

# FORCED RANKING: A GATEWAY TO DEVIANCE IN MANAGERIAL DECISION-MAKING?

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## ABSTRACT

Forced ranking is common in many corporations today – estimates say the percentage of large firms using this method in the United States somewhere between 15 and 40 percent. Decision makers view it as a way to keep a company continuously lean. Is there a dark side, however? Frequently practitioners talk about subverting forced ranking systems. We suggest that there are substantial downsides to a forced ranking system overlooked in academic literature, but there is a potential upside as well. Several contributions are made, including a discussion of potential emerging legal implications of the practice.

**Keywords:** Forced ranking, deviance, decision-making, team mental models.

## INTRODUCTION

Forced ranking has been in use for decades in some organizations to measure employee performance. While it is unquestionably still popular in large firms, the percentage of firms using it is unclear – sources give figures of anywhere between 15 percent to 40 percent of large firms using this practice. Before continuing, it is important to define the concept of forced ranking (also known as a vitality curve, forced distribution, pareto ranking, and is known by other names as well). The definition from Pfeffer and Sutton [26] fits nicely:

“It’s a talent management approach in which the performance levels of individuals are plotted along a bell curve. Depending on their position on the curve, employees fall into groups, with perhaps the top 20%, the so-called A players, being given outside rewards; the middle 70% or so, the B players, being targeted for development; and the lowly bottom 10%, the C players, being counseled or thrown out of their jobs.”

This mechanism is somewhat commonplace in today’s labor market, based on the earlier statistic. However, little work has been done on the concept outside of practitioner books and articles. While those sources are invaluable, particularly when trying to bridge the theory and practice elements of management, more rigorous, scholarly work is needed to solidify the idea of forced ranking – considering its merits and its downsides. Earlier work has focused on using reward systems to improve quality and performance [5] [11], but little has focused on more potentially punitive systems such as forced ranking.

Jack Welch, who considers the principle an extension of the idea of the Pareto curve, most famously applied the idea of forced ranking at G. E. [30]. The Pareto curve (or principle), views situations in such a way that 80% of the effects come from 20% of the causes. This is the same idea Jack Welch used at G. E. when implementing his forced ranking system. He viewed his workforce with a 20-70-10 lens. Twenty percent of the employees were Pareto’s “causes”, i.e. they produced eighty percent of the benefit the company received from its employees. Seventy percent of the

employees were considered necessary but unexceptional, and ten percent of the employees were considered expendable.

Forced ranking became de rigueur in the 1990s, as companies looked to downsize and become “leaner and meaner”. As work on symbolic management has shown us, frequently companies and more specifically, decision makers at those companies, frequently implement popular management techniques to garner the support of the markets [31]. Nevertheless, doing something simply because G. E. did it, or more specifically, Jack Welch did it, does not necessarily make sense when viewed with a critical eye and for application at another organization. In fact, this is precisely the kind of decision-making Simon’s ideas of bounded rationality anticipate [29]. Further, it can be viewed as part of a sensemaking process, because if G. E. did it and was successful, well, then “we should too!” [18].

The decision to implement forced ranking could also be viewed as a version of mimetic isomorphism – in uncertain or ambiguous situations, a follow-the-leader approach is sometimes taken by decision makers in the absence of better, more specific ideas for an organization [8]. Companies that are struggling who bring in new management often suddenly develop radical shifts in policy, frequently to the benefit but also often to the detriment of the organization.

Consider the case of Ford Motor Company, who implemented a forced ranking system in 2000. This was the brainchild of Jacques Nasser, a career employee at Ford at the time, with almost 30 years with the company when he was named CEO in 1999. Within a year of adoption, managers who had been getting satisfactory reviews for decades were being ranked in the lowest performance group. This led to discrimination lawsuits that Ford decided it had to settle, and ultimately in just a short period, Ford abandoned the initiative [16]. Nasser resigned in 2001, marking his short tenure as the shortest of all CEOs in Ford’s history. This cautionary tale is not necessarily the exception, but the broader practitioner literature treats it as such by its lack of scrutiny.

More currently, Yahoo has seen challenges with its own implementation of forced ranking. They have faced lawsuits filed in 2016 for violating federal and California WARN acts – laws that require adequate notice be given to regulators regarding layoffs. Yahoo shrunk its workforce by over 31% in a 2-year period using a forced ranking system – what some have effectively called a stealth layoff practice [22]. This could be argued as a misuse of the performance method, but it does show that there are potentially legal implications for firms using this practice in the United States.

