

ECRI 2007[★]


★ *european conference on research infrastructures*

Management of large infrastructures

– a national example –

Christian Scherf, ECRI 2007, Hamburg, June 06, 2007

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Introduction

What makes the management of a large research infrastructure (LRI) different from a normal research laboratory?

- high investment (big spender)
- long periods in planning, building and operating
- untypical structure (researchers vs rest of staff)
- focus on user support (service for science)

Introduction

What do we mean by good management?

- it is before all: good leadership
- this speech is about good management structures and governance of publicly funded LRI

management structures such as:

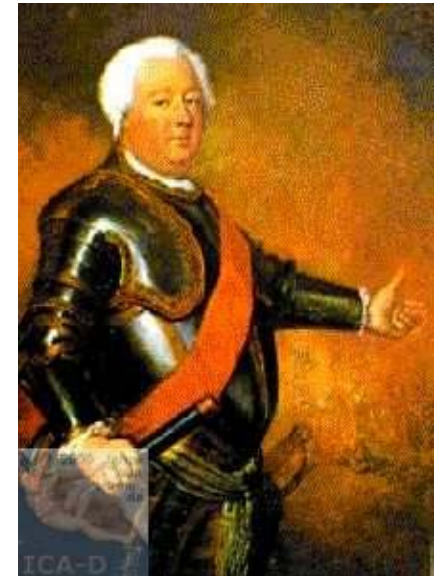
- legal framework
 - internal and external organisation
 - governance
 - methods and tools for the decision taking process
- good management?

Create the best environment for research with as little cost and highest efficiency as possible.

Introduction

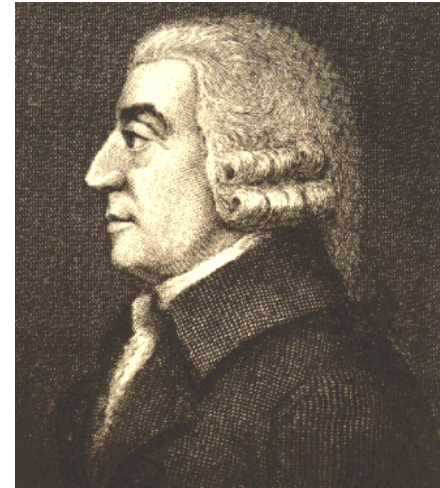
3. History of structural organization in public management

- development of kameralistic under Friedrich Wilhelm I. (1688-1740)
 - strict regime to separate income and actual expenditure
 - bureaucratic approach to organize large administrations



Introduction

- rest of Europe develops
,mercantalism' within different
state structures (Adam Smith –
17th century)
- market approach that focuses
on an economic balance and
develops e.g. balance and loss
accounting in book-keeping



Introduction

Reform of the public system in Europe since the beginning of the 1980's under the headline of new public management

Essential corner stones:

- privatization of public services
- remaining services managed as products with a focus on the output

Since the 1960's Germany has changed most legal forms of research labs into private limited liability companies foundations or registered associations.

Nevertheless public laboratories are still closely bound to public regulations and organized as a public entity.

2. The national example DESY as national research lab in Germany

DESY today:



DESY in Hamburg
since 1959 organized as private foundation



DESY in Zeuthen
(in the southeast of Berlin)

DESY as national research lab in Germany

Budget 2006

~ 177 Mio. Euro
(160 Mio. Euro for Hamburg, 17 Mio. Euro for Zeuthen)
Funding:
German Federal State: 160 Mio. Euro
Hamburg and Brandenburg: 17 Mio. Euro

Employees

Staff: 1560 FTE in Hamburg and Zeuthen
Users: 3000 (1500 from abroad) from 45 nations
920 in particle physics, 2100 in photon science



Qualification of young people

More than 120 apprentices in industrial-technician jobs,
100 graduates, 430 doctoral students, 240 postgraduates and young scientists,

DESY management of large research infrastructure

What is different at DESY compared to other research laboratories?

