

A Method for Diagnosing the Causes of Escalating Commitment

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Barry Staw's (1981) model of escalating commitment is a well-known theoretical explanation of the underlying causes of a decision maker's decision to recommit. This paper explores the diagnostic utility of Staw's model and proposes an extended version of the model with a step-by-step approach for using it as an analytical tool. The proposed analytical approach is illustrated using two case studies in which escalating commitment is evident. This study repurposes and extends a well-known, but essentially forgotten, theoretical model and demonstrates how the approach can be used as a diagnostic tool when it is applied to different decision making scenarios.

Keywords: escalating commitment, influence diagrams, decision making, practical application, National Health Service, Maersk

INTRODUCTION

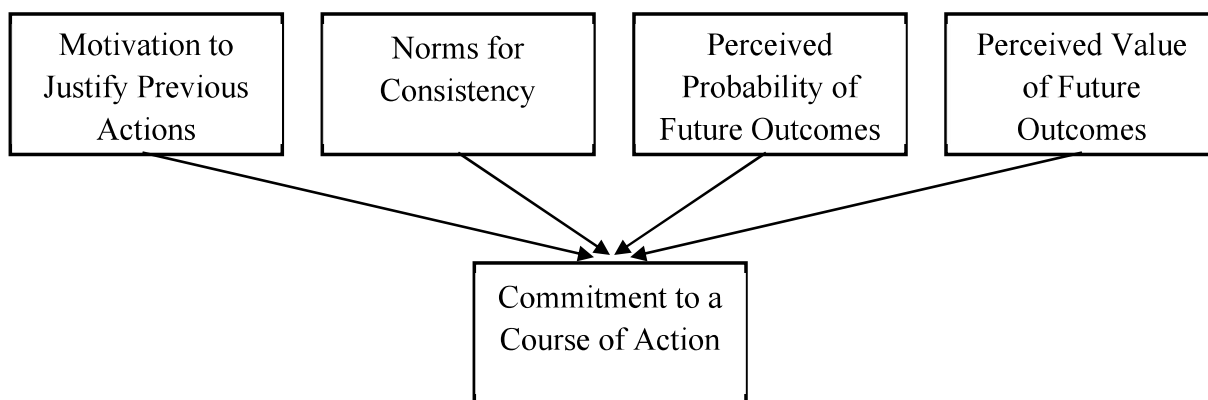
A decision maker's recommitment to a failing course of action is one of the more interesting decision making phenomena because the motivations for this behavior are often varied and complex. This phenomenon has been well studied (e.g., Brockner, 1992; Staw 1976, 1981). Motivation for recommitting to a previous course of action can be explained by a combination of expectancy theory (Vroom, 1964) and cognitive dissonance (Festinger, 1957). That is, the decision maker evaluates the process and rationalizes that the outcome will be consistent with past favorable outcomes or better than previous unfavorable outcomes if she continues to invest resources. In the case of unfavorable historical outcomes, this decision bias is further buttressed by her unwillingness to admit failure to herself or to stakeholders (Brockner, 1992). Staw (1981) examined the escalating commitment process and developed a conceptual model that he believed explained it. This model is the culmination of a number of studies (Staw, 1976; Staw and Fox, 1977; Staw and Ross, 1978).

Staw (1981) identifies four major influences of escalation, which can be explained using expectancy theory and cognitive dissonance as shown in Figure 1. He argued that a decision maker will typically attempt to maximize future utility. He refers to this as "prospective rationality." This process is captured by the perceived probability of future outcomes and the perceived value of future outcomes. The decision

maker evaluates the expectancy of potential outcomes and the potential values of these outcomes and makes the apparent best decision. The belief in the future outcome of the project is influenced by the decision maker's belief in the organization's ability to perform the job and the removal or mitigation of the factor(s) that may have caused poor performance in the past.

The decision to recommit will be influenced to some degree by personal and cultural constraints. These influences can be compelling decision biases, which essentially prevent the decision maker from changing course even when an objective evaluation of the return on a project is otherwise unfavorable. Staw (1981) identifies two primary influences that can be classified as cognitive dissonance: self-justification, which can be explained by retrospective rationality (Staw, 1980), and norms for consistency. Self-justification, is the tendency of decision makers to validate their previous actions either internally or externally by continuing on the same course. Norms for consistency describes the cultural (both organizational and societal) constraints on change. In cultures that are more resistant to change, the decision maker is less likely to change course (Staw, 1981).

FIGURE 1
MAJOR ELEMENTS OF STAW'S (1981) MODEL OF ESCALATING COMMITMENT



In the nearly 40 years since this seminal paper was published, Staw's (1981) model has proven to be robust--very few criticisms have been leveled against it in the literature. Unfortunately, like many theoretical management models, with the exception of the continued interest of management theorists, this model gathers dust. Staw's model was originally designed to explain the escalating commitment phenomenon in a general sense, and his work with Ross argues that the model can be used to mitigate escalating commitment when it occurs (Ross and Staw, 1991). This paper argues that Staw's model, with a logical extension, can be used as an analytical tool to diagnose the causes of escalating commitment.

This paper makes several contributions. It proposes an extended version of Staw's model using qualitative influence diagrams that can be used as a diagnostic tool to examine important variables that impact escalation of commitment in a real world setting. It illustrates how this approach can be used as an analytical tool to evaluate decision making over time. Finally, it investigates how this approach performs when it is applied to two very different decision making scenarios.

