



**FFI** Forsvarets  
forskningsinstitutt

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# How to Succeed with Digitalization? A Study of Benefits Management in Public IT Projects

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# Staten kaster bort milliarder på mislykket digitalisering

Stater digitaliserer samfunn på samme måte som de arrangerer OL. Kostnadene har en tendens til å løpe løpsk, og langtidseffektene uteblir.



JUSS OG SAMFUNN

## Forsvarets IT-prosjekter får totalslakt

Oslo (NTB): Konsulentselskapet McKinsey totalslakter i en ny rapport Forsvarets IT-prosjekter. Pengesluk i milliardklassen, konkluderer rapporten.

Må endre tanke  
Museum of Mc



Forsvarsminister Ine Eriksen Søreide har mottatt en rapport fra McKinsey som slakter Forsvarets IT-investeringer, som er på svimlende 3,3 mrd. kroner hvert år. (Arkivfoto)  
Bilde: Ruud, Vidar

JUSS OG SAMFUNN

# IT-smell kan koste Nav 340 millioner

Klart for åpen høring i Stortinget.

Stavanger Aftenblad | Meninger Sport Kultur | 99.- ut året | LOGG INN

## Sved av hundrevis av millioner på mislykket IT-prosjekt

I rundt fem år jobbet et stort antall innleide IT-konsulenter og Statoil-medarbeidere med et prestisjetungt datasystem for Statoils handel med råolje og produkter. Like før iTrade-systemet skulle tas i bruk, ble hele prosjektet plutselig skrinlagt.



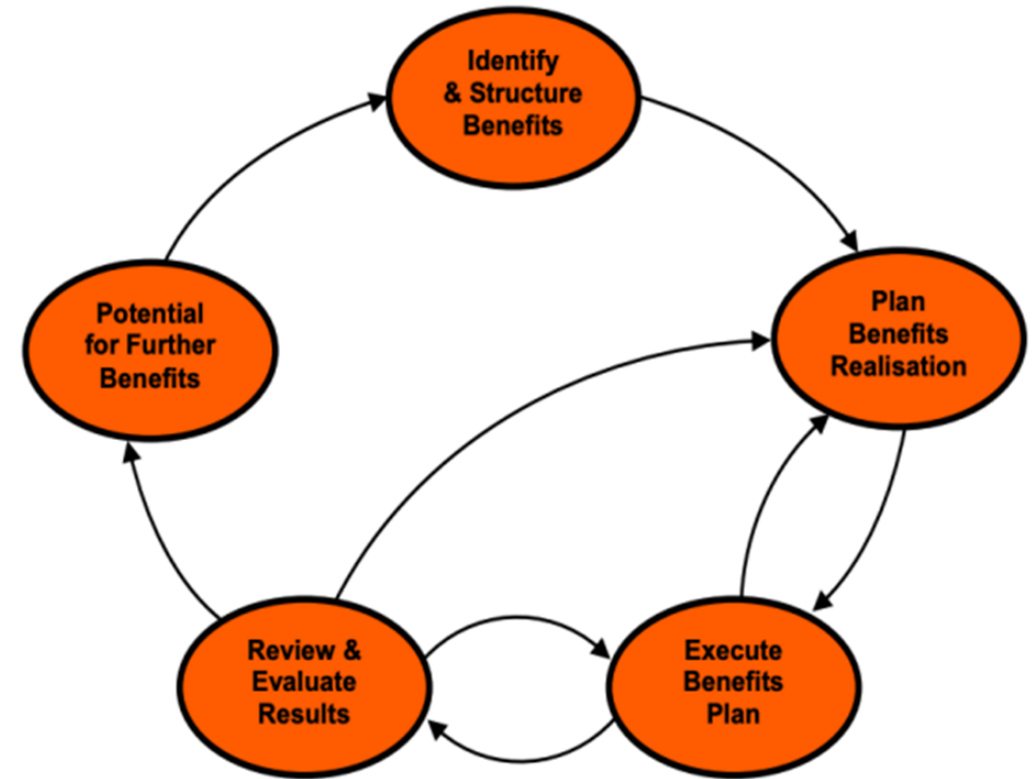
Hundrevis av millioner kroner gikk med til å forsøke å lage et nytt datasystem for handel med råolje og oljeprodukter i Statoil. Først fem år etter at prosjektet kom i gang, tok de ansvarlige for prestisjesatsningen hensyn til advarslene fra Statoil-medarbeiderne som skulle bruke systemet. Foto: Kristian Jacobsen