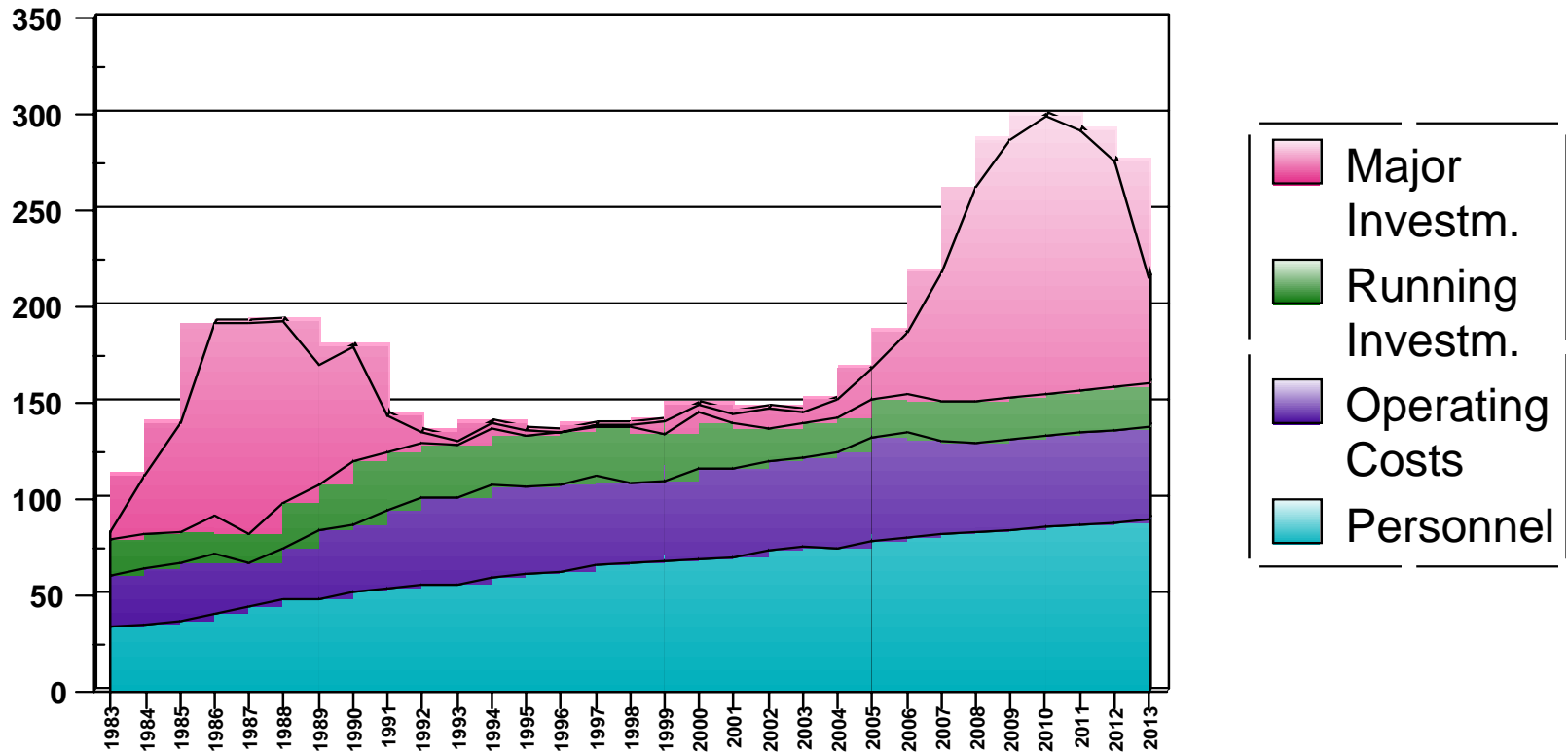
- expenditure curve
- high quota of engineers and technicians
- user-driven (dedicated research profiles to users' need, guests services)
- elaborated project management

