

Mitigating the Planning Fallacy in Project Forecasting: An OD Perspective

John A. Sample, PhD SPHR RODC
Askew School of Public Administration and Policy
Florida State University



John Sample has been a training and HRD specialist for over 40 years. He is currently a courtesy professor at the Askew School of Public Administration and Policy at Florida State University where he teaches human resource management and leadership courses. His research interests focus on legal issues related to human resource management, training and organization development. Dr. Sample is retired from the College of Education where he developed and taught graduate courses in adult learning, corporate training and organization development.

Contact Information:

John A. Sample, PhD SPHR RODC
Phone: 850-668-9297

Askew School of Public Administration
and Policy
Florida State University

jsample@fsu.edu

Abstract

Organization development (OD) practitioners may occasionally consult with clients who require accurate forecasts of time, cost, and resource allocation for projects. The purpose of this manuscript is to review the theory and impact of the “planning fallacy” on organizational decision making. This approach to decision making results in inaccurate forecasts utilized in project planning efforts. Reference class forecasting and other solutions are discussed as options for reducing the impact of the planning fallacy.

Keywords: planning fallacy, optimism bias, project management, decision making

practitioners may occasionally consult with clients who require accurate forecasts of time, cost, and resource allocation for projects. Examples include large and small scale planned organizational interventions that require accurate forecasts for dates of completion; or assistance with human, technology, and task interface projects that are deadline driven; or consulting on large scale projects that require accurate forecasts of demand, cost, and risk analysis, such as large public infrastructure projects.

The purpose of this manuscript is to review the theory and impact of the “planning fallacy” on organizational decision making (Kahneman & Tversky, 1979). This approach to decision making results in inaccurate forecasts utilized in project planning. The source for the planning fallacy is a bias in decision making that originates in human intuition. This bias is evident in a wide range of individual and group activities, and includes lay people and experts alike.

As a species, we human beings find it necessary to plan our lives, however mundane, in order to survive and thrive. It doesn't make sense to continually mix up the order of getting out of bed before breakfast. Although we are pretty good at forecasting micro task completion rates, such as brushing our teeth or eating the morning cereal,

adding longer time frames with additional people and scarce resources can lead to complications, such as inaccurate forecasts for demand for services and cost overruns for projects in our organizations.

Note the following examples of forecasting fiascos that vary in scale from the very personal to large public works projects.

1. The reader may have planned a weekend home improvement project, such as hanging a new screen door leading from the family room to the porch. Forecasting the completion of this task is pretty simple. Screws, a screwdriver, and drill should be all that is required for this “project” to be completed by the “forecasted” end of the weekend. Yet no one anticipated the sudden return of a 30-something year old adult offspring with children who decided to leave his spouse. The previous weekend was targeted for hanging the same screen door by the end of the weekend. As was the previous weekend, and now three weeks have passed and the screen door is still propped up against the outside wall.
2. A 2002 survey of American homeowners who had remodeled their kitchens found that, on average, they had estimated the job to cost \$18,658. In fact, they ended up paying an average of \$38,769 (Kahneman,