Ultimately, despite its checkered history, forced ranking is probably a permanent fixture of the modern business landscape, at least at many firms. The ramifications of its use and its effect on organizations become increasingly important research topics. This paper seeks to answer a specific question with regards to the implementation of a forced ranking system – does the implementation of a forced ranking system lead to increased deviance in decision-making of managers at the company? This question will be explored further in the theory development section. For now, a brief but necessary examination of existing literature on the broader subject is in order.

One of the earliest scholarly works on the subject comes from Klores, where he discusses how rating bias in reviewers can subvert a forced ranking system [13]. He studied the nature of forced ranking, demonstrating that a managers’ biases are “passed on” to subordinates because supervisors were most likely to support promotion of those who had similar philosophical ideas about the organization. This created a homogenizing process in the firm he studied.

While there are possible downsides to forced ranking, we believe there is a potential upside as well, that comes about from increased accuracy of team mental models. We will discuss team mental models generally in the following section, with hypotheses to follow.

### TEAM MENTAL MODELS LITERATURE REVIEW

There are two primary ways to examine team cognition identified by researchers working in team psychology. Some elements of team cognition are viewed perceptually, measuring beliefs and the like, while others measure knowledge that is more concrete. Team mental models (TMMs) are an example of the latter, defined as a team's shared, collective understanding and mental depiction of knowledge about aspects of their relevant environment [12]. A more comprehensive definition of team mental models is given by Cannon-Bowers, Salas, and Converse, (1993) as,

*"...knowledge structures held by members of a team that enable them to form accurate explanations and expectations for the task, and in turn, to coordinate their actions and adapt their behavior to demands of the task and other team members."* [2]

This definition underscores the fact that TMMs measure concrete knowledge as opposed to perception, and how that knowledge is successfully (or unsuccessfully) leveraged to create team efficiency and coordination. This may have implications for forced ranking, as we will see later.

The underlying assumptions with respect to team mental models are that teams are more effective when group members have a coherent and accurate collective understanding of taskwork and teamwork domains [2]. Research of these elements has consistently shown that cognitive similarity is a crucial component of success [14]. This essentially means that teams require patterns of cognitive symmetry to anticipate and expect other member's needs and allow for synergistic effects in team efforts [19]. Again, these assumptions underscore the fact that team mental models are about the team's concrete view of reality, not merely about perception.

Researchers have identified two primary properties of team mental models: sharedness and accuracy. Sharedness is defined as the degree to which members' mental models are aligned with each other, and accuracy is generally viewed as how close such models are to "true" views of the environment. Research has emphasized the former over the latter [20]. This may well be a result of empirical challenges in establishing what a benchmark model should be to compare to a team model.

The idea for team (or shared) mental models was originally borrowed from mental models in psychology, where research was focused on individual mental models that were defined as organized knowledge that allowed people to understand the functioning of systems and to generate predictions and have expectations about how those systems might change [28]. This idea was adapted into a construct for teams by Cannon-Bowers and Salas [1]. Again, this was the idea of how well expert teams could coordinate their activities without overt communication – merely applying the individual idea of mental models to a group or team setting.

Many studies have concluded that effective team mental models result in higher performance in those teams [3]. One theorized reason for such a result is that effective team mental models decrease the need for intra-team communication and that efforts can instead be directed toward completing tasks [15]. This is most

pronounced when team mental models have a high level of sharedness, or alignment, amongst team members [20].

Temporal aspects of team mental models generally show a convergence among team members in their shared mental models over time [2] [21] [24]. However, exceptions have been found in specific cases, such as software development project teams, where the contrary result was discovered [17]. The authors of that study theorize that the lack of convergence (and in fact, divergence) was a result of less and less interaction among team members over time, as work became increasingly siloed and specialized. This behavior is commonly found in temporary, task-focused teams [7], although in Levesque et al.'s study the team were not able to be characterized as temporary. Interestingly, however, some literature suggests that turnover can be an important part of developing functional team mental models [12].

As a result, it appears that there are conditions under which the predictions of team mental models become less predictive. Specifically, this seems to occur more often in teams where communication diminishes over time, has a temporary aspect, or is particularly task-oriented with very distinct and specialized roles for team members. This finding contradicts the earlier theory of why effective team mental models increase performance by diminishing the need for communication [15]. While this may still hold true, this diminished communication also leads, potentially, to less effective team mental models [17]. This paradox is still little understood and under researched by management scholars.

Operationalizing team mental models is still in a state of infancy, in management. Several papers have attempted to conceptually quantify various methods for operationalizing TMMs [4] [10] [25]. A meta-analysis suggests a one-size-fits-all approach remains elusive, and that previous work does an excellent job of measuring certain aspects of TMMs without measuring the quantifiable whole [6].

