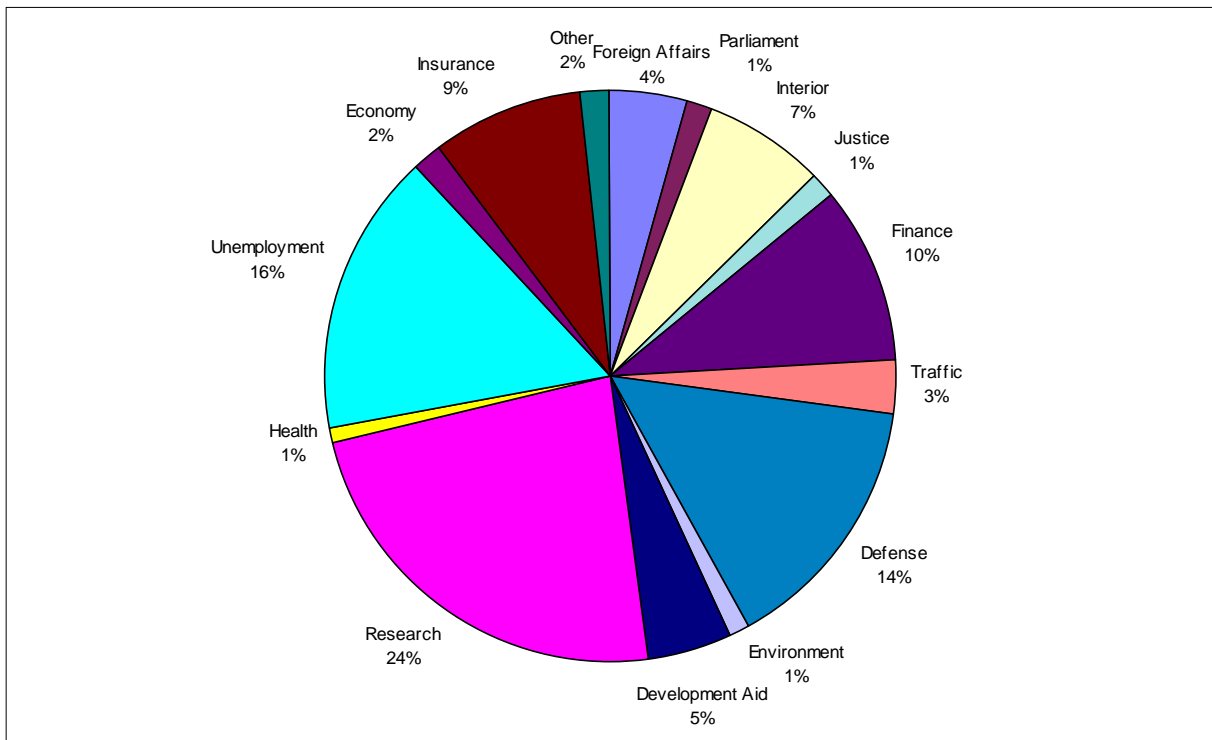
**INTOSAI EDP Committee Performance Audit Seminar  
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**Selected problems arising in projects on the migration from mainframe  
systems to client/server systems**

**German Country Paper  
addressing the UK lead paper „Why IT Projects Fail“**

**1. Introduction**

The Bundesrechnungshof audits the entirety of German federal government financial management including the federal separate property funds and federal undertakings. The audit of IT expenditure covers annual appropriations of about 1.7 billion euros. Below is a breakdown of these appropriations by departmental budgets:



**Figure 1: Breakdown of IT budget appropriations**

The breakdown of appropriations allows no straightforward comparison with the British lead paper, as the latter also covers certain expenditure on local government and on police forces. In Germany, most expenditures of these types are paid from the budgets of the Länder (i.e., the 16 constituent states of the Federal Republic of Germany) and therefore are not stated in the German federal budget. It is worth noticing that British IT expenditure on Defence and on Customs & Excise clearly exceed the German figures [The British chart covers two financial years 98/99]

In the Bundesrechnungshof, two audit units are charged with IT audit: Audit unit IV 3 is involved in auditing IT procurements and operations of the Federal Ministry of Defence with all its field offices and of other external or internal security agencies. All other federal IT issues (including autonomous social security bodies) come within the remit of audit unit VII 2.