DESY management of large research infrastructure

Expenditures 1983 – 2013

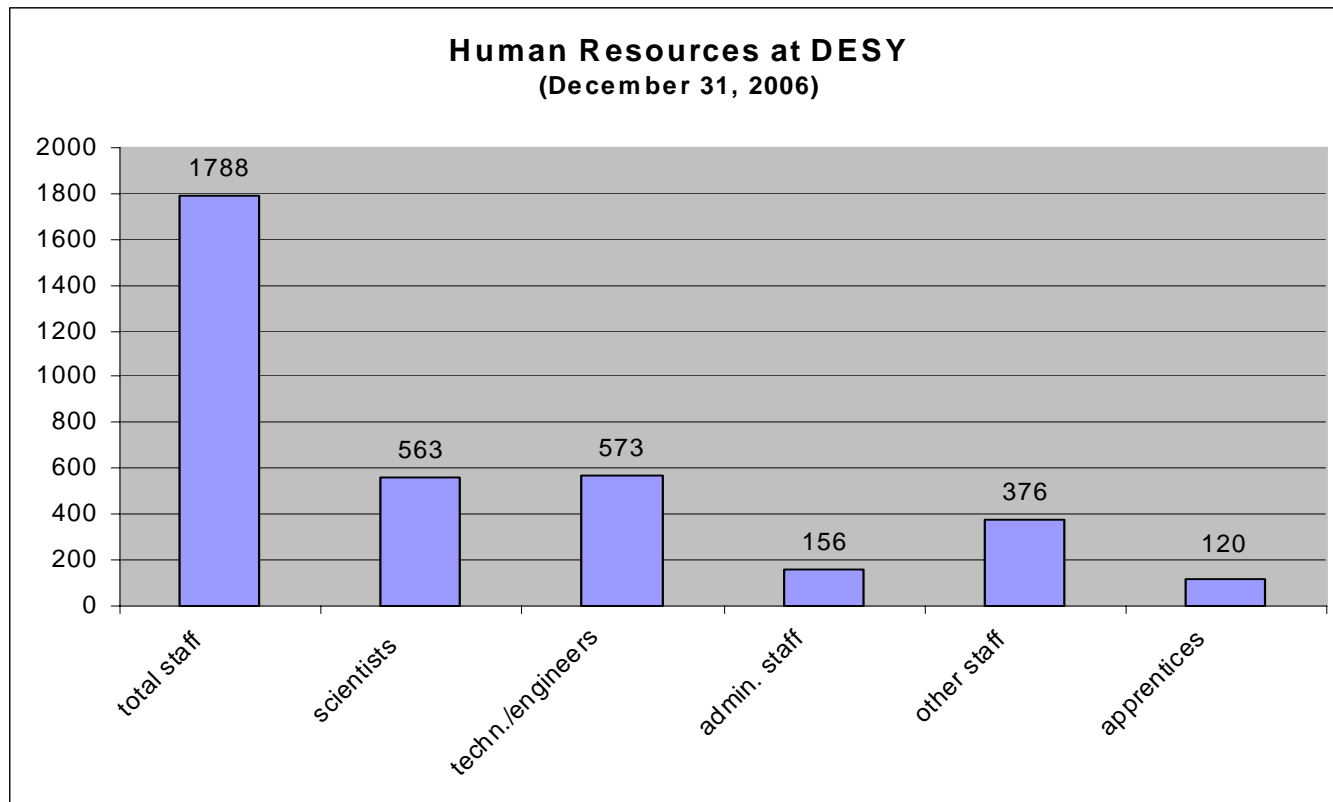
DESY in Hamburg including major projects PETRA III und XFEL

Mio EURO



DESY management of large research infrastructure

Personal structure



DESY management of large research infrastructure

Key elements in the DESY structure to manage LRI:

1. clear and common goals
2. clear responsibilities
3. reliable communication and adequate information flow
4. dedicated administrative support

DESY management of large research infrastructure

1. Clear and common goals

Of vital importance for the success of LRI are common and clear goal for all people involved in the LRI. They have to be communicated by the management and lived in the whole laboratory.