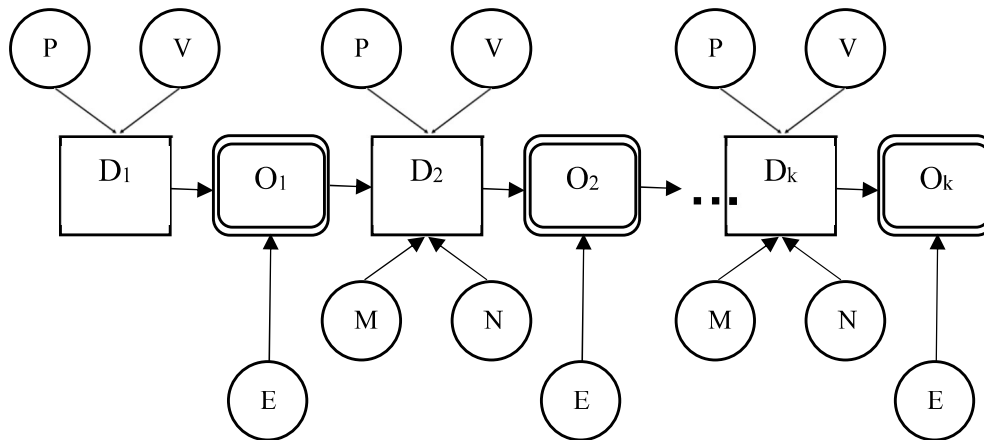
Diagnostic Methodology

Staw's model depicts the many influences that lead to a single decision to commit additional resources to a project that has at least one previous decision point, the original commitment, or many previous decision points depending on how long the organization has recommitted to the original decision. In order to translate Staw's model into a practical diagnostic tool, it is necessary to extend Staw's model to a series of decisions or epochs. This series of decisions will consist of at least two decision nodes. The first of these is the original decision to commit, and the second decision node is the first decision to recommit. The probability that the decision maker will decide to recommit at any given decision point is a function of the

cumulative influence of personal, organizational, and environmental factors present at that decision point and the more or less objective evaluation of the probability and value of the outcome of the decision. It is reasonable to assume in those cases when the escalating commitment lasted for many years and had a series of decision points, that the cumulative influence of self-justification and norms for consistency were particularly powerful.

A multi-epoch extension of Staw's theoretical model is shown in Figure 2. This model is an influence diagram that follows the symbols convention discussed in Clemen (1991). The model consists of decision nodes (squares), chance events (circles), outcomes (double rounded rectangles), and arrows showing the precedence relationship of decisions and events. The original decision to commit (D_1) is a function of prospective rationality, which is a function of perceived probability of future outcomes (P) and the perceived value of future outcomes (V). Like all of the other influences in Staw's model, the degree of influence of a particular factor is treated in the model as a chance event. Decisions to recommit include the two components of prospective rationality and decision biases: motivation to justify previous decisions (M) and norms for consistency (N). Each decision is influenced by the outcome (O) of the previous decision, and these outcomes are dependent on the preceding decision and exogenous events (E), which are beyond the decision maker's control (e.g., market events). Although Staw's model does not include outcomes as a major element, the influence of consequences of previous outcomes is included as influencing every major element depicted in Figure 1 but norms for consistency. Therefore, the outcomes element was promoted in this model to reflect its importance and to provide a temporal linkage between decision events.

FIGURE 2
MULTI-EPOCH INFLUENCE DIAGRAM OF STAW'S ESCALATING COMMITMENT MODEL



The influences depicted in Figure 2 will impact the decision to recommit. A decision to recommit occurs when the sum of influences is greater than zero. More formally, if all of the influences are normalized, for any decision at time i , a decision to recommit will occur when the sum of the influences to the decision is greater than zero. This decision rule is shown below.

$$\text{If } P_i + V_i + M_i + N_i + O_{i-1} > 0, \text{ then commit.} \quad (1)$$

It is unlikely that objective measurement of the various influences would be precise enough to actually arrive at an accurate sum of all of the influences. However, by using a simple qualitative scale that represents the strength and sign of each influence (e.g., strong positive or weak negative), this relationship can be used to illustrate how a decision maker may process the various influences prior to making a decision to recommit.

Diagnostic Framework and Methodology

The first step in the analysis of a sequence of decisions is to trace the chronology of the decisions identified as D_i in Figure 2. Since this is an escalating commitment, the organization will have committed resources to the same general course of action over a period of time. It is critical to construct the entire timeline in order to understand the psychological and normative constraints on the decision maker(s) throughout the lifetime of the project.

Once a chronology of the decisions has been developed, the analysis of the chain of decisions can be divided into parts. At each step, the recommitment and preceding decisions are entered into Staw's model. This analytical process can then be repeated for subsequent decisions.

The next step is to identify the elements that make up the decision maker's retrospective rationality. In particular, how does the decision maker rationalize the factors that influenced past performance, and how does her perception of consequences (both internal and external) influence her future decision making? Staw (1981) argues that the decision maker's decision to escalate commitment is motivated by a number of specific psychological determinants. These include the decision maker's internal and external needs for competence, responsibility for negative consequences, and the predictability of future outcomes.

The next step is to identify normative constraints on future decisions. Staw (1981) argues that decision makers are more likely to escalate commitment when the organizational or social norms penalize a decision maker for changing course. Major elements of this analysis should include organizational culture, stakeholder expectations, and societal norms. The principle questions in this analysis are whether significant normative constraints exist and what impact these constraints had on the decision maker.

