
Denmark will fight cost overruns, late schedules, and benefit shortfalls with PROGRAM DENMARK

IMaR 2024 Conference, Reykjavik, 18th April 2024 - Per Svejvig

Agenda

1. PROGRAM DENMARK: A research network for learning and value creation in major public projects
2. Cost Performance in Major Public IT Projects: A Cross-Country Comparison Between Denmark and Norway



Why PROGRAM DANMARK?

- › Too many stories in the press about large public projects that seem to be delayed, overpriced, or degraded
- › We often focus on individual cases and lack an understanding of the more structural conditions (governance mechanisms), and look across project types (e.g. mega IT projects, hospital buildings)
- › We do not have a strong research environment in Denmark for major public projects
- › We lack systematic and consistent data for major public projects, making comparisons difficult (and sometimes anecdotal)

PROGRAM DANMARK

Et forskningsnetværk for læring og værdiskabelse i store offentlige projekter



PROGRAM DENMARK: A research network for learning and value creation in major public projects

PURPOSE

1. To disseminate and provide knowledge and learning about major public projects, drawing on Danish and foreign experience
2. To ensure systematic collection of experience from major public projects
3. To contribute to the political debate on major public projects to influence the choice of regulatory and governance mechanisms that can improve concept selection, planning, execution, and value creation from major public projects

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What is meant by major public projects?

- › Major public infrastructure projects of 250 million Danish kroner or more (€ 34 Million or more)
- › For major public IT projects, however, a limit of 100 million Danish kroner or more applies (€ 14 Million or more)

PROGRAM DANMARK

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Who is involved in PROGRAM DENMARK?

- > Six universities
- > Three associations

PROGRAM DANMARK

Et forskningsnetværk for læring og værdiskabelse i store offentlige projekter



What do we do?

1. **The research network was officially kicked off in September 2023 – all work is voluntary!**
2. **Disseminate information** about major public projects in **Denmark at webinars, conferences**, and **international/regional forums like IMaR 2024**, Iceland and working closely with Norway (Concept Programme etc).
3. **Dialogue and meetings with ministries, agencies, and other public organizations**
 - ❑ Ministry of Finance, Ministry for the Interior and Health of Denmark, Ministry of Transport (forthcoming), Agency for Public Finance and Management, Danish National Auditors (Rigsrevisionen)
4. **Working together with public organizations:**
 - ❑ Report about major hospital buildings in Denmark (“Supersygehuse”) “ordered by” Ministry for the Interior and Health of Denmark
 - ❑ Subject Matter Experts for Danish National Auditors (Rigsrevisionen)
5. **Dialogue with political level** e.g. The Defense Committee meeting beginning of April 2024
6. **Evidence-based research** about major public projects

Cost Performance in Major Public IT Projects: A Cross-Country Comparison Between Denmark and Norway

Svejvig, P., Welde, M., Pries-Heje, J., & Kaas Ollendorff, N. (Accepted/In press). Cost Performance in Major Public IT Projects: A Cross-Country Comparison Between Denmark and Norway. Paper to be presented at IRNOP 2024 conference (15th), Stockholm, Sverige.

Svejvig, P., Welde, M., Pries-Heje, J., & Kaas Ollendorff, N. Cost Performance in Major Public IT Projects: A Cross-Country Comparison Between Denmark and Norway [Manuscript being prepared for journal submission]

Manuscript being prepared for journal submission – Not peer-reviewed

Introduction

- › Mixed results: Relatively low score in Norway with <10% average cost overrun (Welde & Klakegg, 2024),, also a lower score in Denmark for smaller projects with <10% average cost overrun (Alami et al., 2022), but larger projects than €40 million indicate much higher cost overrun of >100%
- › **The aim of this study is:**
 - › **(1) to compare cost overruns in major public IT projects between Denmark and Norway**
 - › **(2) to study differences and similarities between major public IT projects in the two countries and discuss the consequences**

