# The Failure of EFI

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CASE

# The failure of EFI

## Background

New public management influenced policy reforms from the 1980s onwards where market-oriented initiatives that resemble commercial management approaches intended to increase the efficiency and effectiveness of public services.[2] It was reflected in capped budgets, competitive procurement tenders, privatization of major utilities, e.g., TDC, DONG, Post Danmark, DSB, and Copenhagen Airports, and introducing choice in welfare offerings.[3] The efficiencies were enforced by requesting similar, or increasing, levels of service output with decreasing budgetary resources allocated on a year-by-year basis.

By 2005 one of the focal areas became to improve efficiencies in the Danish Tax Authorities and increase processing capabilities for recovery of taxes and dues to the public sector from fines, SU loans, etc. The introduction of a new IT system (EFI = Ét Fælles Indrivelsessystem) was a major initiative in this direction, which was projected to improve tax collection and free up to 850 full-time employees. About ten years later, after more than eight years' of delays, and total costs of almost DKK 700 million, the project was eventually abandoned.[4] This followed a string of other IT and procurement failures, including the IT systems DeMars and POLSAS, and the purchase of modern IC4 trains that allegedly ended up as gifts to former Libyan dictator, Muammar Gaddafi, rather than the Danish railways.[5]

Despite the scrutiny of public policy-making, these initiatives failed to consider major risks associated with large-scale projects and an analysis of the EFI project attempts to understand the causes behind one of country's largest IT scandals.

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[2] Bach, S. & L. Bordogna (2011). Varieties of new public management or alternative models? The reform of public service employment relations in industrialized democracies. *The International Journal of Human Resource Management*, 22(11): 2281-2294.

[3] Ibsen, C. L., Larsen, T. P. & J. S. Madsen (2011). Challenging Scandinavian employment relations: The effects of new public management reform. *International Journal of Human Resource Management*, 22(11): 2295–2310.

[4] Selliken, J. K. (2015). Fem vilde tal om Skats gigantiske it-havari: Vidste du det om EFI? *Computerworld*, 14. Sept. [https://www.computerworld.dk/art/234925/fem-vilde-tal-om-skats-gigantiske-it-havari-vidste-du-det-om-efi]

[5] Czajkowski, F. (2011). IC4-tog i Libyen var en gave til Gaddafi. *Ingeniøren*, 18. feb. [https://ing.dk/artikel/ic4-tog-i-libyen-var-en-gave-til-gaddafi-116631]

## The story of EFI

Work on the EFI project began in the midst of a municipal reform in 2004 assuming that consolidation and digitization of tax collection could yield significant efficiency gains. It was the intent to combine municipal and governmental collection merging all financial recovery activities at the state level. Until fall 2005, the collection activities were handled by different public entities including SKAT, the Danish Agency of Modernization (Økonomistyrelsen), the police, and the individual municipalities. As part of the reform, these activities should be transferred to SKAT to establish 'best practice' for public collections, eliminate overlapping activities, and realize administrative efficiency gains.[6]

The reform entailed a number of organizational changes for the involved public sector entities including necessary legal changes to transfer collection authority to SKAT. The expected advantages from digitization were substantial, so while 2.159 fulltime employees were engaged in collection and recovery activities, only 1.459 fulltime employees were allocated to handle the same tasks from 2006 onwards. The plan was to reduce the number of employees by 40% over a ten-year period without compromising quality.[7]

The collection activities in SKAT were set up around 30 centers organized in five clusters with a joint leadership group to ensure optimal utilization of resources. In 2007, this group was formed into a professional leadership forum (fagligt ledelsesforum) engaged in the new project initiatives. Later, in 2008, leaders from the five clusters formed a production leadership group mainly focused on the planning of the public collection activities. SKAT closed the 30 centers in 2009 and established six tax regions across the country responsible for the collection activities within each of their geographical areas, with the exception of personal taxes that were handled by a national unit spanning all six regions.[6]

Following the reorganization over 2009-10, the production leadership group was disbanded and replaced by a production forum engaged in planning of production and collection activities in SKAT. In 2015, the collection activities were organized within a specialized unit headed by a single director that also handled the EFI project. This reflected a general trend to centralize functions in a national governance structure.