The next step is to analyze the decision maker's prospective rationality. This analysis seeks to answer two questions:

1. How confident was the decision maker that the decision will lead to a favorable outcome?
2. What are the benefits of successful completion of the initiative?

To answer these questions, it is important to learn how the decision maker(s) perceived the organization's abilities and the operating environment. Furthermore, it is important in a decision to recommit to determine whether or not the latest decision includes strategies to mitigate internal or external problems that have hindered past performance.

The final step is to assess the relative strength or weakness of the influences using the simple scale described above. Then, using the model framework shown in Figure 2, illustrate how the various influences explain the decision to recommit. This approach is demonstrated in the following two applications.

APPLICATION 1: NATIONAL PROGRAMME FOR INFORMATION TECHNOLOGY (NPfIT)

Background

The United Kingdom's National Health Service (NHS) decided to digitize much of its health care process with the launch of the NPfIT. This system was intended to digitize patient records, develop an electronic appointment making system, and enable digital x-ray and prescriptions transmissions throughout the NHS. Given the many challenges of a systems integration of this magnitude, the overhaul from an unconnected system to a united, electronic one was a lofty goal. Supported by Prime Minister Blair, NPfIT was approved in October of 2002.

The program was expensive, comprehensive and embodied a large array of constituents. The first Director General of the NPfIT project, Richard Granger, stated the project would cost £6.2 billion with a completion date of one decade (Granger, 2004). Stakeholders included a large number of entities such as the NHS, elected officials, and advisors. In addition, members of the medical community wanted a voice in the design and implementation of new processes and technologies. Another major stakeholder was the consulting firms. Ninety-eight percent of the NPfIT budget was awarded to large, well known firms such as Accenture, Computer Science Corporation, Fujitsu, and British Telecom (HCCPA, 2007).

There is a triad of forces that impact any major project. These forces include cost, time, and quality. The NHS had approval for public funding, a timeline was developed, and the quality of the project was being developed as the program began to move forward. The technology needed to implement the goals

existed. The challenge was not in launching innovative technology but in managing a large scale, complex, decade-long project across multiple parties with conflicting interests and independent management teams.

This case had many layers of decision makers. Decision making roles were spread out among many parties including: the prime minister, the House of Commons, the Audit Committee to the appointed Secretary of State for Health and Social Care, the CEO of the NHS, and the project director of the NPfIT. Given the layers of management, the project appeared most vulnerable from the House of Commons. Nonetheless, given the number of stakeholders, the decision to not recommit was unlikely to be easy once the program was approved. Project termination required sustainable negative momentum that would convince a majority of these parties to end the program.

Theoretically, the project could have been terminated after any of the governmental reviews. These reviews emanated from several offices within the House of Commons in addition to the National Health Service. The decision points chosen for this study coincide with major events, which occurred in 2002, 2006, 2009, and 2011. In 2006 and 2009, governmental authorities chose to escalate commitment. In 2011, the project was terminated.

Decision to Commit (2002)

Tony Blair made the original decision to commit to the NPfIT after a 10 minute presentation at Number 10 Downing Street. Sir John Pattison from the Department of Health presented a sketch of the first phase of the plan to the prime minister during a NHS seminar. Pattison described a system that consisted of patient records, appointment management, and prescriptions. The original presentation promised a manageable three-year time frame for the project and a cost of £2.4bn, which he argued would be a small price to pay given the benefits. Later he remarked “We did not get across that the initial time-frame of three years and budget of £2.4bn was just the first phase, and this is possibly where the concern for delayed implementation has come from.” (Wright, 2007).

Decision 2 (2006)

The project began to run into many problems during its first four years. Richard Granger, the head of the NPfIT project, stated “the 10-year programme, parts of which are two years' behind schedule, remains 'extremely challenging’ (Ashton, 2006). Additionally, Professor Hutton, the implementation lead, resigned citing concerns that some clinical needs were disregarded (Digital Health, 2005). In addition, the largest supplier, Accenture, left the project in 2006. At that time, Accenture was responsible for one-third of the NPfIT’s value and had installed 80% of systems to date (Bowers, 2006).

Given that major contractors were defecting, the project was two years behind, the cost was unknown, key stakeholders were not supportive, and suppliers were not performing as expected, 2006 could have been a pivotal year to question the NPfIT. (HCCPA, 2007) Even with these warning signs, Prime Minister Blair still backed the project. During Prime Minister’s questions on June 28, 2006, MP Robert Bacon questioned Blair on the progress of the program. After a series of questions, Blair replied:

In the end, one of the huge benefits of having a National Health Service is that we can have electronic patient records that are transferable right around the system...If that happens, it means not just an end to vast amounts of paperwork in the NHS, but that things such as patient choice, for example, can become a reality. (The Register, 2006)

Perceived Value of Future Outcomes

Estimates of value of future benefits of this NPfIT were not particularly firm at this time. Instead, the NHS promoted NPfIT to offer “financial savings, efficiency gains and wider benefits to society” (HCCPA, 2007; HCCPA, 2013:14). Nonetheless, problems persisted with stakeholder involvement, lack of quantification of nonfinancial benefits and a shortage of IT talent (HCCPA, 2007). On balance, it appears that the project was over budget, but the promise of future returns had a positive influence on the decision to recommit.