inget. Bilde: Marius Jørgenrud

# What is benefits management?

- The goal: to develop or adapt software, and change work processes and/or organization so that positive effects for something or some occur



# Our research questions

1. How is identification, planning, realization and measurement of benefits conducted?
2. How does benefit management practices relate to the degree of success in achieving benefit?
3. What are evidence-based measures to obtain good benefit management?



# Data and analysis

- Project documentation

	Projects within the co-funding scheme of the directorate of digitalization	Projects within the Norwegian government's scheme for external quality assurance	Defence sector projects	Continuous development of product/services
Number of projects	10 projects	8 projects	5 projects	2 product areas
Budget in NOK million	10-96	410-2400	90-408	30-40 year-long assignments
Starting year	2017-2018	2008-2018	2013-2017	2019
Share of projects that are completed	100 %, but some very recent	Three are finished, three are in progress, two have been stopped	One project has been completed in autumn 2020, while the other four are ongoing	Continuous development
Documents	Plan for the realization of benefits, final report	Conceptual selection (KVU) and external quality assurance (QA1), central management document (SSD) and external quality assurance (QA2), as well as post-evaluation	Documents from the pre-project phase, procurement solution with attachments, implementation assignments (G O)	Process documents and benefit-map
Interviewees	Internal and (where relevant) external benefit managers, as well as product owners	No interviews, only document analysis	Project managers and user representatives (benefit managers)	Team leaders, product owners, utility managers, process managers, project office

# Data and analysis

- Project documentation
- Interviews

## Organisation of the project

How was the development project manned? (internal: organisation receiving the benefit, external: purchased assistance)	Only internal	Mostly internal	Equal share	Mostly external	Only external
If external resources, what type of contract was used?	Fixed price	Per hour	Lease /frame agreement	Share of risk	Other (specify)
What type of development method was used? (Agile, lean, scrum, kanban, waterfall..)					
Were there deliveries during the project/continuously? If yes, how often, and did these deliveries go to «production»?					
To what extent was the benefit analysis used in the implementation of the project? <Use the respondents own words - or use a scale; very much-somewhat- not at all>	Prioritization of deliveries	Supporting decisions in the effort to realize benefits		Other prioritizations and decisions (fill in)	

# Data and analysis

- Project documentation
- Interviews
- Analysis of benefit plans (SMARC)
- Literature review

- S=Specified
- M=Measurable
- A=Accountable
- R=Realistic
- C=Comprehensive

Zwikael et al. (2018)