This paper summarises selected findings generated by an audit of IT projects that has gone on for some time. All the projects addressed by that audit concern the migration of the auditees' information technology from a mainframe architecture to a client/server architecture. The audit covers a various government agencies in order to identify lessons to be learnt from the problems that have arisen and to apply these lessons to the implementation of future projects of a similar nature.

Earlier horizontal audits covered the federal ministries for Family Affairs, the Environment, Consumer Protection and Economic Cooperation.

## **2. Audit findings**

### **2.1 Lead paper question:**

***Is your experience of government IT project failures similar to that of UK?***

Generally, fundamental problems in IT project run in the United Kingdom and Germany are almost identical. The essential differences found when comparing the information provided by figure 2 of the lead paper with the German situation are attributable to the fact that certain implementation modes such as outsourcing or private financial initiative are used much less or not at all in Germany.

Typical weaknesses include the following:

- The top management of the organisation is not aware of the impact of information technology on its operations and transactions. The senior management has not been involved, eg, in the form of a project steering committee, in project planning and implementation.
- No clear rules are in place for reporting to project management or higher authorities within the organisation.
- There are severe deficiencies in the planning process: The specialists responsible for fulfilling the organisation's mission were not involved in the project although they are the actual customers. The users' requests and concerns were not adequately addressed or operational requirements were not adequately specified at the outset and were underestimated.
- The performance requirements for the IT system were not accurately defined which later reduced the acceptance of the organisation's products.
- Projects were often oversized or too complex. No incremental approaches were used.
- Projects were planned with an excessively long timeframe, or the timeframe was extended repeatedly during project run. As a result of slow progress the IT systems procured were sometimes no longer state of the art on project completion.

- The required input of resources was usually underestimated. Hence, the appropriations obtained in accordance with estimates were inadequate to fund the necessary work.
- IT staff did not have the required technical skills. There was no systematic training of IT staff.
- Milestones were either not provided for or compliance was not properly verified.
- Where milestones were exceeded, no procedures were in place for referring the problem to a higher management level, and much improvising was required.
- Specifications and agreements with external contractors were drafted inadequately, omitting certain issues or leaving excessive room for interpretation. This led to considerable cost increases.
- The roles of the contractors and the contracting agencies were not clearly defined. Contractors did not meet their obligations in relation to the project. Eg, joint workshops have been inadequately prepared.
- Project management lost oversight over the work to be performed by external contractors. The contracting public-sector organisation had inadequate experience in dealing with the private sector.
- Once completed, the project did not meet operational requirements. Users were not informed of the changes.
- User instruction for the new IT system was neglected.
- Ex post evaluations of programme results were usually not made. The Bundesrechnungshof found that the projected staff cuts were almost never achieved.

## **2.2 Lead paper question:**

***Have there been changes in procurement methods, and have these resulted in improved success rates?***

## **2.3 Lead paper question:**

***Has a centralised approach to IT procurement improved the success rate of IT projects?***

## **2.4 Lead paper question:**

***Has a centralised approach to procurement resulted in a better baseline from which to offer electronic service delivery?***

Concerning procurement our country paper on "New IT procurement strategies in Germany". states that one of the essential lessons to be learnt is that centralised procurement has considerable advantages but that, agencies frequently try to circumvent the central procurement units and the formal rules for inviting tenders/bids, because in their view, these procedures only delay procurement.

Under a pilot approach which deserves priority attention, a single department or agency introduces a new IT system. Other departments or agencies lessons will wait for the results and introduce improved versions of the IT systems. This approach has been used on workflow methods. Up to now, the government-wide introduction of the pilot approach and of other methods likely to enhance performance has been impeded by a provision in the German Constitution that guarantees each federal ministry full autonomy in management of its appropriations. Although the Federal Ministry of the Interior has a cross-cutting responsibility for fundamental issues of IT

procurement, other federal ministries, especially Finance and Defence, often use different procurement approaches.