Perceived Probability of Future Outcomes

It is known that IT projects often escalate due to scope expansion, poorly managed components, and delays. The United Kingdom was no stranger to IT failures given it had managed several in the past (Brennan, 2007). The most prominent issue at this point was Accenture's departure and its forfeiture of the remainder of its £2B contract (McCue, 2006). Accenture reported that it was unable to profitably execute the contract (Ashton, 2006). IDX also left for the same reason. The NHS had problems with other contractors as well. Some involved delays blamed on software and others on missing milestones that were in dispute soon after the contracts were signed (Bowers, 2006).

Yet, even with mounting obstacles, the project showed no explicit signals that it could not materialize in some form. Thus, the future outcome still appeared viable, albeit behind schedule and over budget.

Motivation to Justify

Supporters of the NPfIT were under considerable pressure to succeed. This pressure emanated from the high visibility, the amount of funds attached to the project, and the breadth and depth of the government's involvement. Even though the leadership team faced technology, contract, and logistical issues (Hendy et al., 2005), the decision to quit at this point would likely not have been palatable to many of the original project champions.

Norms for Consistency

With several layers of decision makers, the influence of norms for consistency is a bit muddled in this case. However, from a cultural perspective, the UK is generally more tolerant of uncertainty when compared to other industrialized countries like the United States, France, or Japan (Hofstede Insights, 2020). This suggests that in projects where there is considerable uncertainty (and by extension, ambiguity), stakeholders would be more tolerant of change, and decision makers would feel less social pressure to recommit than decision makers in countries that are more likely to avoid uncertainty.

As leaders came into and exited various project components, the NPfIT kept moving forward. In 2006 David Nicholson became the new CEO of the NHS. He could have used his entrance as an opportunity for terminating the project. Instead, he supported the project and introduced changes that he thought would help. He created the NHS Connecting for Health, a unit responsible for IT within NHS (Collins, 2007). Change was embraced at the regional level as well. The NHS created a local ownership plan that empowered ten CEOs of major health authorities to be accountable (Burr, 2008).

Decision 3 (2009)

Problems continued to mount in the period leading up to 2009. Richard Granger left the program in 2008, and the project continued to fall further behind while costs increased. In 2009, House of Commons issued a report that seriously questioned the program (HCCPA, 2009).

Perceived Value of Future Outcomes

Costs nearly doubled since the project began in 2002. With costs moving beyond £12.7 bn. (HCCPA, 2009) it was difficult to envision that the future outcome would offer a favorable payoff. In 2008 the cost savings were estimated to be £1.1B (Burr, 2008) while the primary project objective was to improve services. While one could argue that the stakeholders would benefit from ease of use and data sharing among providers, with a population of 50 million at the start of the project, it would have been difficult to imagine that future outcomes would offer a positive economic payoff for UK taxpayers. The pressure continued to mount for NPfIT in terms of poor media exposure and political backlash. However, certain governmental units still believed in the intangible values of the project.

Perceived Probability of Future Outcomes

As the number of problems continued to grow, the perceived probability that the project would be successful declined. The scale and scope of activities that the NHS promised in 2002 were impossible to meet. In 2008 the Department of Health (HCCPA, 2009) estimated that the project would not be completed

until 2014 or 2015. Not only was the expected project completion well beyond its ten year deadline, it was over budget and not fulfilling its goals.

Motivation to Justify

Project support was waning by this point, but given the fact that there was a new NpFIT director, there was still enough support among members of the government to recommit. More importantly, with a general election looming in 2010, it is reasonable to assume that many ministers in Gordon Brown's Labour government were unwilling to admit defeat.

Norms for Consistency

Norms for consistency do not appear to be a significant influence at this decision point. In fact, there does not appear to be a driving force in House of Commons or the National Health Service that values consistent leadership in this project. This is pronounced as the project enters years 5-7. Many contractors had already left, and more continue to leave. British Telecom found their contract was unprofitable, and the head of the project, Granger, left. There may not have been significant social pressure to be consistent as discussed earlier, or groups of decision makers may not respond to social pressure to be consistent in the same way that individual decision makers respond.

Final Decision (2011)

After a decade of disappointing performance, the NPfIT was terminated in September of 2011 (Campbell, 2011). It is clear that there were many indications during the lifetime of the project that suggested that this project was doomed to failure. First, the time scale was inappropriate for the project duration, especially considering that this would be one of the largest IT programs to be developed and deployed. Given the project's scale and scope, entities impacted, and stakeholders involved, it was difficult to imagine a positive outcome within the decade proposed. Second, the deliverables were not adequately developed (HCCPA, 2007). Third, this project offered little downside to those that began and ran it. The funds were from the government and thus the only risk to decision makers was reputation or for some of the initial players the risk of losing re-election. There was no competition and no adverse effects from losing.

Perceived Value of Future Outcomes

Project cost remained offset by social value. The government appeared to pivot from social value when it published estimated future benefits of £3.7B by March of 2012 (HCCPA, 2013). With the belief that the project as envisioned and managed was no longer desired or possible, the value of outcomes, even in terms of societal good, plummeted (Mathieson, 2011).

Perceived Probability of Future Outcomes

The House of Commons released a blistering and pessimistic account of the project in a 2011 report (HCCPA, 2011). It illustrated problems with risk management and security, inconsistent achievements, and that the cost per system increased over the project's duration. In addition, they cited poor accountability with its myriad of supplier related problems and lawsuits.