- 2011).
3. Consider the frustrated project manager who was negotiating a deadline for a task by a computer programmer. The programmer first said she could complete the assigned task in two days. The project manager asked the programmer to be more pessimistic; the estimate was extended to two weeks. The task was again rescheduled, this time for four weeks. As the fifth week was coming to a close, the programmer said she was two days from completing the assigned task. Even as the future becomes the past, “the future continues to look rosier than the past” (Buehler, Griffin, and Peetz, 2010, 3).
 4. The Sydney Opera House is one of Australia’s iconic buildings and is recognized worldwide for its uniqueness as a global symbol. Construction began in 1959 without completed plans or adequate funding. The project was originally forecasted to be completed in four years, with a budget of AUS \$7 million. The project ended up taking fourteen years to complete and cost AUS \$102 million. The cost overrun of 1400% makes the Opera House one of the most expensive cost blowouts in the history of “megaprojects” around the world (Flyvbjerg, 2005).
 5. The Denver International Airport was forecast to cost \$1.7 billion by opening in February 1993. By the time of its’ opening in 1995, the cost overrun was \$3.5 billion. A significant problem for the planners was uncontrolled massive scope changes that were costly and not part of the original plan (Dempsey, 1997).
- One would expect that the examples mentioned above are statistical outliers, more likely the exception rather than the rule. This is not the case according to Flyvbjerg (2008) who states that inaccurate forecasts are attributed to a variety of types of projects including concert halls, museums, sports arenas, exhibit and convention centers, urban renewal, power plants, dams, water projects, IT systems, oil and gas exploration extraction projects, aerospace projects, new production plants, and the development of new products and markets.
- Despite claims that organizational forecasting methods have improved over the past several decades, large public infrastructure projects continue to be remarkably inaccurate. Flyvbjerg, Bruzelius, and Rothengatter (2003) concluded that cost forecasts for transportation infrastructure project are inaccurate on average 44.7% for rail, 33.8% for bridges and tunnels, and 20.4% for roads. For the 70-year period for which cost data are available, accuracy in cost forecasts has not

improved. Average inaccuracy for rail passenger forecasts is -51.4%, with 84% of all rail projects wrong by more than 20%. For roads, average inaccuracy in traffic forecasts is 9.5%, with half of all road forecasts being wrong by more than 20%.

Given the examples of forecasting missteps and fiascos stated above, what explanations might be proffered that would assist OD practitioners to mitigate these types of troublesome outcomes for their clients? To what extent was intent to deceive apparent in the public works infrastructure examples? Strategic misrepresentation is intent to deceive by those who have political and financial stakes in the outcome (examples four and five). But what about the first three examples—the screen door, the kitchen renovations, and computer programmer? Could we reasonably conclude from these examples that there was intent to deceive? If there is no intent to deceive, then what would explain the forecasting failures for the first three examples?

An Anecdotal Case of Inaccurate Forecasting

Daniel Kahneman, the 2002 recipient of the Nobel Prize for economics, is the only social scientist to ever win this coveted prize for economics. His forty years of research, in concert with the late Amos Tversky, is compiled in *Thinking, Fast and Slow* (Kahneman, 2011). This book pursues the broad theme that people, lay and experts alike, are

intuitive thinkers, and that such mental processes are, by their very nature, imperfect. The result is that such judgments and choices often deviate from normal probabilities found in economic models (Shleifer, 2012).

An early example of Kahneman's insight into the perils of intuitive decision making is recounted in the case scenario that follows. This verbatim account exemplifies the power of observation and astute questions while participating in a team project (Kahneman & Lovallo, 1993, 24-25). As an OD practitioner, visualize yourself as Kahneman, the facilitator:

In 1976 one of us (Daniel Kahneman) was involved in a project designed to develop a curriculum for the study of judgment and decision making under uncertainty for high schools in Israel. The project was conducted by a small staff of academics and teachers. When the team had been in operation for about a year, with some significant achievement already to its credit, the discussion at one of the team meetings turned to the question of how long the project would take. To make the debate more useful, I asked everyone to indicate on a slip of paper their best estimate of the number of months that would be needed to bring the project to a well-defined stage

of completion, a complete draft ready for submission to the Ministry of Education. The estimates, including my own, ranged from 18 to 30 months. At this point I had the idea of turning to one of our members, a distinguished expert in curriculum development, asking him a question phrased about as follows: "We are surely not the only team to have tried to develop a curriculum where none existed before. Please try to recall as many cases as you can. Think of them as they were in a stage comparable to ours at the present. How long did it take them, from that point, to complete the projects?" After a long silence, something much like the following answer was given, with obvious signs of discomfort: "First I shall say that not all teams that I can think of in a comparable stage ever did complete the task. About 40% of them eventually gave up. Of the remaining, I cannot think of any that was completed in less than seven years, nor any that took more than ten." In response to a further question, he answered: "No, I cannot think of any relevant factor that distinguishes us favorably from the teams I have been thinking about. Indeed, my impression is that we are slightly below average in terms of our resources and

potential.