In the field of office communication software, the frequent use of blanket agreements ensures a large degree of standardisation. In the fields of office computers and mainframe computers there are fewer suppliers having larger market shares. Nevertheless, a sufficient variety of systems is on the market.

## **2.5 Lead paper question:**

***Do these [project failures] arise despite extensive guidance on project and risk management methodologies and best practice?***

In Germany inadequate IT project management and the lack of procedures for monitoring of milestones and for referring problems to a higher management level are often the root cause of project failures. Also, guidance on best practice methods is not yet sufficiently developed within German federal government. In most cases, only guidance on the principles for action is issued without describing specific lessons already learnt. Useful guidance based on lessons learnt is included in the Bundesrechnungshof's management letters. These management letters are sent to the Federal Ministry of the Interior and sometimes passed on to the other ministries through an interdepartmental coordination committee.

## **2.6 Lead paper question:**

***Are there any other main causes of failure?***

The following problems are worth mentioning:

- No investment appraisals were made to compare the cost-effectiveness of existing IT systems and their proposed replacements.
- Rules for the invitation of tenders/bids were not complied with. Negotiated contracts were made without adequate justification.
- Hardware was procured long before the purchase of pertinent software, software was purchased long before user training. This delayed the commissioning of the systems which in turn implied increased interest expenditure.
- The project leader had not been given adequate authority.
- There was a lack of effective quality management for the project.
- The motivation of the organisation's own staff was neglected.

## **2.7 Lead paper question:**

***Does your country have examples of government IT project successes, and what are the main characteristics that have contributed to this success?***

When asked in terms of Boolean algebra, the question about the existence of successful projects poses a considerable problem. Neither within the scope of our audit on migration projects nor outside that scope can projects be found that are entirely free from deficiencies. Cost estimates and timeframes were almost always exceeded. This would however not lead the German SAI to the conclusion that all the projects audited were failures. Especially the development of software is always

a very complex task which does allow precise prior estimates. This problem equally affects private-sector IT projects in which estimates are also often exceeded. Considered in these terms, a number of projects will have to be described as essentially successful even if the Bundesrechnungshof has pointed out minor weaknesses. However, the findings generated in the course of our audit of migration projects are not very satisfactory.

A frequently quoted example of success is the introduction of a workflow system in a federal agency whose functions include the management of students' grants. Another example is the way in which many public sector organisations have coped with the Y2K challenge. Many of these organisations essentially succeeded in complying with a very tight schedule. In contrast to handling other projects, missing the deadline was not a valid option since any failure to meet it would have implied a considerable risk. Not only was the staff assigned to the Y2K projects clearly better qualified than in other projects but more reliance was placed on external expertise. Naturally, the cost was rather high.

Owing to rigid pay structures in the German public service, it has been difficult for to recruit and retain proficient IT staff. In the German public service, pay is not directly linked to actual performance and weekly working hours are usually much shorter than in private-sector firms developing software. In particular, experience has shown that the testing stage for newly developed software can hardly be successfully completed with a working week of 38.5 hours. Therefore sophisticated projects can hardly ever be implemented without external support. This applies largely also to the handling of the Y2K challenge.

## **2.8 lead paper question:**

***How does your country share experiences (both good and bad) across departments and ensure that all learn from the experience of the others?***

The Federal Ministry of the Interior has set up a special unit in charge of advising on and coordinating the procurement and use of IT in all federal departments and agencies (subsequently referred to by its German abbreviation "KBSt"), which publishes technical literature outlining potential strategies and approaches in the procurement and use of IT. Its publications provide guidance such matters as investment appraisals to be made prior to launching IT projects, the methodology for conducting pilot projects, on accounting software for processing the reimbursement of travel expenses and for processing public servants' claims under public employer's health insurance plans.

The twice-yearly meetings of the interdepartmental coordination committee on IT mostly focus on new strategies and projects of KBSt.

Conferences are held regularly to share IT experience among federal, state and local government. Other forums are the DOMEA user forum that deals with workflow issues, and a conference on government performance. The latter also addresses broader issues of information resources management. While the latter two forums are held twice year, the meetings among federal, state and local government takes place only once a year. The three forums described above have been exclusively initiated by the Federal Government but also by states and local authorities.

