



Public ICT investment in reaction to the economic crisis – a case study on measuring IT-related intangibles

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German IT Investment Programme

- German IT Investment Programme 2009-2011 as Part of the ‘‘Pakt für Beschäftigung und Stabilität’’, a package of measures to counter the effects of the crisis
- Use case for classifying spending on IT-related intangibles at the level of federal government
- To be compared to normal federal IT budget
- Programme with a twofold goal
 - Stabilizing the German IT Industry
 - Consolidating and modernising the IT Infrastructure at the German Central Government
- 477 Mio Euro spent on 371 projects, nearly 3,000 orders to 847 firms

German IT Investment Programme

Four pillars of the programme

1. IT security
 2. Improving IT organization of central government
 3. Green IT
 4. Future and innovation
- Information available on spending among these four blocks and subcategories, with some indication what the main goods and services bought were (e.g. notebooks, consulting)
 - Information at the project level on total spending and content of project
 - Possibility to trace back some projects via further information online

Classification of Expenditures on Intangibles

Imputed share of intangible expenditure based on project description:

0%, 33%, 50%, 66% or 100%

Classification of intangibles:

Category	Keywords
Database	archive, knowledge platform, documentation
Software	10 keywords: e.g. application software, web portal, server virtualisation
Concepts	8 keywords: e.g. concept, feasibility study, manual
Consulting	consultancy, services, support
IT training	training, awareness raising
Organisational structures	6 keywords: e.g. administration, unification, standardisation, management systems

Estimated Shares of Tangibles and Intangibles

	IT security	IT organization	Green IT	Innovation	Overall
Projects with intangibles only	7.1%	44.2%	5.4%	62.5%	23.8%
Mixed projects share tangibles	21.6%	30.3%	37.0%	8.6%	22.8%
Projects with tangibles only	42.6%	0.0%	23.0%	0.5%	24.5%
Mixed projects share tangibles	28.7%	25.5%	33.7%	28.4%	29.0%
Total share of investment	49.0%	15.3%	15.4%	20.4%	100.0%

Total investment: 446 mio. Euro

Intangibles by Asset

	IT security	IT organization	Green IT	Innovation	Overall
Software	37.6%	36.0%	74.7%	51.5%	46.4%
Databases	0.4%	1.9%	0.0%	4.6%	2.1%
Concepts	7.3%	9.6%	10.8%	13.3%	10.3%
Consulting	48.3%	15.3%	5.1%	15.2%	25.1%
Organisational structures	1.9%	37.1%	9.4%	15.0%	14.5%
IT training	4.5%	0.0%	0.0%	0.3%	0.8%

Definition of E-government

E-government:

- aims at the execution of business processes related to governance and administration
- task needs to be carried out with the support of ICT

Three different interaction levels:

- Information
- Communication
- Transaction

Categories of E-government

Typical characteristics of the E-government projects by main target group

G2G:

- Facilitate electronic exchange of information between different government authorities
- Create media and interfaces that allow different authorities to participate in certain business processes without disruptions

G2C:

- Giving access to information or services
- Introduce new possibilities to interact with government

G2B:

- Reduce administrative burden on businesses
- Facilitate interaction with government

Shares of spending on E-government

	Share E-government	Share intangibles in E-government	Share intangibles in other spending
IT security	29.2%	57.8%	26.8%
IT organization	87.3%	67.1%	87.6%
Green IT	30.0%	50.0%	34.4%
Innovation	91.3%	90.5%	96.1%

Comparison to normal federal IT spending

- Aim of the task within SPINTAN is to compare spending in the anti-crisis programme to normal federal IT spending
- Work in progress, classification possible for normal IT-related spending not as detailed and some categories might not be covered
- In 2014 federal IT spending amounts 1.4 billion Euro according to federal accounting and to 2.3 billion according to our own calculation
- Main spenders are the Federal Ministries of the Interior, Finance, Transport and Digital Infrastructure together with Defence
- Calculations for 2010 still to be done

Conclusion

- Compared to an annual IT budget of 1 to 2 billion at the federal level, the anti-crisis programme with 500 million Euro over three years was not extremely large but also not of negligible magnitude
- Half of the investment within the programme went to IT security
- According to our estimations (sometimes with some strong assumptions for imputations) a bit more than half of the investment was intangible
- Nearly half of the intangible investment went into software, a quarter into consulting
- Within the pillar IT security, nearly half of the spending was on consulting, within the pillar IT organization, 37% was spent on organizational structures

Conclusion

- We may miss part of the own-account spending on the anti-crisis projects which may have been paid out of normal budget
- The classification of intangibles by Corrado, Hulten and Sichel can be applied via key word search on the anti-crises programme
- In many cases we were able to classify the outputs rather than the inputs
- Investment into intellectual property was captured by the category ``concepts``
- What remains in terms of intangible capital from the spending programme 5 years later?
- A back-of-the-envelope calculation with usual depreciation rates suggests: a capital stock of 8.5 mio Euro