In the short case scenario described above, the project team and the curriculum expert made two forecasts for the same project. The first forecast by each team member of 18 to 30 months to complete the curriculum project was overly optimistic. This "inside" view focused on the current objectives of the project, available resources, and plans for completing the project. The project team constructed in their minds a success scenario of their probable progress by extending current trends and activities into the future. The second estimate, an "outside" view of the project, was based on the question by Kahneman to the curriculum expert. The question was an attempt to derive an estimate based on previous experience of a similar class of curriculum development projects. According to the curriculum expert, it would take an additional seven to ten years to complete the project. Furthermore, he could not recall "any relevant factors" that distinguished the current project with other similar projects (Kahneman and Lovallo, 1993).

In this instance, the "outside" view could have aggregated similar projects to derive an "empirical" basis for forecasting the completion of the curriculum project. A rough distribution of previous project outcomes could have been used to position the current project within the distribution of those previous outcomes. Unfortunately, the

curriculum director could not recall any “relevant factors” that would have constituted a “reference class” for the current project, so the team ignored the longer estimate and continued using an “inside” view of the project. According to Kahneman, the project lingered on for a total of eight years, and once completed, the curriculum was never fully implemented (Kahneman, 2011).

Assume for the moment that the project team had initially derived an “outside” view using aggregated project outcome data that included the 40% possibility of the project failing and a forecast of eight years to completion. Would the team have been in a better position to assess personal time, energy, and resources against the intended outcome for the project? Would the project have been worth the effort? Could other choices have been considered, including abandoning the project?

About the same time that Kahneman was working with the curriculum development project in Israel, France, and England partnered to build the Concorde supersonic airplane. The project, which began in 1956, was plagued by national sovereign pride and huge cost overruns. Its twenty-seven year run of transoceanic flights began in 1976 and ended in 2003 in financial ruin. Evolutionary biologists named the “Concorde Fallacy” as a metaphor for defending an investment in a policy, business, or project when that defense costs more

than abandonment of the project (Arkes and Ayton, 1999). Economists refer to it as the “sunk costs” lesson (Bazerman and Moore, 2009). In the instance of the Concorde project or the Israeli curriculum development project, any decision to continue should not be based on what has already been spent in time, personal effort, or resources. The Concorde Fallacy is in effect when project members lament “We’ve got too much invested...” or “If we just work harder...” or “We just need more time...”

The Planning Fallacy: Delusion or Deception

A few years after the curriculum development project described above, Kahneman and Tversky (1979, 20) identified the “planning fallacy” as the tendency “to underestimate the time required to complete a project, even when they have considerable experience of past failures to live up to planned schedules.” According to this theory, errors in human judgment are embedded in systematic and predictable bias for optimism. These errors in judgment are attributed to lay people and experts alike and remain steadfast, even when those conducting the planning have a full awareness of the circumstances and context of the project. Awareness of the bias by itself will not generate a more accurate understanding of the situation (Kahneman and Lovallo, 1993). According to Buehler, et al. (2010, 3), the hallmark of the planning fallacy “is not that planners are optimistic but that they maintain their

optimism about the current project in the face of historical evidence to the contrary.” This aspect of the planning fallacy is deemed more self-deception and delusional, rather than intentionally deceptive.

The bias towards delusional or self-deceptive optimism pushes managers away from rational decision-making to considerations of gains, losses, and probabilities, all of which overestimate benefits and underestimate time and costs (Flyvbjerg, Garbuolo, and Lovallo, 2009). Managers and executives will over rely on an “inside” view of the project that focuses on the details and perceived uniqueness or non-routine character of the project. Participants may also bias forecasts by anchoring on the original forecasted completion date or on the original plan itself. Any adjustment is usually conservative, and hence the final judgment is usually biased towards the anchor (Kahneman, 2011).