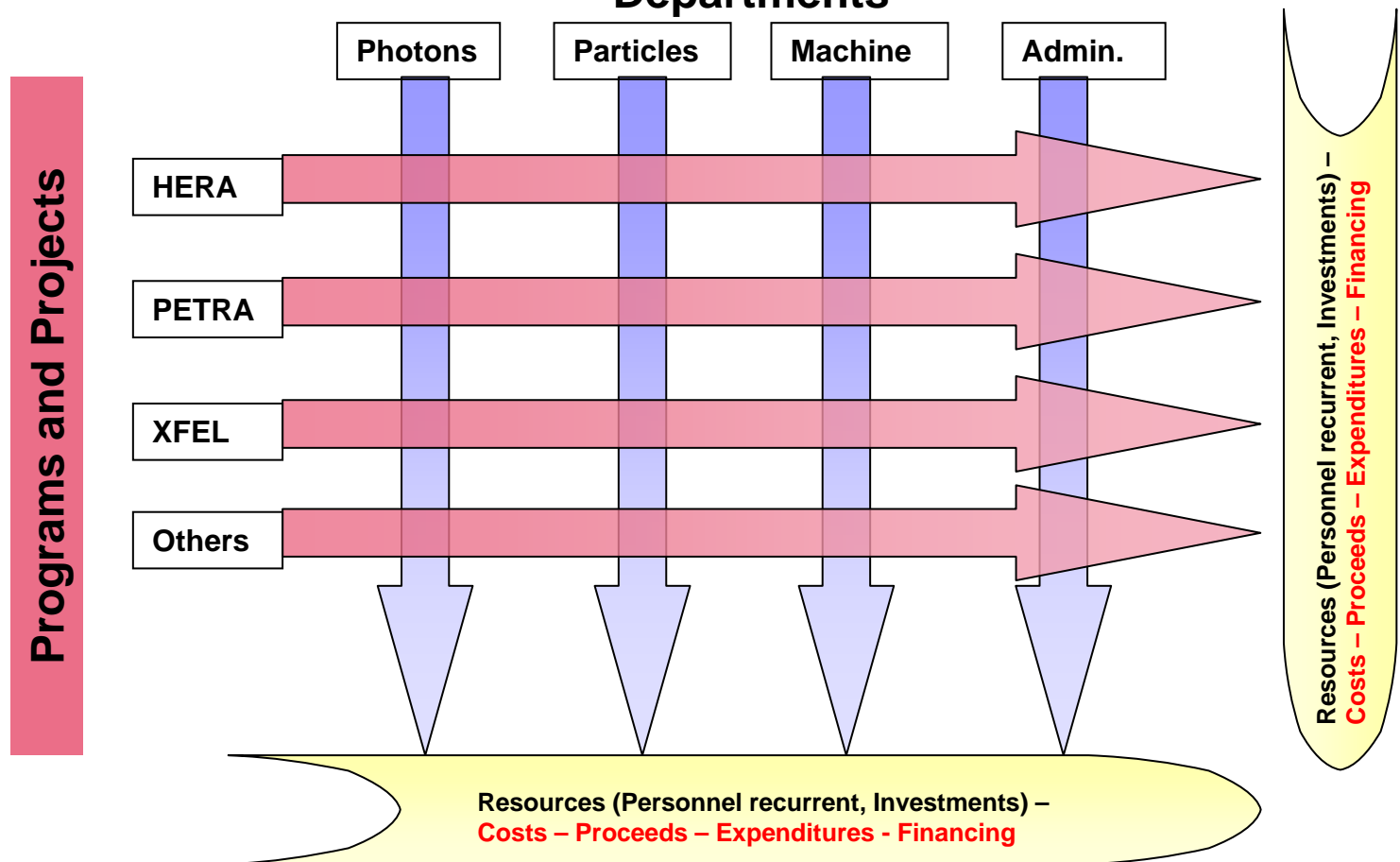
DESY management of large research infrastructure

2. Clear responsibilities:

- transparent structure (matrix)
- promote leadership (focus on people)
- DESY regulations on project management
 - Roles and Responsibilities in DESY Projects
 - Guide for Planning and tracking of DESY Projects
 - Project Communication for Large Projects at DESY

DESY management of large research infrastructure

Matrix system



DESY management of large research infrastructure

DESY regulation on project management

- Roles and Responsibilities in DESY Projects
 - project agreements
 - project leader
 - project management team

- Guide for Planning and Tracking of DESY Projects
 - life cycle of a project
 - project plan
 - financial and resource planning
 - quality and change management
 - management of communications
 - risk analysis
 - project tracking