# Literature review results

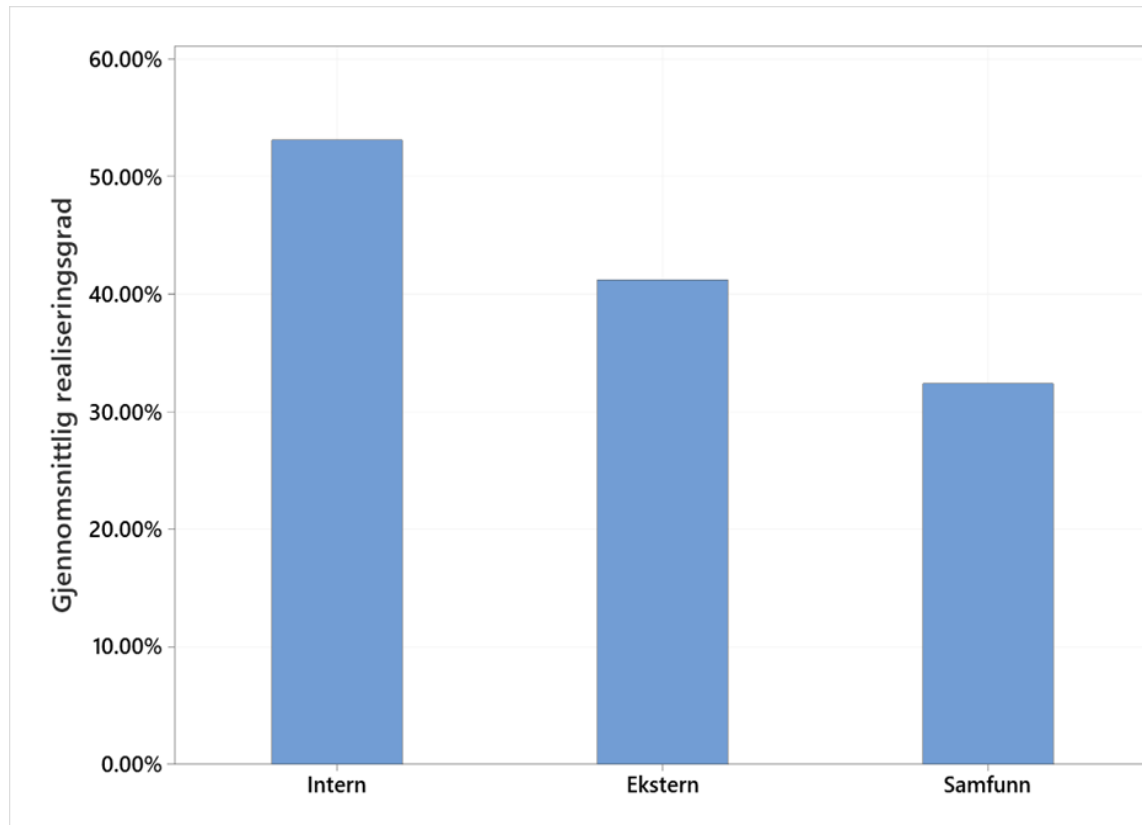
<b>Benefit management practices</b>	<b>Relevant empirical contributions</b>	<b>Evidence of correlation with increased realized benefit</b>
Identification of benefits		
Cost-benefit measurements		
Measurable benefits		
Planning benefits realization		
Responsibles for the realization of benefits		
Incentives for realization of benefits		
BM practices during projects execution		
Evaluation of realized benefits		
Potential for further benefits		



# Literature review results

Benefit management practices	Relevant empirical contributions	Evidence of correlation with increased realized benefit
Identification of benefits	Ward et al. (2007), Mohan et al. (2016)	Weak/moderately strong evidence that identification of benefits, particularly a wide range of types of benefits, appears to be associated with more realized benefits.
Cost-benefit measurements	Badewi (2016), Holgeid and Jørgensen (2020), Jørgensen (2016)	Weak evidence that preparation of a business case is associated with more realized benefit
Measurable benefits	Ul Musawir (2017)	Weak evidence (only one study).
Planning benefits realization	Holgeid and Jørgensen (2020), Jørgensen (2016), Mohan et al. (2014), Mohan et al. (2016)	Moderately strong evidence.
Responsibles for the realization of benefits	Badewi (2016), Holgeid and Jørgensen (2020), Kopmann et al. (2015), Thomas et al. (2007), Ward et al. (2007)	Moderately/strong evidence
Incentives for realization of benefits	Mohan et al. (2014), Mohan et al. (2016)	Dispersion in results on the extent to which incentives (other than accountability) are associated with more realized benefit. At best, weak evidence.
BM practices during projects execution	Holgeid et al. (2020), Jørgensen (2016), Jørgensen et al. (2017), Mohan et al. (2016)	Strong/ Moderately strong evidence
Evaluation of realized benefits	Holgeid et al. (2020), Jørgensen (2016), Mohan et al. (2014), Mohan et al. (2016), Thomas et al. (2007), Ul Musawir (2017), Ward et al. (2007)	Moderately/ strong evidence
Potential for further benefits	Holgeid et al. (2020)	Weak evidence (only one study).