Motivation to Justify

The NPfIT was started by Tony Blair's Labour government in 2002. The Labour party remained in power until 2010 when David Cameron's Conservative Party formed a government with the Liberal Democrat party (led by Nick Clegg) after the general election in 2010. With the change of government, the Cameron-Clegg government did not have any motivation to justify decisions made by preceding governments led by the Labour Party. New Conservative Health Secretary, Andrew Lansley, made this quite clear on the day that the program was terminated: "Labour's IT programme let down the NHS and wasted taxpayers' money by imposing a top-down IT system on the local NHS, which didn't fit their needs." (Campbell, 2011)

Norms for Consistency

The value of remaining steadfast in terms of leadership and even project components never appeared to be a large driving force in the decision to prolong the project.

Summary of Decisions

The influence diagram in Figure 3 follows the same framework as the extension of Staw's (1981) model shown in Figure 2. Those factors that had a positive influence on the decision to recommit (+) or a negative influence on the decision to recommit (-) were included in the graphic. Those influences that appeared to be more impactful are indicated with larger bold pluses or minuses. Those influences that appeared to be minor are identified by smaller pluses and minuses. Factors that were deemed to have negligible influence on the decision were not included in the graphic. As discussed above, norms for consistency does not appear to play a large role in this case. Therefore, it was not included in any of the four decisions in Figure 2.

APPLICATION 2: MAERSK OIL

Background

Before its sale to Total S.A. in 2017, Maersk Oil was a wholly owned subsidiary of Danish shipping conglomerate, A. P. Moller-Maersk. In 2015, Maersk Oil was valued at over \$10 billion (A.P. Moller-Maersk A/S, 2015). Most of the Maersk Oil's revenue was generated in the North Sea. In 2012, Maersk Oil announced that it would increase daily oil production by nearly 51% to 400,000 barrels/day (OET, 2012). This projected annual production goal required successful exploration and development of oil fields in Africa. After an oil price slump in 2014, Maersk Oil, escalated commitment. Even with this recommitment, the production goal was never achieved.

Decision to Commit (2012)

Maersk Oil's attempted strategy for expanding production relied on high-risk, high-impact wells. This included the Chissonga project located off the coast of Angola. This was a joint venture with Sonangol, Angola's national oil company and Odebrecht from Brazil. The Chissonga field, located 130 km offshore is 1,200 meters to 1,500 meters deep. This was Maersk Oil's first endeavor into deep water sites (Fatunji, 2016).

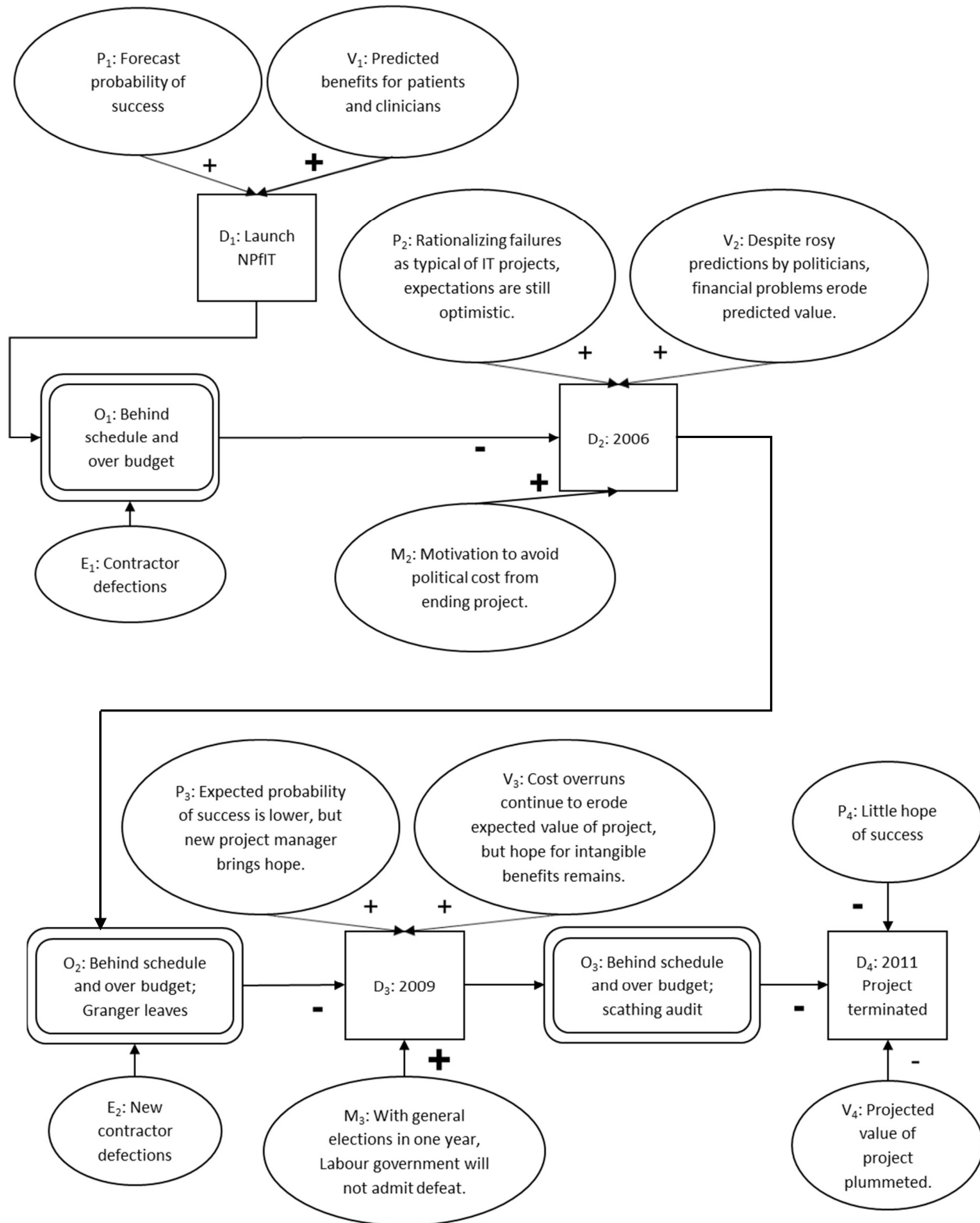
In October of 2012, Maersk Oil announced that it would increase total production from 265,000 BPD to 400,000 BPD (51%) by 2020 (Maersk Oil Press Release, 2012). Maersk Oil executives stated that they would reach this challenging goal by maximizing assets from current and recently approved projects (like the Chissonga project). In the announcement, Nils Andersen, Maersk Group CEO, argued that this increase in production could be achieved with existing assets (Maersk Oil Press Release, 2012).