DESY management of large research infrastructure

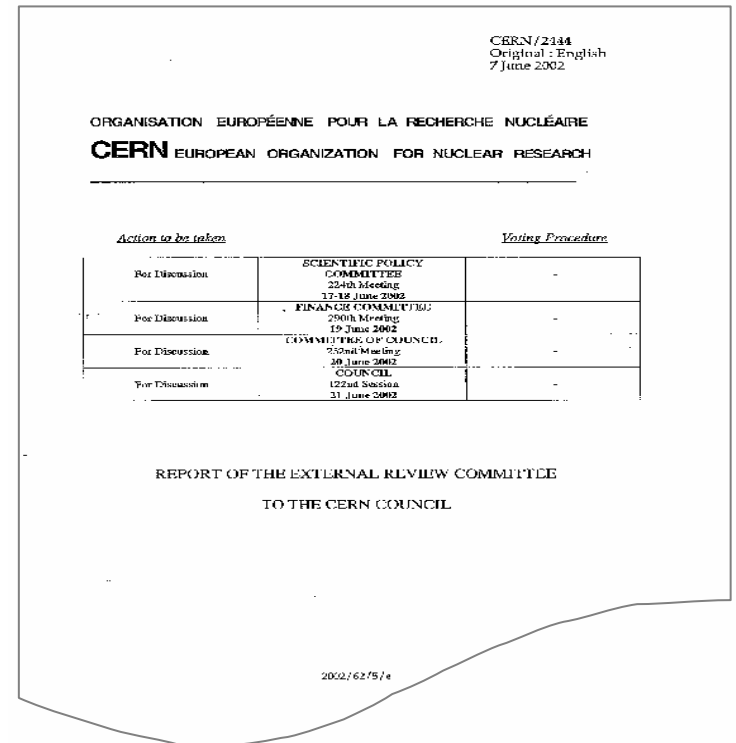
3. Communication and information

1. Communication – top/down and bottom/up is vital for the whole life circle of LRI. Major instrument is a strict set of meetings where attendance is crucial as decisions are binding all partners to the project.
2. Information are extremely complexe and need a fixed set of key information figures for all responsables in the laboratory. These are in specific:

Key information:

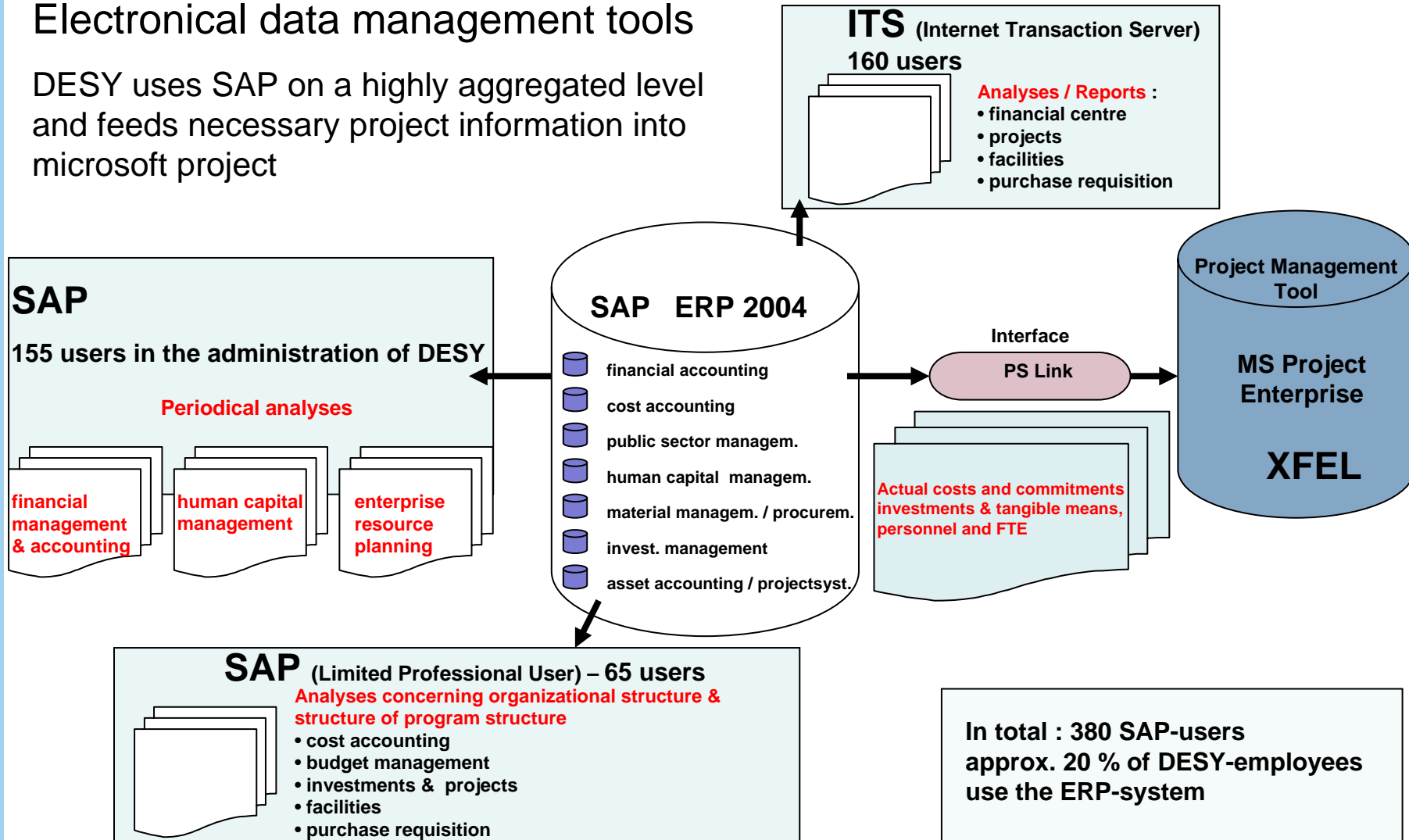
- budgets
- spending profiles
- orders and purchases
(statute and person in charge)
- follow-up of contracts
- earned value analysis

Important aspects in the Aymar-Report (issued in June 2002)



Electronical data management tools

DESY uses SAP on a highly aggregated level and feeds necessary project information into microsoft project



Effective reporting

- reporting of large infrastructure projects is vital. Large projects report each month to the management, management reports every six months to the shareholders. Risk management is an integral part of reporting.
- Tools are necessary for efficiency. They are very costly, should be justified by clear user demand and should never only end in themselves.

4. Administrative framework

Within the course of the last 15 years the external administrative regulatory framework for German LRIs has been reduced. There is more flexibility in the system.

- Nevertheless Germany is governed by a wide set of complicated public regulations.

As there are amongst a lot of others:

- The German federal public agreement of tariffs
- complicated and costly European and national tender procedures
- remaining heavy financial procedures

3. Conclusion

Five key factors for good management structures of LRIs.

The following five key factors are meant to draw special attention to extremely important elements that are needed to successfully plan, build and operate large infrastructure.

They are not meant to be complete.

There is no ,one structure fits all' solution.

The historical differences within Europe and in between European countries need individually suited solutions.

The focus on five factors might be helpful and motivate a fruitful debate or a common understanding of ,good management practise'.

1. Clear structures

LRIs need a chain of responsibility that ensure clear decision taking and budget control.

2. Lean regulations

The regulating framework for LRIs has to be clear, easy to access and should be efficient. Overregulation hinders effectiveness and does not create the security and stability that it is meant to.

3. Clear responsibilities

The complexity of LRIs needs clear responsibility as the success relies on individual people. They have to know their tasks and know that they will be made responsible for failure.

4. Good communication and reliable flow of information

Communication from top to bottom and vice versa is a key to success.

The project needs a fixed set of key information.

Tools should strictly be limited to the needs of the project.

Reporting to the management is essential to enforce an early warning system on all decision taking levels.

5. Dedicated administration

The administration and the administrative framework has to serve the success of the LRI. Large organizational entities waste too much time with internal overall complexity. The frequency and size of internal meetings should strictly question their effectiveness.