# How did the projects in our dataset perform?



<b>Cost performance</b> (median cost overrun is NOK 1.34 mill. kr (5% overrun))	<b>Share</b>
High (less than 10% cost overrun from budget)	53 % (9)
Medium (10-20% cost overrun from budget)	24 % (4)
Low (more than 20% cost overrun from budget)	24 % (4)
<b>Schedule performance</b>	<b>Share</b>
High (less than 10% delay)	29 % (5)
Medium (10-20% delay)	24 % (4)
Low (more than 20% delay)	47 % (8)
<b>Benefit delivery performance</b>	<b>Share</b>
High (More than 90% of target achieved or estimated to be achieved)	59 % (10)
Medium (60-90% of target achieved or estimated to be achieved)	24 % (4)
Low (less than 60% of target achieved or estimated to be achieved)	18 % (3)

Selected findings

# Identification and prioritization of benefits

The identification of benefits were often limited by just finding enough to justify the project. This may not optimal for good benefits management, as all benefits need realization.

Very limited focus on searching for and identifying additional benefits.

Typically not very agile related with respect to flexibility (e.g., continuous prioritization of benefits) in project deliveries, other than removing deliveries with the lowest benefits to cost.

High potential for improvement!

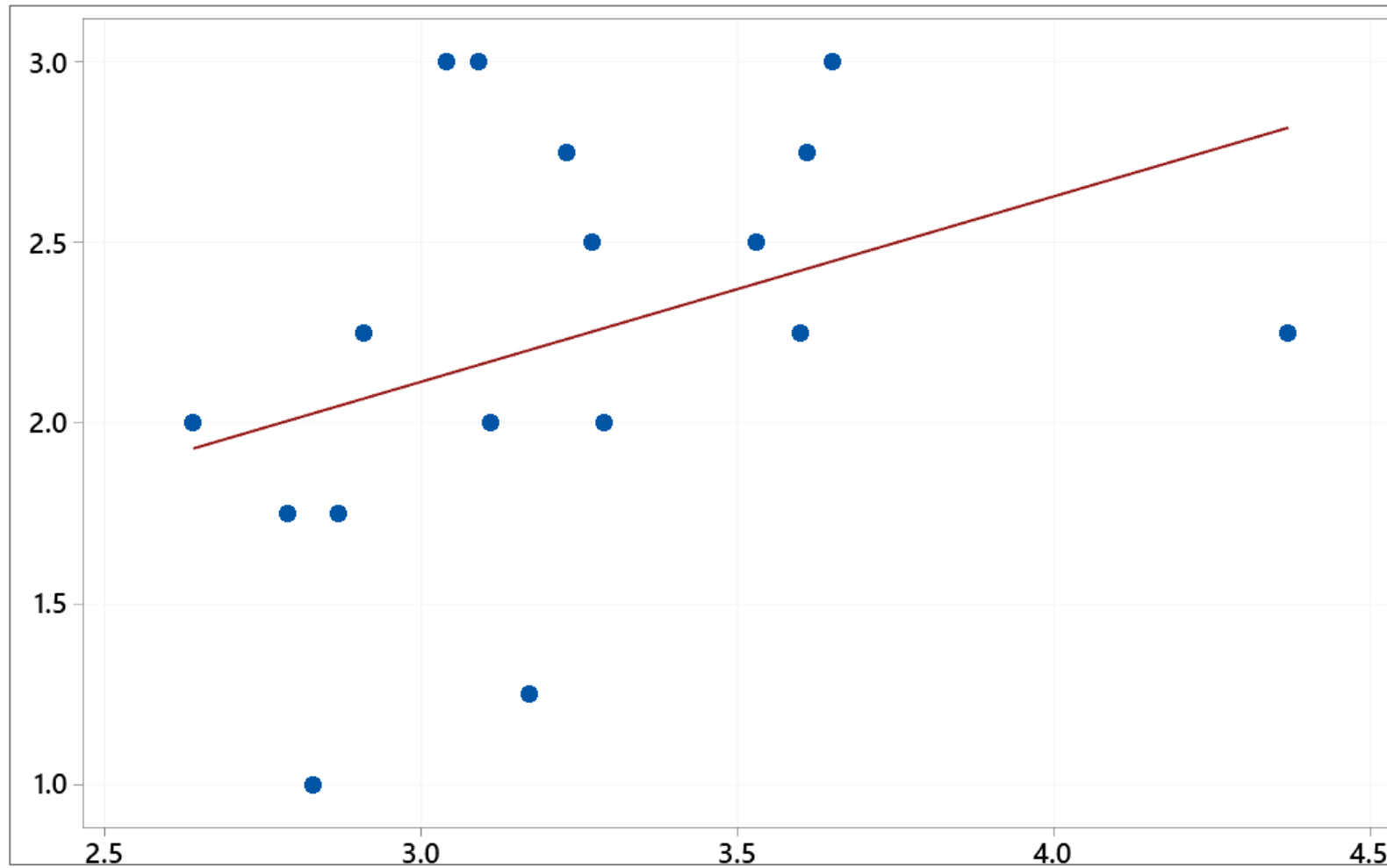
# Formulation of benefits

Benefits that scored well on “SMARC” (Specified, Measurable, Accountable, Realistic and Comprehensive) criteria were more often realized to a fuller extent.

Measurable (the M in SMARC) seemed to be the most essential factor. Knowing that the realization of the benefits will be evaluated motivates the realization.

# SMARC-score vs success

Success  
score  
(Scale 1-4)