**2.9 Lead paper question:**

***Have your audit reports resulted in a better awareness and understanding of the issues and problems in audited bodies? How have you achieved this?***

**2.10 lead paper question:**

***What action has your country taken to improve the success rate of government IT projects, and how is this success (to be) measured?***

Following a final discussion of audit findings with the auditees, the Bundesrechnungshof sends them management letters which state audit findings and conclusions. The auditee is required to comment on the management letter. Where expedient, the Bundesrechnungshof holds further discussions with the auditee to press for corrective action. There is always the option of conducting a follow-up audit. If the auditee continues to disagree, the Bundesrechnungshof may report on this to the parliamentary Public Accounts Committee. When this is done the responsible Ministry will be faced with a direct parliamentary request for corrective action..

Concerning our audit on migration, we infer from the auditee's comments on our audit findings that the Bundesrechnungshof's suggestions have largely been accepted by auditees. In three cases, the Bundesrechnungshof reported to the Public Accounts Committee to bring momentum to bear on the auditee.

Based on other IT audits, the Bundesrechnungshof is aware that certain weaknesses occur again and again and that auditees resolutely ignore them. Cases in point are the omission of investment appraisals prior to launching a project, the letting of contracts without competition and inadequate assignment of staff to the project.

**2.11 Lead paper question:**

***Does your SAI review such projects as IT projects, or do you review overall business programmes, where IT is only one component?***

Two of the Bundesrechnungshof's audit units focus on information technology as such. When auditing issues such as workflow planning entail a direct connection between the businesses processes to be automated and information technology, the scope of an audit cannot be restricted to the IT aspect, if an informed opinion is to be given.

On the other hand, the audit units with a departmental remit and the audit unit on organisation examine the entire operations of departments and agencies. In doing so, they will not completely disregard the IT support of government operations and transactions.

**2.12 Lead paper question:**

***Does your country have a standard audit programme for review of IT projects?***

The Bundesrechnungshof has drawn up IT guidance and questionnaires. One paper drawn up jointly by the Bundesrechnungshof and the courts of audit of the German states deals with the audit of information technology in the public administration.

### **2.13 Lead paper question:**

***What issues do you find most difficult to audit, and why?***

Project failure could be attributed essentially to the tense human relations within the auditee's IT section. While such personal factors may in fact decide about the success or failure of a project and auditees readily that human relations can be a decisive factor, it is outright impossible to report such findings in any objective manner and to back them up by hard audit evidence e.g. documents. As a rule, the persons involved will have to continue to work together and therefore should not be unduly exposed in auditors' reporting. The position is even more delicate when there is a suspicion of corruption in connection with the letting of contracts. If charges are made that later cannot be supported by hard evidence, this may have serious consequences. Even a decision to launch an investigation may need to be carefully considered.

Even an argument about complex highly technical issues, e.g. the supposed inferiority of an IT system already procured in comparison with other options may end in a hopeless tangle. Where IT issues have to be dealt with in connection with government grants to external organisations or with government-sponsored research, discussions about whether a project is a failure or success are even more cumbersome than in fields other than IT.

### **2.14 Lead paper question:**

***Does your SAI have „best practice“ guidance to offer in this area?***

The Bundesrechnungshof's audit findings are initially communicated only to the auditee and, where appropriate, to the sponsoring Ministry. Access to follow-up correspondence on the findings is also limited to these addressees. Only when audit findings have been included in the annual report to Parliament, the general public has access to them. However, the description of the findings in the annual report is so concise that it hardly provides a sufficient basis for identifying best practice.

A more promising method for providing best practice guidance to federal government at large is the communication of the findings generated by a horizontal IT audit to the Interior Ministry which has the overall responsibility for IT matters government-wide. The Ministry translates anonymised findings into government-wide guidance (e.g. IT training guidance).

The Bundesrechnungshof has used benchmarking methods in the context of ratio analysis. To establish best practice by benchmarking methods, it will be necessary to compare the ways in which projects are handled, and the Bundesrechnungshof has only just commenced to address this new task.