*Establishing EFI*

The decision to create a central IT system for all collection activities was made in 2005 as part of a broader production modernization in SKAT including EFI and five other IT projects. The initial thinking around EFI began in 2002 and political decisions were made in 2003 based on input from three Ministries (*Finance*, *Taxation*, and *Science, Technology & Development*), a Digital Taskforce, and Gartner Consulting as supplier.[7]

Initial analyses indicated that EFI would introduce challenges when integrating more than 70 existing digitized systems. Hence, it was decided to develop a system with a 'plug-and-play' functionality based on technology yet to be invented as part of an ongoing implementation

[6] Skatteministeriet (2015). Redegørelse on Ét Fælles Inddrivelsessystem, 25. september. [https://www.skm.dk/media/6315/redegoerelsen-om-et-faelles-inddrivelsessystem.pdf]

[7] Rigsrevisionen (2015). Beretning til Statsrevisorerne om SKATs systemmodernisering, 5/2014. [https://www.ft.dk/-/media/sites/statsrevisorerne/dokumenter/2014/beretning-5-2014-om-skats-systemmodernisering,-d-,pdf.ashx]

process. The EFI development process started in May 2004 to specify contractual agreements by fall 2006 with final implementation scheduled for 2007.[6]

In late 2006, SKAT was keen to receive offers on an adjacent IT system before final suppliers for the EFI project were determined, which created a two-month delay. Two other IT projects (DMR and EKKO) imposed the delays due to system interdependencies. There were no changes in cost-benefit estimates and the tender process continued.

In early 2007, more delays occurred. However, SKAT continued to operate within the timeframe of the 2006 agreement and decided not to renew the tender. Delays kept occurring in 2007 for EKKO resulting in repeated delays in EFI. By yearend 2007, the expected completion of EFI was moved to late 2010. The EKKO and DMR projects continued to face delays throughout 2008, and SKAT requested additional DKK 65 million to support the EFI project. By the end of 2008, SKAT's chosen supplier opted out of the contract, unwilling to postpone further, thus forcing SKAT to renegotiate with the remaining suppliers.

In 2009, it was decided to change the implementation strategy for EFI and pursue the project in two steps instead of one splitting development into two separate functionalities. So, SKAT had to establish a new tender process with added project costs of DKK 67.9 million. On this basis, SKAT downgraded the internal risk assessment of the EFI project. Less than a year later, however, the plan reverted to the original one-step implementation, and SKAT estimated further project delays expecting implementation by 2012.

In the beginning of 2012, it became clear that the suppliers were unable to handle the development of EFI. Hence, SKAT commissioned PA Consulting to analyze the project with further delays announced. The analysis showed that even though two EFI functionalities were developed by different suppliers they were effectively the same system. As relations between the two suppliers had deteriorated it was impossible to integrate the two system parts. It was further uncovered that no coordinating governance was in place for the full project and no delegation of responsibilities within SKAT. The analysis further revealed a missing alignment between the original specifications for EFI and the current project descriptions making it impossible to assess the quality of the suppliers' work. A follow up progress review, increased the budget for EFI by another DKK 98.1 million announcing further delays with implementation now scheduled for October 2013. Furthermore, it was decided to reduce the amount of system testing before implementation to gain additional time.

In 2013, a new governance structure was set up in SKAT, organizing the Ministry of Taxation and SKAT under separate leadership. The responsibility for EFI remained with SKAT and efforts to finish the project were intensified. Weekly meetings with leaders in SKAT were scheduled including dialogues with stakeholders of the EFI project, which soon made it clear, that implementation would have to be delayed even further. It was decided to implement the EFI functionalities on a running basis with the first elements of EFI going live in September 2013. Yet, the implementation uncovered failures to handle interdependencies in its configuration that instead would require manual interventions.

Systemic errors far beyond expectations required additionally 60 employees in SKAT to handle the flawed system manually. It was discovered, that EFI systemically recovered money from

citizens in an unlawful manner.[8] The need for manual assistance kept increasing, and the IT suppliers were unable to correct system errors as new ones occurred. Further delays were announced during 2014, and Accenture was commissioned to review the entire system. Based on their recommendations SKAT decided to terminate the EFI project after spending almost DKK 700 million and incurring more than 8 years' of delay.

## Analyzing the risk environment

Before moving on, it may be useful to discuss how we perceive risk and risk management. In finance theory, risk is often expressed as variability in returns. The risk management frameworks see risk as the combined likelihood and impact of events assessed in terms of differences between expected and realized outcomes depicting risk as uncertainty about achieving objectives.[9] Risk is then a broader concept reflecting identifiable scenarios that may inflict economic losses, or opportunity costs, on operations and derail intended goals.[10] Risk management entails a choice of efforts that seek to mitigate potential risk events that could adversely affect organizational performance. The exposures can be classified by the types of internal and external factors that cause the risk events.[11] So, risks can be categorized based on origins stemming from the general business environment, the specific industry context, and the internal organizational conditions. The business environment comprises risk factors like natural disasters, political conflict and war as well as changes in social and macroeconomic conditions. Industry risks refer to competitive developments including changing customer needs, technology leaps, etc. Finally, organizational risks refer to leadership failure, malfunction of operating processes, technology break down, lack of skills, incompetence, fraud, etc.