SMARC-score on identified benefits

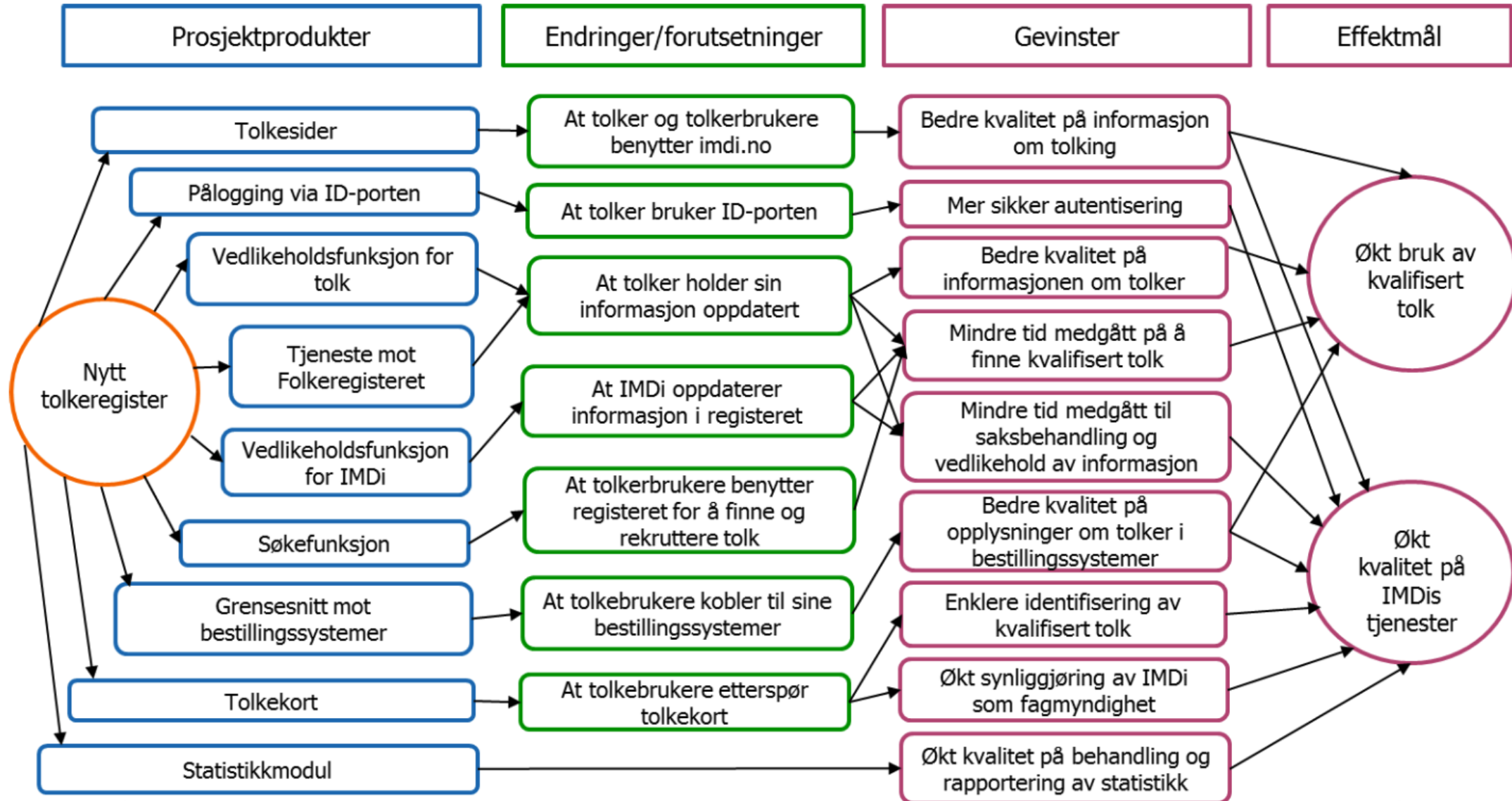
# Benefits plans

Projects who actually used the benefits plans (which many of them needed to develop to get funding) during the project execution performed better than the others.

Sometimes the realization of the true benefits was not planned, just the deliveries (formulated as "benefits"). This suggested a difficulty in identifying what is the "benefit" and/or not willing to be involved in the "last step" of the realization of benefits.

A few projects and product developments made good use of "benefits maps" in their plans, i.e., visualization of the connection between strategic goals, benefits from the projects and deliveries by the project.