The optimism bias that fuels the planning fallacy is consistent with a System 1 approach to thinking. Relying on an “inside view” of project forecasting calls on the best that intuition has to offer. The delusion of optimism is masked by rapid activity that feels instinctive, effortless and automatic, all of which are characteristic of System 1 thinking. The presence of project goals, plans, and activities are part of the delusion of optimism if planners fail incorporate a more reflective, deliberate, and effortful approaches to forecasting

project plans. System 2 thinking is consistent with taking the “outside view” to establish a project forecast using a reference group of previous and similar projects (Thaler and Sunstein, 2008).

The nature and extent of the planning fallacy has been documented by Kahneman and his associates (Lovallo and Kahneman, 2003; Gilovich, Griffin, and Kahneman, 2002) and others as well. Buehler and his associates researched the effects of optimism bias on a variety of student groups in a variety of contexts (c.f., Buehler, Griffin, Lam, Deslauriers, 2012; Buehler, Griffin, and Ross, 1994). Based on more than two decades of research, Buehler has developed an extended inside-outside model that integrates empirical research on cognitive, motivational, social, and behavioral processes underlying the planning fallacy (Buehler, Griffin and Peetz, 2010). Flyvbjerg and his associates over a similar time period explored the role optimism bias and strategic misrepresentation by politicians, stakeholders, and executives in large public capital infrastructure projects (Flyvbjerg, Garbuolo, and Lovallo, 2009).

Strategic Misrepresentation

According to Flyvbjerg (2008, 6) “Optimism bias and strategic misrepresentation are both deceptive, but where the latter is intentional, the first is not. Optimism bias is self-deception. Although the two types of explanation are different, the

result is the same: inaccurate forecasts and inflated benefit-cost ratios.” Although it is possible for both optimism bias and strategic misrepresentation to be bundled in a large project, it is more likely that one or the other is more evident in a project.

Certain types of projects may be targeted for “strategic misrepresentation” which is defined as the “planned, systematic distortion or misstatement of fact—lying—in response to incentives in the budget process” (Jones and Euskie, 1991, 437). These types of projects intentionally avoid the sunshine of transparency and accountability as they are being pitched by businesses and governmental entities who are competing for national legislative favor, funding and formal authorization. Examples include large scale publicly financed infrastructure projects that include transportation (rail, road, and tunneling) and defense contracting (aerospace and naval procurement projects). Politically motivated and deceptive demand, cost, risk, and inflated benefits by project promoters fall into this category (Flyvberg, Holm, and Buhl, 2002).

An example of strategic misrepresentation in an international context is the Eurofighter Typhoon, a major joint defense project of several European countries, costing the United Kingdom about £7 billion. It was soon apparent that a more realistic forecast was £13 billion, made up of £3.3 billion development costs plus £30 million per aircraft. By

1997 the estimated cost was £17 billion; by 2003, £20 billion, and the delivery date of the first aircraft 54 months late (Abbas, 2011).

States, counties, and cities compete aggressively for national funding for projects that are important to their political constituents. Grant writers and project managers from these political entities feel pressured to present plans as favorably as possible. As a result, demand and benefit estimates are inflated, while costs and completion forecasts are understated, all in the name of beating the competition for these scarce resources. “There is no incentive for the individual city to debias its forecast, but quite the opposite. Unless all other cities also debias, the individual city would lose out in the competition for funds. Project managers are on record confirming that this is the common situation” (Flyvberg, 2006, 16).

Mitigating the effects of strategic misrepresentation by OD practitioners requires an intentional focus on accountability and transparency by the entity that solicits and approves funding for these types of projects. Strategies include the following:

- institutional sharing of the financial responsibility for covering cost overruns and benefit shortfalls,
- requiring an “optimism bias uplift” that is computed on the basis of actual cost

overruns in a reference class of completed projects comparable to the project seeking funding,

- avoiding a sovereign (or governmental or legislative) guarantee of capital funding, and
- incentives that reward accuracy and higher levels of criticism to encourage realistic forecasts (Flyvberg, Garbuio, and Lovallo, 2009, 182-185).

Strategies for Mitigating the Effects of the Planning Fallacy

This section reviews several strategies for mitigating the effects of the planning fallacy due to optimistic self-deception in the planning of projects. Strategies include reference class forecasting, observer and imaging processes, the effects of group processes, and task segmentation. Reference class forecasting is also recommended for projects that involve strategic misrepresentation (Flyvberg, 2013).