The decision to commit to expansion of Maersk Oil's daily production looked very appealing to Maersk Oil decision makers in 2012. With oil prices over \$100/bbl, Maersk Oil executives believed that existing exploration projections had the potential for significant growth. Hence, both the perceived probability and perceived value of future outcomes were high.

Decision 2 (2015)

Oil prices dropped over 50%, from a high of \$112/bbl on June 20, 2014 to \$48 on December 31, 2014. Maersk Oil was unprepared for this drop in revenue. The company reported a net loss of \$861 million loss in 2014 (A.P. Moller-Maersk A/S., 2015).

FIGURE 3
NPFIT DECISION INFLUENCE DIAGRAM



The Chissonga field was an important part of Maersk Oil's strategy to achieve 400,000 BPD. At early 2014 oil prices, executives felt that they could bring Chissonga online by 2017 or 2018. But after oil prices plummeted late in mid-2014, developing this field became economically infeasible (OET, 2016). In fact, the decline in oil prices became a critical external influence on Maersk Oil decision outcomes from 2014 until its divestiture in 2017.

This new reality forced Maersk Oil executives to seek land-based exploration opportunities, which they believed would be profitable with lower oil prices. As part of this strategy, they agreed to invest \$845 million to acquire 50% of the Africa Oil Corporation to acquire three exploration licenses in Kenya and two more in Ethiopia (OET, 2014).

Perceived Value of Future Outcomes

With the purchase of the African licenses, Maersk Oil CEO, Jakob Thomasen, argued that Maersk Oil had a robust portfolio from which he could increase production in a cost-effective manner (Kristiansen, 2015). Even with Thomasen's optimistic public statements, it is unlikely that he was nearly as optimistic as he had been three years earlier. The oil price drop had forced him to delay Chissonga and gamble on unproven oil exploration licenses in eastern Africa.

Perceived Probability of Future Outcomes

Although the perceived value of future outcomes had fallen, it is reasonable to believe that Andersen and Thomasen were still reasonably optimistic about the probability that their strategy would ultimately be successful. In a public statement in 2015, Thomasen argued that Maersk Oil had taken the necessary steps to operate effectively in the new reality of \$50/bbl oil (Exarheas, 2015).

Even with the adjustments in their explorational portfolio, there were still some major challenges, which Thomasen must have been acutely aware. The Chissonga project is a good example. One oilfield analyst argued that "the plummeting oil prices have made it impossible to turn a profit on the production here [Chissonga]" (Kristiansen, 2015). Thus, even with the new licenses and portfolio adjustments, it is likely that Thomasen's perceived probability of future success had declined considerably after oil prices crashed in 2014.

Motivation to Justify

With the purchase of the East African oil exploration licenses, Maersk Oil executives clearly escalated their commitment to achieve their goal of a 51% increase in production by 2020. Their decision to escalate was motivated by at least the following two factors, which are both connected to their motivation to justify their decision in 2012.

1. Exploration was their core competency. Ebbie Haan, who was the Chief Growth Officer at Maersk Oil, asserted that exploration was "absolutely part of Maersk Oil DNA," and was "the most cost-effective" means to increase Maersk Oil's reserves (Canty, 2015). Purchasing the licenses provided Maersk Oil with the opportunity to demonstrate that they could achieve their goal in a tough oil economy by doing what they did best. Their previous success in exploration was a basis of their 2012 decision. Hence, it is not surprising that they chose to try to drill their way out of the problem.
2. Andersen and Thomasen were committed to this course of action. They had to demonstrate that they could become profitable with \$50/barrel oil, they remained committed to achieving the production goals, and they were willing to make whatever painful decisions that were necessary to pull it off. Although the public is not privy to the pressures that these two executives faced internally. Actions taken in 2016, which are discussed below, suggest that the pressure from the Board of Directors was intense.

Norms for Consistency

The Danish societal and cultural bias favoring consistent business practices and trust in leaders likely constrained decision makers at Maersk Oil. Denmark appears to have a low degree of openness-to-change

and a high degree of conservation of the status quo. (Byrne & Bradley, 2007) Furthermore, Denmark tends to be a homogenous and egalitarian society (Hedetoft, 2017) that can easily lead to a groupthink mentality and less individual thinking (Janis, 1972).