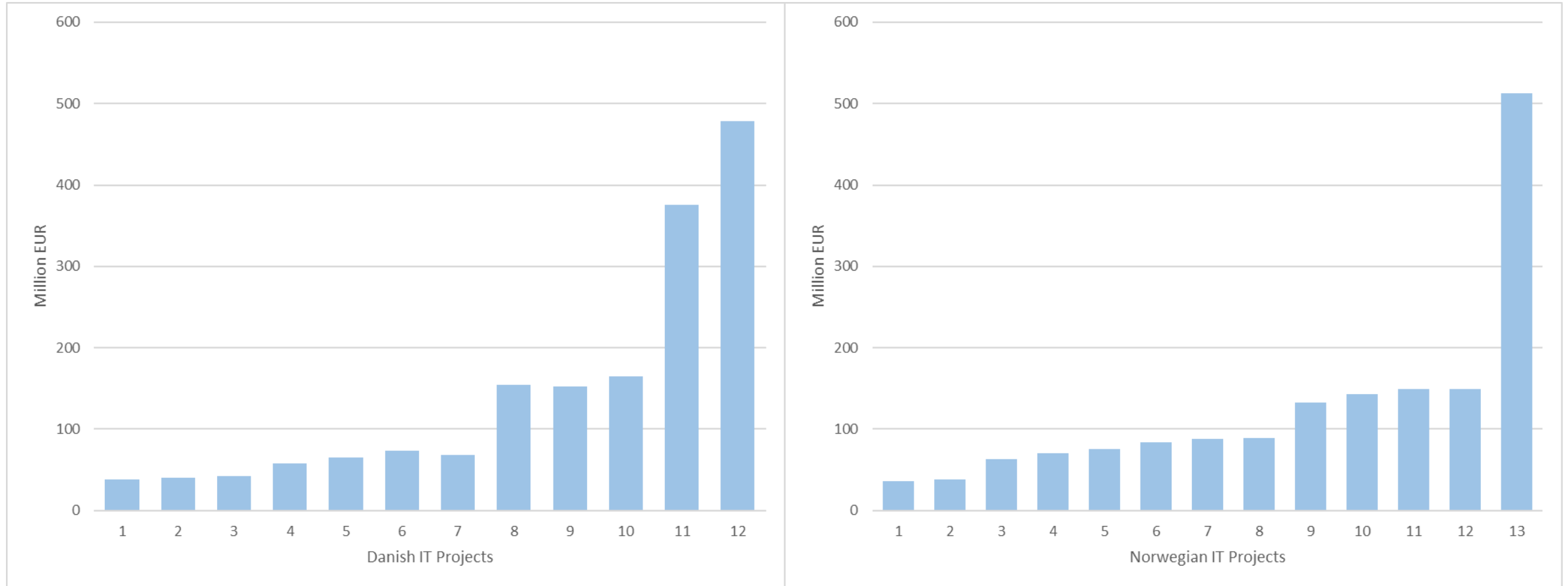
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Theoretical Background