Reference Class Forecasting

Kahneman and Tversky's (1979) view of the planning fallacy consisting of an "inside" and "outside" view remained relatively constant until 2005. Flyvberg and his associates introduced the more technical concept of "reference class forecasting" as a method for mitigating the effects of optimism bias in forecasting. Accordingly, "This

may be considered the single most important piece of advice regarding how to increase accuracy in forecasting through improved methods. Using such distributional information from other ventures similar to that being forecasted is called taking the "outside view" and is the cure to the planning fallacy" (Flyvbjerg et al., 2009, 173).

Reference class forecasting consists minimally of the first three steps as outlined by Kahneman & Tversky (Kahneman, 2011, 251-252). Flyvberg and associates (Flyvberg, Garbuio, and Lovallo (2009) added steps 4 and 5 for use in analyzing larger and more complicated projects.

1. Identify an appropriate reference class of previous, similar projects that is broad enough "to be statistically meaningful but narrow enough to be truly compatible with the specific project." Examples at various scales of complexity include a kitchen renovation project, a curriculum development project, or a large public infrastructure improvement project.
2. Create from existing data a probability distribution of similar projects as a reference class for the current project. This requires that project planners obtain statistics for the reference class projects, such as the percentage by which expenditures exceeded budget, time to completion of the project,

failure of project predictions, or cost per mile of rail or road construction. Given the complexity of a project, a distribution may be rough distributions for less complicated projects, or more statistically precise for more complex projects.

3. Compare the current project with the baseline prediction from the reference class for a more accurate forecast. This “outside” process focuses attention on external “empirical” data and away from an “inside” focus on the success scenario of activities and details of the project (Kahneman, 2011). According to Flyvbjerg (2006, 7), this step is an “intuitive prediction in which the project planner ‘views’ the current project within the distribution of the reference class for purposes of comparison and prediction.” Two additional steps are necessary to adjust predictions for a more accurate forecast, such as an expensive and complex business venture, new product design and launch, or a large public service infrastructure project.
4. Estimate the reliability of the forecasted prediction by calculating a correlation coefficient between the forecast and the actual outcome for the project. “Through a diligent statistical analysis, the decision maker could construct a rough scale

of predictability based on a computed correlations between and outcomes of other endeavors such as road or bridge construction. He or she can then estimate where his or her ability to predict rail project construction costs lies on this scale” (Flyvbjerg, Garbuio, and Lovallo, 2009, 188).

5. Revise the intuitive forecast which is likely subject to optimism bias. From an empirical perspective, the outside view results in a form of regression toward the mean of cases that make up the reference class. “In this final step, the estimate is adjusted toward the average based on the analysis of predictions in step 4” (Flyvbjerg, Garbuio, and Lovallo, (2009, 188).

Flyvbjerg and Cowi (2004) report an early example using reference class forecasting for a large public infrastructure project. The project involved forecasting the base cost for a rail transportation project in the United Kingdom. Sponsors and promoters of the project estimated the cost at £255 million (US \$400 million). This estimate included an allowance for contingency costs and the potential for optimism bias at 25% above the base cost. Flyvberg and Cowi worked with the UK Department of Transportation by reviewing forty-six similar rail transportation projects that had

been built under similar circumstances, including demand and benefit analysis, costs and contracting arrangements. The analysis and findings from the database were used to calculate the “outside view” for the reference class forecast for the rail project. The analysis determined that actual base costs were likely to be £357 million with a 0.5 probability of going over budget.

In the case cited above, the optimistic forecast for the rail project was adjusted using the following calculation:

$$£375 + [0.5 (\text{£}255 - \text{£}375)] = \text{£}435$$

where the intuitive forecast of £255 is adjusted toward the average of £37 for the reference class, given the probability of $r=0.5$ for going over budget. See Flyvberg, Garbuio, and Lovallo (2009, 188) for a more complete explanation of the calculation.