*Risks encountered in EFI*

SKAT faced several issues throughout the EFI project primarily related to organizational risks, operational and technical complexity, project implementation, internal control and reporting, and managing external suppliers. One of the major problems with the EFI project was a dire lack of project management skills at SKAT.[12]

IT projects require a focus on management roles and delegated responsibilities with written work plans for involved parties. SKAT did not have a consistent project model for the implementation of EFI. The project model changed several times during its development with step-wise implementation even after several years of pursuing a one-step implementation process.[7] The model changes caused delays and imposed additional development costs. This reflects

[8] Kammeradvokaten (2015). Rapport om legalitetsanalyse af EFI-delsystemsfunktionaliteter, lønindholdelse, tvungne betalingsordninger, og betalingsevneberegning budget, 8. september. [https://www.skm.dk/media/6316/kammeradvokatens-legalitetsanalyse.pdf]

[9] E.g., ISO (2009). *ISO 31000: 2009 Risk Management - Principles and Guidelines*. International Organization for Standardization. Geneva, Switzerland.

[10] Andersen, T. J. (2006). *Perspectives in Strategic Risk Management*, CBS Press.

[11] Miller, K. D. (1992). A Framework for Integrated Risk Management in International Business. *Journal of International Business Studies*, 23(2): 311-331; IRM (2002). *A Risk Management Standard*. The Institute of Risk Management, London, UK. [https://www.theirm.org/media/4709/arms_2002_irm.pdf]

[12] Teknologirådet (2010). Bedre styring af offentlig it. [https://tekno.dk/app/uploads/2014/12/p10_offit_Bedre_styring_af_offentlig_it.pdf]

operational risks caused by inadequate internal processes and capabilities with a lack of clearly defined roles and responsibilities.

SKAT was criticized during the development of EFI for lack of fundamental project management skills.[6] The involvement of SKAT leadership was superficial without clear project descriptions to ensure transparency across planned activities. No concrete descriptions of project roles and responsibilities were made before 2009, and executive roles were not specified until 2014. It took 10 years for SKAT to finalize these foundational aspects of project management. The deficiency of internal systems and processes is obvious.

SKAT made several critical decisions to change the technical development of EFI. The amount of system testing was reduced, and EFI was launched despite new errors produced by the system. Since its launch, EFI was severely criticized for system flaws with multiple errors discovered including illegal approaches to recover payments from Danish citizens. The illegality aspect of the collection system was an influential factor in the final decision to close the entire EFI project development and implementation.[13]

The lack of system testing and controls is a consequence of inadequate internal control processes and a lack of transparent reporting on project developments that violates core principles of good public financial management.[14] Although SKAT proclaimed that supportive budgets were made throughout the project, they were unable to use them in evaluations of the EFI project for lack of data on development costs and procured services.

SKAT exceeded the project budget several times due to a lack of budgetary controls making it impossible to know the type of costs that caused deficiencies as key drivers of cost overruns. The budgetary shortcomings and lacking controls contributed to the poor handling of project activities. In addition, contract management of external suppliers had shortcomings, in the initial tender process, as well as in the delivery of key project elements. Contracting of suppliers for a major IT project is essential and it failed.

The initial construction of functional specifications for the tender process was delayed forcing a major supplier to opt out of the contract. Later in the process, it became clear that specifications where not discussed on an ongoing basis as SKAT discovered discrepancies between original specifications and current project developments.

## Improving risk management

An integrated risk management strategy can combine scenario planning with real options reasoning.[15] Scenario planning came about during the Manhattan Project and the beginning of the nuclear age where scientists used computers to predict the consequences of nuclear weapons. The method became broadly applied in the military to devise defense strategies, and was adopted in

[13] Skatteministeriet (2015). Skat suspenderer al automatisk inddrivelse af gæld, 8. september, Nyhedsoversigt. [https://www.skm.dk/aktuelt/presse-nyheder/pressemeddelelsesarkiv/skat-suspenderer-al-automatisk-inddrivelse-af-gaeld/]

[14] Økonomistyrelsen (2009). Koncept for god økonomistyring.

[15] Miller, K. D. & H. G. Waller (2003). Scenarios, real options and integrated risk management. *Long Range Planning*, 36: 93–107; Andersen, T. J. (2006). *Global Derivatives: A Strategic Risk Management Perspective*, Pearson Education, Harlow, UK.

the 1970's in the business world. Scenario planning offers discussions between management and key stakeholders about ways to deal with challenging but plausible future situations and thereby assess the organization's current ability to respond.