Another important factor is the governmental control of the Danish North Sea, where governmental protections and subsidies historically protected Maersk Oil. This may have contributed to organizational overconfidence. Thus, their previous North Sea successes provided a basis for a belief that similar results would occur regardless of the challenges that they faced.

Final Decision (2017)

Following a net loss of Maersk Oil \$2.1 billion in 2015, Maersk Oil continued to struggle in 2016 (A.P. Moller-Maersk A/S., 2016). In January, oil prices dropped to a low of \$30.70 per barrel. With declining revenues, Maersk Oil finally admitted that the Chissonga project “was economically challenged” (OGJ editors, 2016). But Maersk Oil executives remained committed to investing in this challenging deep-water project. Even in the wake of several cost cutting moves including closing the Houston office and laying off approximately 100 employees in Angola, Maersk Oil did not give up on the failing Chissonga project (Fatunji, 2016).

With losses mounting, Maersk Chairman, Michael Rasmussen, intervened. He made two moves in 2016 that clearly reflect the Maersk board’s displeasure with the management of Maersk Oil. In June, Rasmussen fired Maersk CEO, Nils Andersen (Weinberg, 2016). In September, Maersk Group announced that the firm would split into two entities. Maersk would concentrate on transportation and logistics, and the oil business would be managed in an energy division, which would be independently managed. The oil business would refocus on North Sea production (Weinberg, 2016). As part of the reorganization, Jacob Thomasen and Ebbie Haan were fired (Brown, 2016). Eleven months after the reorganization, Maersk sold the energy unit to Total S.A. for \$7.5 billion (Reuters, 2017).

Perceived Probability and Value of Future Outcomes

By the summer of 2017, it was clear to management that the attempted expansion of daily oil production and its foray in Africa had been a mistake. Although many energy companies were able to adapt to significantly lower unit revenues, Maersk was not as nimble. The firm was overcommitted to “high-risk, high-impact wells,” which contributed to a nearly \$3 billion loss in 2014 and 2015 (A.P. Moller-Maersk A/S, 2016).

Additionally, Maersk Oil tried to force growth in the face of ever-increasing costs and declining resources rather than increasing operational efficiency in existing projects. These miscalculations along with the firm’s overexposure to falling oil prices eventually led to a number of painful cuts to the operational budget (Pulsinelli, 2016).

Motivation to Justify and Norms for Consistency

Given the organizational upheaval over the previous year, internal norms for consistency were probably not particularly influential. However, it is likely that cultural norms were still influential, but the staggering cost of the failed strategy and the absence of any real hope that the energy unit could be turned around clearly dominated whatever societal pressure the board felt. Furthermore, with the removal of key decision makers, the motivation to justify previous decisions was minimized.

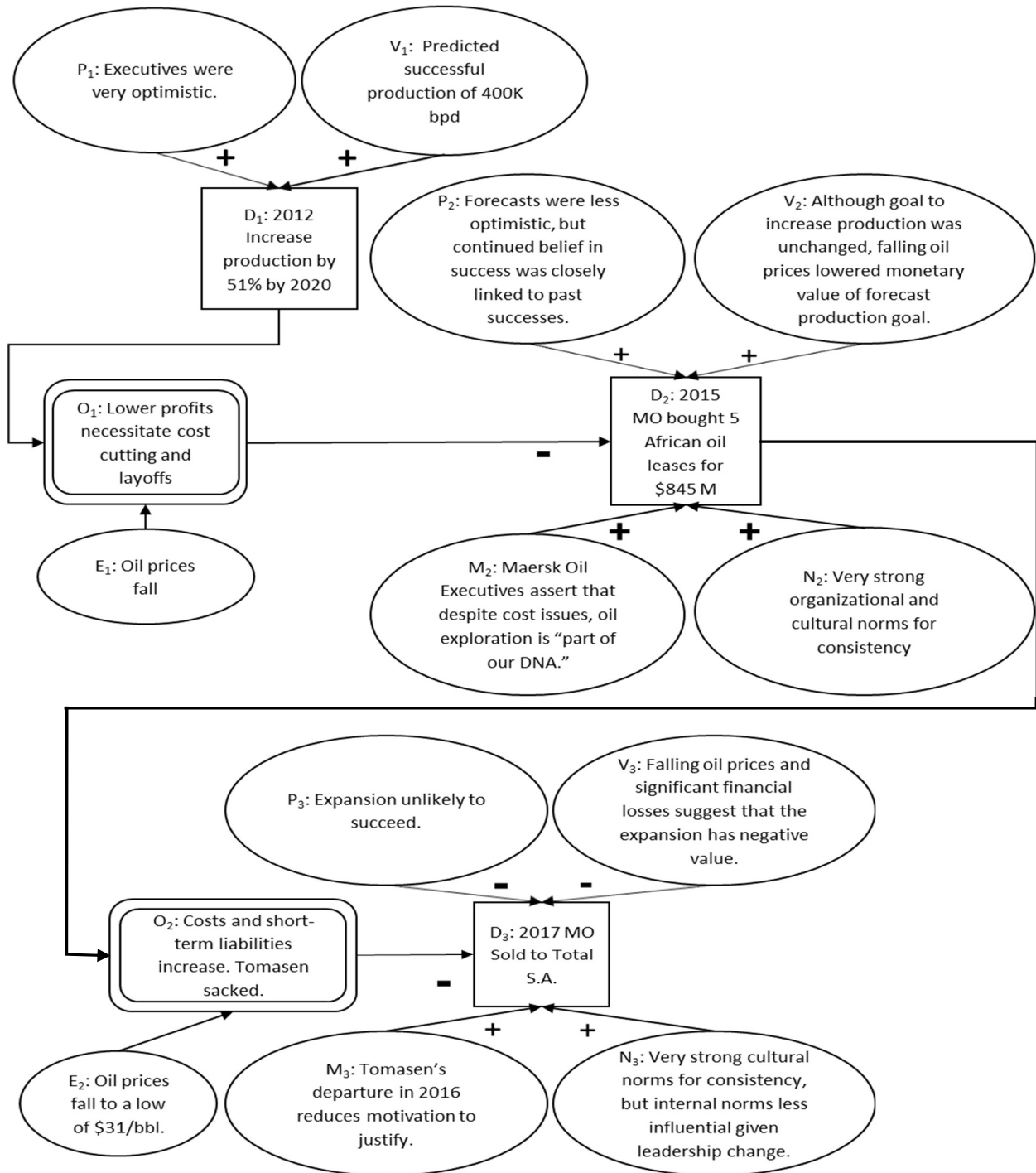
The influence diagram in Figure 4 illustrates the major influences of the three decisions identified in this application.