Reference class forecasting does not attempt to estimate uncertain events that will impact a project. Rather, this method inserts the current project into a “statistical distribution of outcomes” from a similar class of relevant projects. In the vernacular of statisticians, “reference class forecasting consists of regressing forecasters’ best guess toward the average of the reference class and expanding their estimate of credible interval toward the corresponding interval for the class” (Flyvberg, 2008, 8).

Actor-Observer Bias and Visual Imaging

Members of a project planning team may be subject to the actor-observer bias. This particular bias refers to a tendency to make attributions about one’s own behavior to external causes (the dog ate my homework) while attributing behavior of others to internal causes (she is very competent). When members of a project team are behaving as “actors,” they are more likely to attribute their actions to an “inside view” of the project situation, including plans and activities. Research conducted by Buehler, Griffin, & Peetz (2010, 49) suggest that observers “are generally less attentive than actors to actors’ reported plans and more attentive to potential obstacles, the actors’ past experiences, and task deadlines—in others words, observers are more likely to adopt the outside view and to construct a more problem-focused inside view... [and] observers gave little weight to an actor’s motivation for early completion.”

Members of a planning team may visually imagine themselves as they work together to complete a project. There are generally two visual images that people adopt: a first-person or third-person perspective. A first-person perspective occurs when team members “see the project unfolding as if they were actually carrying it out. People who adopt a third-person perspective see the events from an observer’s visual perspective; in their mental image, they see themselves as part of

the field of view, embedded in their surroundings” (Buehler, Griffin, and Peetz, 2010, 32). The first-person perspective is similar to an “actor” who is more focused on the “inside” view of operational activities and goal success of the project. The third-person perspective is similar to an “observer” who takes the “outside” view of the project. This perspective considers obstacles and problems that may impact predictions regarding completion of the project.

OD practitioners may advise a project planning team to appoint one or more members to the role of a third-person observer as the “friendly house pessimist” who reminds the team of pending obstacles and ongoing problems. This “outside” view is designed to blunt the potential for creeping self-deception and optimism bias by the project team and is consistent with “groupthink” theory advocated by Janis (1982).

The Effect of Group Processes on Optimism Bias

Buehler and his associates (Buehler, Messervey, & Griffin, 2005) predicted that collaborative group processes would increase the likelihood of optimism bias in making predictions about the future. A series of small group experiments confirmed that groups tended to optimistically focus on success factors, such as following goals and plans efficiently, while avoiding information about obstacles or problems

that would provide more realistic forecasts. “Planners in organizational contexts often develop their forecasts in team meetings and are called upon to justify their predictions on the basis of detailed step-by-step plans . . . [these] group discussions can actually exacerbate the tendency toward unrealistic predictions through an even greater tendency to plan for success” (Buehler et al., 2010, 45).

OD practitioners are well advised to use their skills as astute observers and process consultants to monitor the effects of creeping optimism bias as groups proceed with “plans for success.” Such plans may be anchored and adjusted on unrealistic predictions for completing projects that avoid the identification of obstacles and problems. This “inside” view may be unwittingly reinforced as the team moves through Tuckman’s (1965) phases of group development (forming, storming, norming, and performing).

Unpacking and Segmenting Tasks

The typical “inside view” of a project plan that utilizes a generalized scenario planning process is susceptible to optimism bias. A strategy for reducing this bias is to segment the project into subcomponents that unpack tasks into subtasks. This process reminds the project team of the many steps necessary to successfully complete the project as forecasted (Kruger & Evans, 2004). It should be noted that the debiasing influence of unpacking

is moderated by project and task complexity: the more complex the task, the greater the influence on unpacking the project (Forsyth and Burt, 2008).

The OD practitioner can assist a client in reducing the potential for optimism bias by promoting the unpacking and segmentation of tasks that compose a project. This effort by the project planning team induces a form of healthy pessimism which serves to reduce the effects of optimism bias.