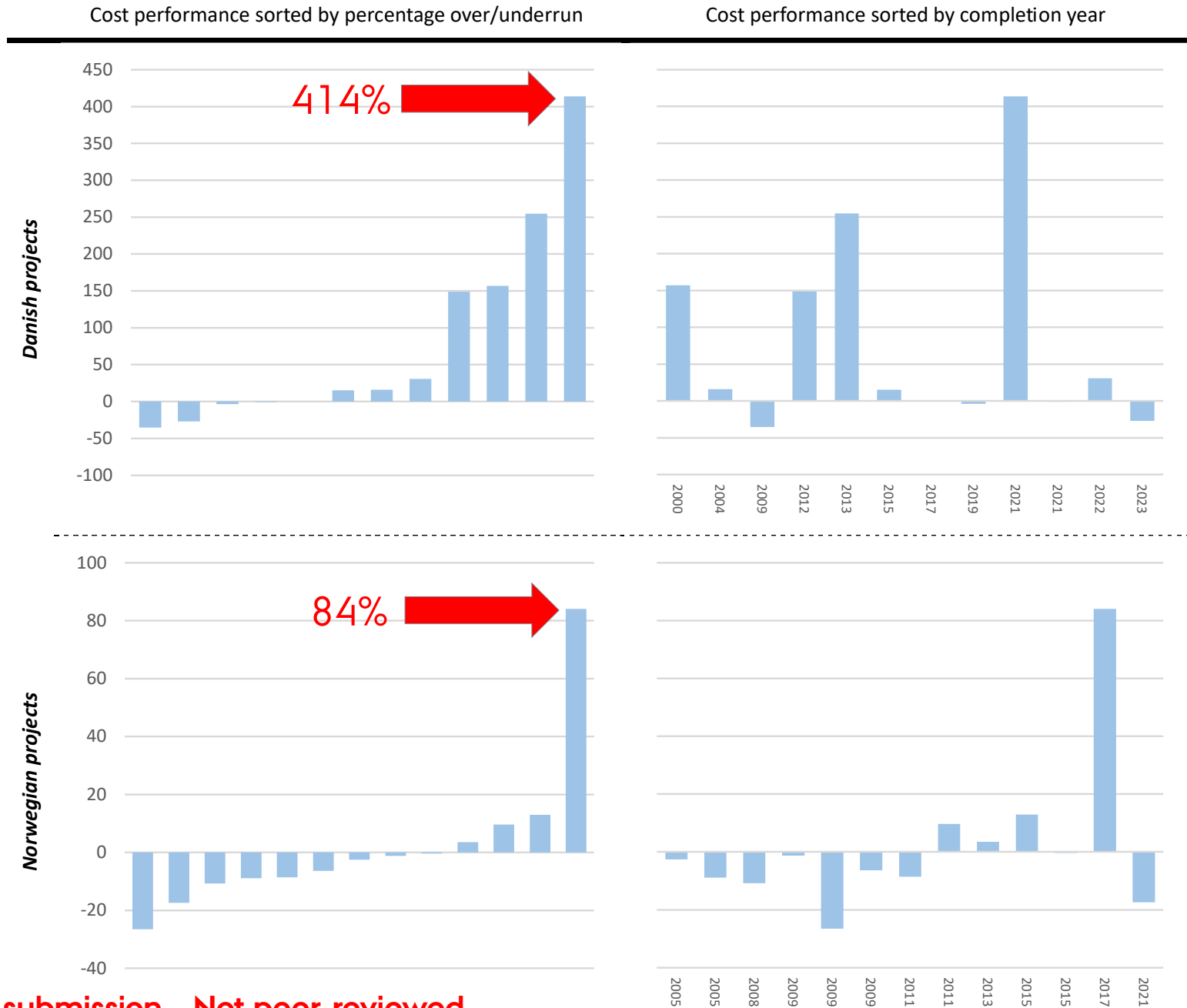
- › Cost overruns due to **inaccuracies in estimates due to bias and imperfections in cost estimation methods. Uncertainty and complexity** in projects were also raised as issues (Love, Pinto, et al., 2022; Merrow et al., 1979, p. 58)
- › **Strategic misrepresentation** as a concept was introduced at the end of the 1980s (Jones & Euske, 1991; Wachs, 1989) where strategic misrepresentation is defined as “the planned, systematic distortion or misstatement of fact-lying-in response to incentives in the budget process”
- › Cost estimation problems have also been explained by **scope and design changes, contract configurations, poor project management, ineffective project teams, and the wider impact of economic, institutional, and political environments** (Love, Pinto, et al., 2022, p. 59)
- › Three theories:
 - › **The planning fallacy** with psychological optimism bias and strategic misrepresentation leads to underestimation of costs, risks, and completion times, and overestimation of benefits (Flyvbjerg, 2006, p. 6)
 - › **The hiding hand** “suggests that it is not always bad to overrate benefits and underrate costs and difficulties of the proposed projects as creativity may help succeed in unforeseen ways” (Ika et al., 2022, p. 3310)
 - › **New stakeholder theory on organizational purpose** Move away from discussing cost escalation and project performance targets to focusing on social surplus and social value from megaprojects along with economic value as an alternative (Gil, 2021; Gil, 2023; Gil & Fu, 2022)