Future states are consolidated in plausible scenarios that allow managers to identify risks and opportunities in future states of the world. The exposures often contain elements of uncertainty that are hard to quantify like the operational risks identified above. Real options on the other hand allow some valuation of embedded flexibilities that constitute future options the organization can exploit. The real options perspective can be useful when considering potential effects of large irreversible project investments, where staging of investments, and built-in flexibilities have value because they increase maneuverability under high uncertainty as observed in SKAT's 10-year project period. Integrated risk management may thus allow managers to construe plausible future scenarios, assess potential effects and responses to these contexts, and consider various ways to deal with impending risks and opportunities.

As a part of the EFI project, SKAT did construe a set of scenarios but they envisaged major catastrophes and did not consider what might happen nor include any contingency plans in case scenarios could become a reality.[7] If scenario planning considers plausible scenarios and contemplates plans for those future states, SKAT's risk planning hardly qualifies as scenario discussions. To improve risk management, SKAT would have to engage in discussions with various stakeholders, including suppliers, to consider more plausible scenarios and possible dependencies on other projects. The scenario discussions to resolve plausible risk events could conceivably improve project management capabilities, as it enforces the need to outline clear roles and responsibilities for project activities.

The scenario discussions could also enhance management reports and budgets to consider contingencies for major events as well as improve contract specifications and the management of contractual relationships. The scenario discussions would uncover internal weaknesses and vulnerabilities to be mitigated through prudent project commitments, contractual structures, and ongoing monitoring of key risk factors encountered in the EFI project. SKAT used a so-called 'waterfall' model for the IT development as adopted in major construction projects that left no room to adjust things as conditions changed along the way.[16] This was considered the only viable approach because the project required formal budgetary approval. Engaging in regular scenario discussions would enable SKAT to consider flexible real option structures that might enhance adaptability and timely project adjustments.

## Conclusion and reflections

Looking back at the EFI project development until its eventual demise in 2015 it is clear that SKAT had inadequate internal systems and processes. Without realizing it, SKAT was short of project management and supplier procurement skills, had insufficient contract management capabilities unable to outline complete functional specifications. A clear governance structure was absent with delegated responsibilities supported by comprehensive management reporting and ongoing dynamic budget follow-up processes. It further turned out that additional costs of around DKK 475 million were required to close down the EFI project resulting in total project

[16] Sandal, J. S. (2016). Arkitekt på Skats EFI-system: Vandfaldsmodellen skabte falsk tryghed, 14. juli, *Ingeniøren*. [https://www.version2.dk/artikel/arkitekt-paa-skats-efi-system-vandfaldsmodel-skabte-falsk-tryghed]

costs of around DKK 1.2 billion.[17] As a consequence, the total past dues to the public sector had accumulated to around DKK 118 billion by year-end 2018.[18]

This may point to overconfidence at the leadership echelons of the organization overestimating own competencies and underestimating potential threats.[19] It is claimed that SKAT failed to listen and could have adopted solutions to amend central aspects of EFI that would have made it work thus avoiding the enormous growth in past dues.[20]

Another interesting and potentially relevant aspect of the EFI project would be to analyze the political environment as SKAT engaged in the ambitious project induced by political interests, or lack of same, throughout the project.

Incidentally, there were nine different Ministers in charge of SKAT between 2004 and 2015:

Kristian Jensen (V) 2004-2010
Troels Lund Poulsen (V) 2010-2011
Peter Christensen (V) 2011-2011
Thor Möger Pedersen (SF) 2011-2012
Holger K. Nielsen (SF) 2012-2013
Jonas Dahl (SF) 2013-2014
Morten Østergaard (R) 2014-2014
Benny Engelbrecht (S) 2014-2015
Karsten Lauritzen (V) 2015-2019

It might also be pertinent to ask if SKAT had a cultural problem as many issues persisted despite structural and leadership changes.[21]

**Questions:**

- What do you think about SKAT's project delivery performance?
- What can explain this performance in SKAT and the associated outcomes?
- How do you think SKAT can improve performance going forward?

[17] Jørgensen, L. H. (2016). Skandalen om Skats it-system: Efter 11 års fiasko koster det millioner at lukke EFI ned, 15. februar, *DR Nyheder*.

[18] Statsrevisorernes Sekretariat (2019). Nyt system til inddrivelse af skat forsinket, 13. september. [https://www.ft.dk/da/statsrevisorerne/nyheder/2019/09/inddrivelsessystem]

[19] Campbell, W. K., Goodie, A. S. & J. D. Foster (2004). Narcissism, confidence, and risk attitude. *Journal of Behavioral Decision Making*, 17: 297-311.

[20] Hyltoft, V. (2021). Skat blev tilbudt løsning, der kunne have afværget vanvittig gældsvækst. *Berlingske Tidende*, 26. september.

[21] Vaughan, D. (2005). System effects: On slippery slopes, repeating negative patterns, and learning from mistake? In Starbuck, W. H. & M. Farjoun, *Organization at the Limit: Lessons from the Columbia Disaster*, Blackwell: Malden, MA.