We are reminded by Kahneman (2011, 418) that organizations can be better at avoiding errors, such as optimism bias “because they think more slowly and have the power to impose orderly procedures.” Kaufman’s organizational elements model (OEM) and approach to needs assessment is premised upon the outside view defining and driving the inside activities of an organization (Kaufman, 2011; Kaufman and Guerra-Lopez, 2013). Reference class forecasting is an example of a needs assessment strategy that links positive social outcomes to the vision and mission of an organization or governmental entity.

Conclusions

The impact of Kahneman and Tversky’s prospect theory and behavioral economics has yet to be fully realized. The application of reference class forecasting by Flyvberg and his associates over the past thirty years has not gone unnoticed by highly placed governmental officials on two

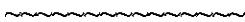
continents. Prime Minister David Cameron of the United Kingdom has created a “behavioral insights team” (BIT) for the purpose of infusing practical applications of behavioral economics into public policy debates and issues. This political initiative is directly related to research and practical application by Flyvberg in the UK, Denmark, and elsewhere. In the United States, President Barack Obama has authorized the creation of similar BIT teams in hopes of streamlining the creation of regulatory policies and the implementation of policy initiatives.

The American Planning Association (2005) officially endorse and “encourages planners to use reference class forecasting in addition to traditional methods as a way to improve accuracy. The reference class forecasting method is beneficial for non-routine projects . . . Planners should never rely solely on civil engineering technology as a way to generate project forecasts.” This endorsement by the APA is directly related to the accomplishments of Flyvberg and his associates.

OD practitioners are positioned to embrace and adopt concepts from behavioral economics like reference class forecasting as fresh mental model for assisting clients to “think outside the box.” The inside-outside metaphor from the curriculum development project in 1976 is a brilliant example of group facilitation in which a simple question on the spur of the moment gave rise to a powerful

conundrum. Daniel Kahneman could not have predicted the impact of this case anecdote on the contributions of Roger Buehler and Bent Flyvberg. Buehler provided theoretical and empirical substance to the notion of the planning fallacy, and Flyvberg's application of reference class forecasting to large infrastructure public works projects added debate substance to national policy initiatives.

As OD practitioners, we are all just one brilliant question away from the next powerful idea that sparks the intellect of ourselves, clients, customers, students, and stakeholders. *Carpe diem!*



References

- Abbas, M. (April 15, 2011). Watchdog slams delays, high costs of Typhoon jet. *Reuters*. Retrieved May 25, 2014 from <http://uk.reuters.com/article/2011/04/15/uk-britain-typhoon-report-idUKTRE73D8PE20110415>
- Arkes, H. R. & Ayton, P. (1999). The sunk cost and Concorde Effects: Are humans less rational than lower animals? *Psychological Bulletin*, 125, 5, 591-600.
- American Planning Association. (2005). JAPA article calls on planners to help end inaccuracies in public project revenue forecasting. Retrieved May 13, 2014 from <http://www.planning.org/newsreleases/2005/apr07.htm>
- Bazerman, M. & Moore, D. A. (2009). *Judgment in decision making* (7th Ed). New York: Wiley.
- Buehler, B., Garbuio, M., & Lovello, D. (2009). Delusion and deception in large infrastructure projects: Two models for explaining and preventing executive disaster. *California Management Review*, 51, 2, 170-193.
- Buehler, R., Griffin, D., Lam, K. C. H., & Deslauriers, J. (2012). Perspectives on prediction: Does third person-person imagery improve task completion estimates? *Organizational Behavior and Human Decision Processes*, 117, 138-149.
- Buehler, L., Griffin, D., and Peetz, J. (2010). The planning fallacy: Cognitive, motivational, and

Notes

¹ Kahneman's book *Thinking Fast and Slow* (2011) is now available free from the Internet. Go to http://www.ebook3000.com/Thinking--Fast-and-Slow_204640.html to download a copy.