Data: 12 Danish and 13 Norwegian Major Public IT projects

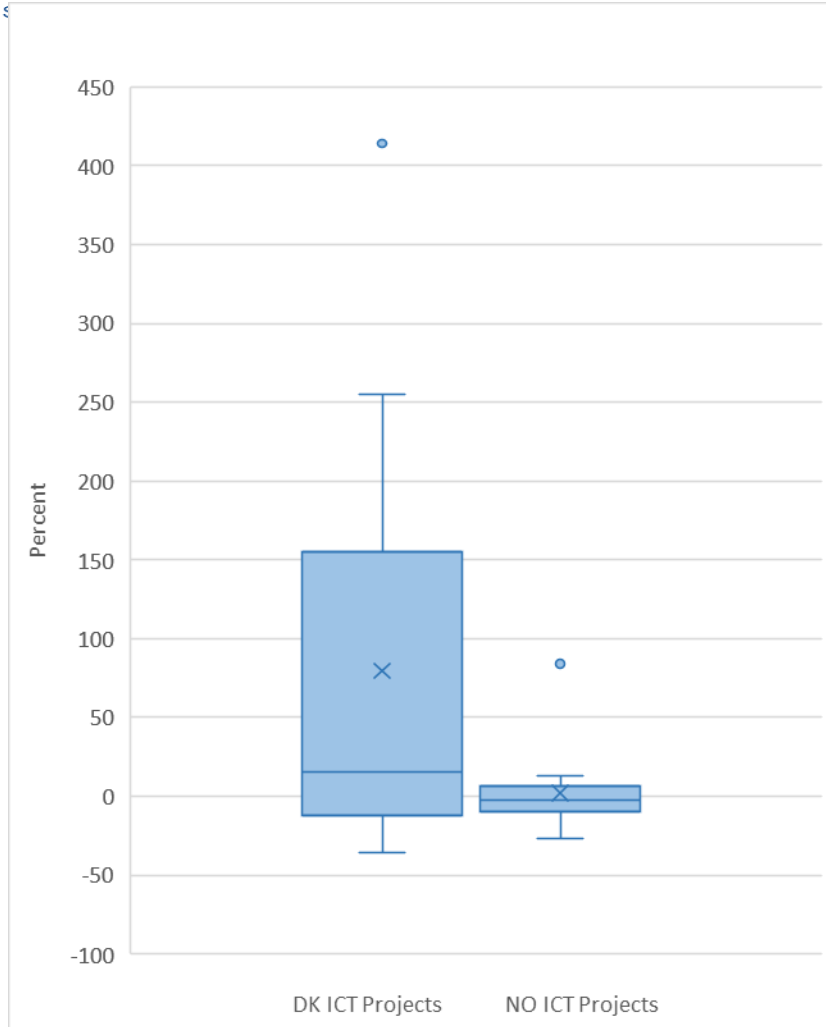
› Period for data collection: **The last 25 years (1999-2024)**



Data: 12 Danish and 13 Norwegian Major Public IT projects



Results



	Denmark (n=12)	Norway (n=13)
The period for projects	1996-2021	2006-2021
The mean cost for projects	€143 million	€126 million
Mean cost overrun	80%	2%
Median	16%	-3%
Standard deviation	138%	27%
Maximum cost overrun	414%	84%
Share of projects with cost overrun	7 out of 12 projects (58%)	4 out of 13 projects (31%)

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How long do the IT-systems live?

- › POLSAG was never in operation
- › EFI survived in two years (2013-2015)
- › Amanda was operational for about eight years (2000-2008)
- › All the Norwegian IT systems are operational (need to be checked further)

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The Big Why? A Crime Mystery!