DISCUSSION

The evidence from the applications suggest that the proposed extended version of Staw’s model performed well. This approach provides a useful structure for decision analysis at a reasonable level of granularity. In particular, decisions were easily linked together by outcomes, it was instructive to observe how the influences on the elements change within a specific application, and it was informative to compare

the similarities and differences of the influence of these elements across applications. For example, in the NPfIT case, it appears that the norms for consistency were not particularly influential. However, internal and external norms for consistency appeared to exert a strong influence on decision making in the Maersk Oil case.

**FIGURE 4
MAERSK OIL DECISION INFLUENCE DIAGRAM**



Nonetheless, this modeling process highlighted several challenges. First, although this approach allows the analyst to weight the factors, it was difficult to accurately assess influence even with a simple scale. For example, the influence of some of the factors appeared to be strongly negative, but it was difficult to gauge the value. Were the NPfIT's present value calculations more influential than the motivation to justify? And if so, how would one compute a value for a feeling or action?

Second, in the world of high stakes losses and wins, the motivation to justify may be quite different than what Staw (1981) found in his studies that involved business school students. The analysis suggests that the influence of motivation to justify previous decisions may dominate the influence of other factors in some situations.

Third, although group decision making can be modeled with this approach, it was not a focus of Staw's model. This created challenges. In the Maersk Oil case, management appeared to struggle with groupthink. Conversely, the NPfIT case dealt with layers of political decision makers who may have been more concerned with image and retention of power than with the best interests of stakeholders.

Fourth, in the NPfIT case it appears that an infusion of new skills was needed. Staw says consistency is connected to keeping leaders in place. This area could have been explored further in Staw's work. For example, what about consistency in terms of broader variables? Consistent leadership is just one area that may not be very valuable. Maybe what is important is the consistency of the idea or the image that it would work out in the end.

Managerial Implications

Even with the possible limitations in Staw's model and the subjective nature of influence weighting in the proposed approach, this methodology can still be a very useful analytical tool for practitioners. It provides a solid basis for evaluating one's own decisions and those of others. Additionally, it offers a tool for managers to consider what variables are more important in their culture or industry. For instance, some may find that financial targets, backed by quantified data, are more important than the subjective aspects.

The temporal component in the proposed model extension allows the practitioner to add detail related to external factors that fall beyond the control of decision makers. In the NPfIT case, contractor defection was unforeseen. In the Maersk Oil case, the precipitous fall of oil prices was unforeseen. In both cases, these external factors contributed significantly to strategic failure. However, anticipating or reacting to "unplanned" events is often the difference between success and failure. Although Staw's model does not explicitly address the bounded rationality of decision makers, the influence of this limitation is important in developing an understanding of events leading up to and following a decision.

Finally, although the completed decision diagram can be very informative, the process of investigating and developing the diagram may, in fact, provide the most benefit for managers who wish to change decision-making behaviors. It is during this analysis that problems with perception, poor communication, incomplete information, decision biases, power and politics and a host of other possible sources can be uncovered.

Limitations and Opportunities for Future Research

This study was somewhat limited by the use of secondary sourced cases. Access to proprietary data and the thoughts of principal actors would have increased the richness of the applications. Nonetheless, the publicly available data in the two applications provided enough data to illustrate the process and utility of the proposed approach.

In addition, the vast differences in the two industries may have hidden important nuances that may come to light with more studies in the same industry. It is possible that with more cases one would find trends that challenge or support certain nodes, such as the motivation to justify. For example, it may be that elected or public officials have more to lose or more transparency in their roles than do for profit firms. Moreover, different cultures may produce unexpected results. Consider Poland, for example, an Eastern European country that was once socialist. This country may likely differ from organizations with decades of political and economic freedoms in both the private and markets.

Future research may investigate a broader array of industries and inspect how the board of directors or

other oversight body impacts decisions. In addition, it would be beneficial to inspect how industry sentiment moderates decision-making. Firms in high-velocity industries may be less concerned with escalation as the pace of competition is quick, perhaps offering more forgiveness for financial or tactical blunders. Alternatively, mature firms may face constrained resources or options that moderate the decision making.

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