- social origins. *Advances in Experimental Social Psychology*, 43, 1-62.
- Buehler, R., Griffin, D., & Ross, (1994). Exploring the planning fallacy: Why people underestimate their task completion times. *Journal of Personality and Social Psychology*, 77, 366-381.
- Buehler, R., Messervey, D., & Griffin, D. (2005). Collaborative planning and prediction: Does group discussion affect optimistic bias in time estimation? *Organizational Behavior and Human Decision Processes*, 97, 47-63.
- Dempsey, S. P. (1997). *Denver international airport: Lessons learned*. New York, NY: McGraw-Hill Publishers.
- Flyvbjerg, B. (2005). Design by deception: the politics of megaproject approval. *Harvard Design Magazine*, 22, 50-59.
- Flyvbjerg, B. (2006). From Nobel Prize to project management: Getting risks right. *Project Management Journal*, 37, 3, 5-15.
- Flyvbjerg, B. (2008). Curbing optimism bias and strategic misrepresentation in planning: Reference class forecasting in practice. *European Planning Studies*, 16, 1, 3-21.
- Flyvbjerg, B. (2013). Quality control and due diligence in project management: Getting decisions right by taking the outside view. *International Journal of Project Management*, 31, 760-774.
- Flyvbjerg, B., Bruzelius, N. & Rothengatter, W. (2003). *Megaprojects and risk: An anatomy of ambition*. Cambridge: Cambridge University Press.
- Flyvbjerg, B. & Cowi, N. B. (2004). *Procedures for dealing with optimism bias in transport planning: Guidance document*. London: UK Department of Transportation.
- Flyvbjerg, B., Garbuio, M., Lovallo, D. (2009). Delusion and deception in large infrastructure projects: two models for explaining and preventing executive disaster. *California Management Review*, 51, 170-193.
- Flyvbjerg, B., Holm, M. K. S., Buhl, S. L. (2005). How (In) accurate are demand forecasts in public works projects? The case of transportation. *Journal of the American Planning Association*, 71, 2, 131-146.
- Forsyth, D. K. & Burt, C. D. B. (2008). Allocating time to future tasks: The effect of task segmentation on planning fallacy bias. *Memory and Cognition*, 36, 4, 791-808.
- Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). *Heuristics and biases: The psychology of intuitive judgment*. Cambridge University Press.
- Janis, I. L. (1982). *Victims of groupthink: A psychological study of foreign-policy decisions*

- and fiascoes* (2nd Ed.). Oxford, England: Houghton Mifflin.
- Jones, L. R. & Euske, K. J. (1991). Strategic misrepresentation in budgeting. *Journal of Public Administration and Theory*, 4, 437-460. Department of Transport.
- Kahneman, D. (2011). *Thinking fast and slow*. New York: Farrar, Straus, and Gilroy.
- Kahneman, D. & Lovallo, D. (1993). Timid choices and bold forecasts: A cognitive perspective on risk taking. *Management Science*; 39, 1, 17-31
- Kahneman, D. & Tversky, A. (1979). Intuitive predictions: Biases and corrective procedures. *TMS Studies in Management Science*, 12, 313-327.
- Kahneman, D. & Tversky, A. (1982). Intuitive prediction: Biases and corrective procedures. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases*. Cambridge University Press, pp. 414-421.
- Kaufman, R. (2011). *A manager's pocket guide to strategic thinking and planning*. Amherst, MA. HRD Press, Inc.
- Kaufman, R. & Guerra-Lopez, I. (2013). *Needs assessment for organizational success*. Alexandria, VA: ASTD Press.
- Kruger, J. & Evans, M. (2004). If you don't want to be late, enumerate: Unpacking reduces the planning fallacy. *Journal of Experimental Social Psychology*, 40, 5, 586-598.
- Lovallo, D. & Kahneman, D. (2003). Delusions of success: How optimism undermines executive decisions. *Harvard Business Review*, 81, 7, 56-63.
- Shleifer, A. (2012). Psychologists at the gate: A review of Daniel Kahneman's thinking fast and slow. *Journal of Economic Literature*, 50, 4, 1-12.
- Thaler, R. H. & Sunstein, C. R. (2008). *Nudge*. London, UK: Penguin Books.
- Tuckman, B. (1965). Developmental sequence in small groups. *Psychological Bulletin*, 63, 6, 384-399.



Copyright of Organization Development Journal is the property of Organization Development Institute and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.