(Picture designed by Microsoft Copilot 14th April 2024)

The big WHY?

> Similarities:

- > Denmark and Norway are similar in many aspects related to sociopolitical and socioeconomic conditions
- > It is, therefore, reasonable to assume that many **factors that influence cost performance, work roughly the same way in Denmark and Norway.** This means that, for example, strategic misrepresentation and optimism bias (the planning fallacy)
- > Another argument that could be put forward is that the **Danish IT projects...are more complex than the Norwegian projects** and systems, which can add increased risks and uncertainty to the projects

> Differences:

- > The most striking differences relate to **governance structures, cost estimation methods, and cost measurements.** We would by no means postulate that these are the only differences, but based on the data we have available in this study, these appear to be the most interesting factors

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Limitations and future research

> Limitations

- > Our knowledge about the 25 major public IT projects **is limited and incomplete**, as are details about governance structures and not least how they **are enacted in practice**
- > **Data are not complete for all cases** and there is a risk of **erroneous interpretation of data**
- > **Methodological issues about comparing cost performance across countries** and even within countries are challenging
- > **Selection bias / “Cherry-picking of data”**: More projects would be beneficial, we have 13 in Norway and 12 in Denmark, but please remember the list of projects is rather low for projects of about 200 million Danish kroner

> Future research

- > We need a more **holistic view than cost performance including schedule, scope, quality, and benefits**
- > **We need more cases**, next step is 12-13 Danish projects and 13 Norwegian projects
- > **Comprehensive comparative analysis**

Thank you, questions?



(Picture designed by Microsoft Copilot 14th April 2024)

- > Alami, A., C. Østergaard Madsen and O. Krancher (2022). Government IT Projects: Current Evidence of Cost and Schedule Overrun and Their Antecedents, Cham, Springer International Publishing.
- > Finansministeriet (2023). Budgetredegørelse for udgiftspolitisk styring af it-området. Finansministeriet. København, Finansministeriet.
- > Flyvbjerg, B. (2006). "From Nobel Prize to Project Management: Getting Risks Right." Project Management Journal **37**(3): 5-15.
- > Gil, N. (2021). "Megaprojects: a meandering journey towards a theory of purpose, value creation and value distribution." Construction Management and Economics **40**(7-8): 562-584.
- > Gil, N. A. (2023). "Cracking the megaproject puzzle: A stakeholder perspective?" International Journal of Project Management **41**(3): 102455.
- > Gil, N. A. and Y. Fu (2022). "Megaproject Performance, Value Creation and Value Distribution: An Organizational Governance Perspective." Academy of Management Discoveries **8**(2): 224-251.
- > Ika, L. A., P. E. D. Love and J. K. Pinto (2022). "Moving Beyond the Planning Fallacy: The Emergence of a New Principle of Project Behavior." IEEE Transactions on Engineering Management **69**(6): 3310-3325.
- > Jones, L. R. and K. J. Euske (1991). "Strategic Misrepresentation in Budgeting." Journal of Public Administration Research and Theory: J-PART **1**(4): 437-460.
- > Love, P. E. D., J. K. Pinto and L. A. Ika (2022). "Hundreds of Years of Pain, With Minimal Gain: Capital Project Cost Overruns, the Past, Present, and Optimistic Future." IEEE Engineering Management Review **50**(4): 56-70.
- > Merrow, E. W., S. W. Chapel and C. Worthing (1979). A Review of Cost Estimation in New Technologies: Implications for Energy Process Plants. Santa Monica, CA, RAND Corporation.
- > Wachs, M. (1989). "When Planners Lie With Numbers." American Planning Association. Journal of the American Planning Association **55**(4): 476.
- > Welde, M. and O. J. Klakegg (2024). "Avoiding Cost Overrun Through Stochastic Cost Estimation and External Quality Assurance." IEEE Transactions on Engineering Management **71**: 1984-1997.