# Benefits map (may also be in the format of Lean Value Tree and OKR/Objective Key Results)





# “Benefits responsible”

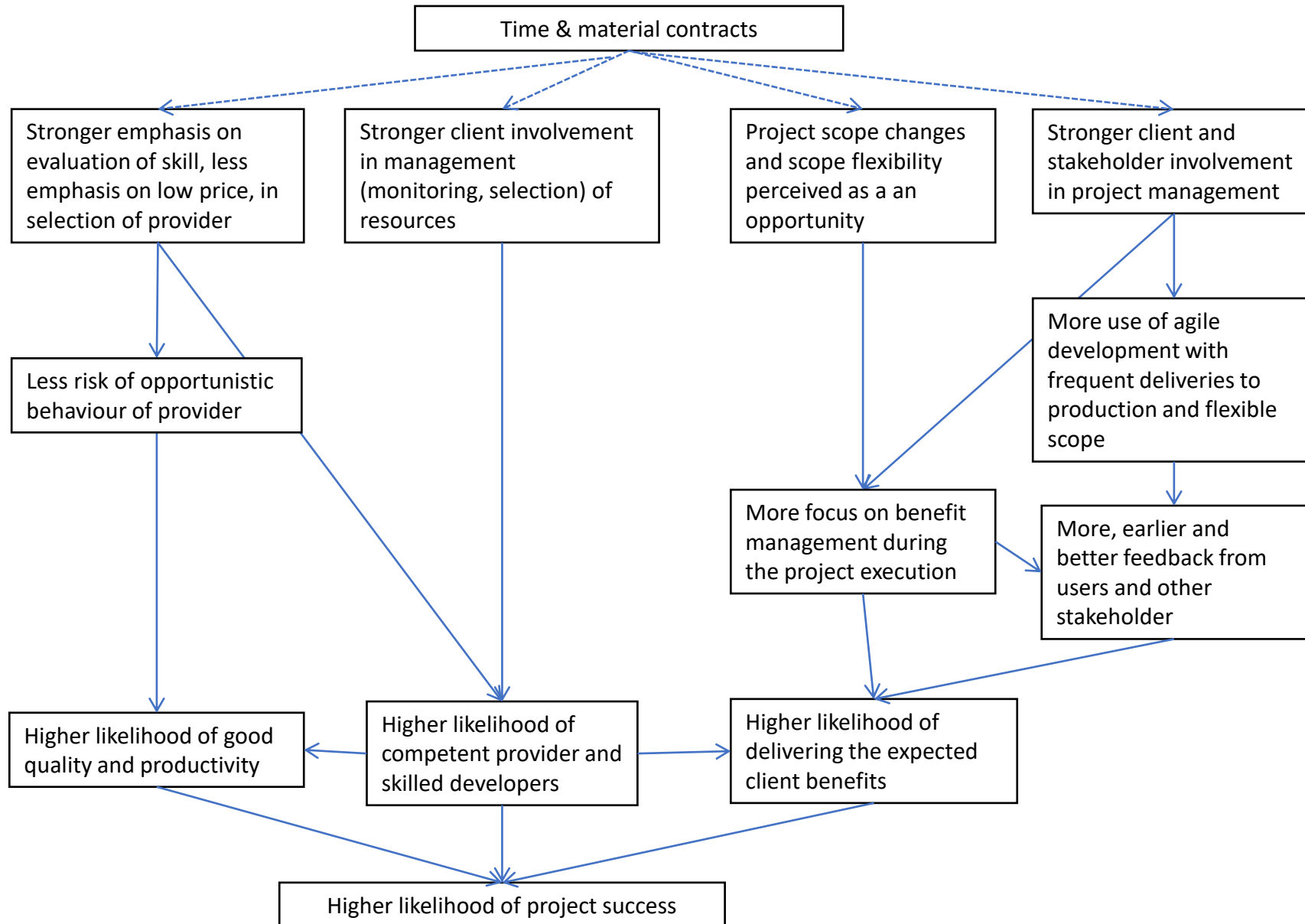
Essential to clarify the responsibility for benefits realization to enable project success.

Success connected with that the “benefits responsible” should be a person within the team, with an operational role, good domain knowledge, good communication skill (to both the developers and the business) and good marketing skills.

It should **not** be (as was/is recommended by the governmental guidelines) a line manager or someone not part of the team. They may have the role of “benefits owner”, but the “benefits responsible” should be a operational role.

# Benefits management and agile (data from another study of Norwegian governmental projects)

## Success pattern (all arrows documented with empirical evidence)



## Evidence-based guidelines based on the findings

- Spend time on identifying **all** important benefits
  - Separate project deliveries and their benefits in plans and means to reach them
- Ensure that the degree of benefits realization is possible to **evaluate**
- **Plan** how the benefits should be realized/achieved and evaluated.
- Ensure **flexibility** in scope (not only must-have benefits/deliveries).
- Manage the benefits during work execution with respect to what gives the **best cost-benefit**
  - Include a focus on identifying new benefits during the work execution.
- Use **agile** development practices
  - In particular essential is the use of frequent deliveries to production with feedback regarding achievable benefits and a focus on continuous development.
- Include a **benefits responsible** (or similar) who is operational and integrated in the team
  - This person should be skilled in communication, marketing and have good domain knowledge.
- Ensure a strong **involvement of client/product/business** in the benefits management