In summary, TMMs generally improve team performance in most situations. The researched exceptions to this rule are few in number but significant in their findings. TMMs are generally defined as a team's shared understanding and knowledge about aspects of their environment. The more similar the mental model amongst team members, the higher team performance comes as a result. This is the finding generally of those who study the sharedness aspect of TMMs. The other aspect of TMMs, accuracy, is underrepresented in management literature, perhaps because of operationalization difficulties.

## **THEORY DEVELOPMENT**

While there is substantial literature and anecdotal evidence to show arguments for and against forced ranking, this paper presents a view to date unexplored with regards to forced ranking's impact on a firm's managers and their behaviors.

Ironically, Jack Welch himself provides some insight to the downsides of forced ranking [30]. As the policy is in place, year after year, and a manager cuts loose the bottom ten percent of their workforce annually, the average quality of your workforce continuously improves. This is not a bad thing. However, after several iterations, a manager's "bottom" ten percent may be very qualified, and undeserving of termination.

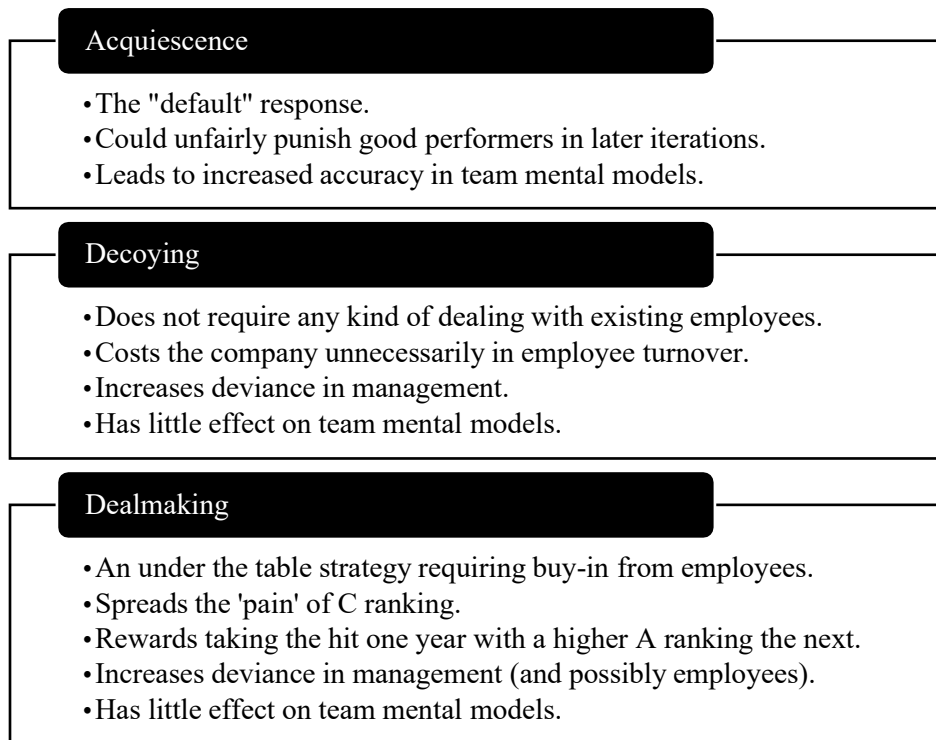
There are many potential managerial responses to a forced ranking system. A manager could use it

to get rid of dead weight, and arguably, this is the way it would be most likely used when first implemented in an organization. But in future iterations, there should (in theory) be less dead weight. What is a manager in this circumstance to do?

Further, we have discussed how stable teams with little turnover develop richer mental models, but they also tend to communicate less over time, which can lead to divergence in mental models. Conversely, teams that experience a reasonable amount of turnover may have less well developed mental models but they are more functional. This potentially results in increased team performance in certain circumstances.

This creates an ethical dilemma for managers who genuinely care about their employees, and may feel responsible for their well-being at the company. There are essentially three responses a manager can take to deal with the institution of a forced ranking policy, and we will discuss each of the three in some detail. We label this as the “Forced Ranking Decision Schema”. These can be seen in Figure 1.

**FIGURE 1: FORCED RANKING DECISION SCHEMA**



Regardless of the later choices, initially, most managers would comply with the new policy of forced ranking. As previously stated, this would be a prime period to reduce dead weight in the organization, and managers would undoubtedly have a substantial list of ‘targets’ for the first yearly iteration or two. After this period however, things tend to get more difficult for a decisionmaker, and that is the period we will be examining.

The first and most obvious response is that managers would simply continue to do as asked. We label this as “Acquiescence”. Some employees would be unfairly held back or possibly terminated, but presumably the manager would continue to pick their worst performers for this treatment, even if that bar kept raising during each iteration. There is nothing inherently wrong with this strategy,

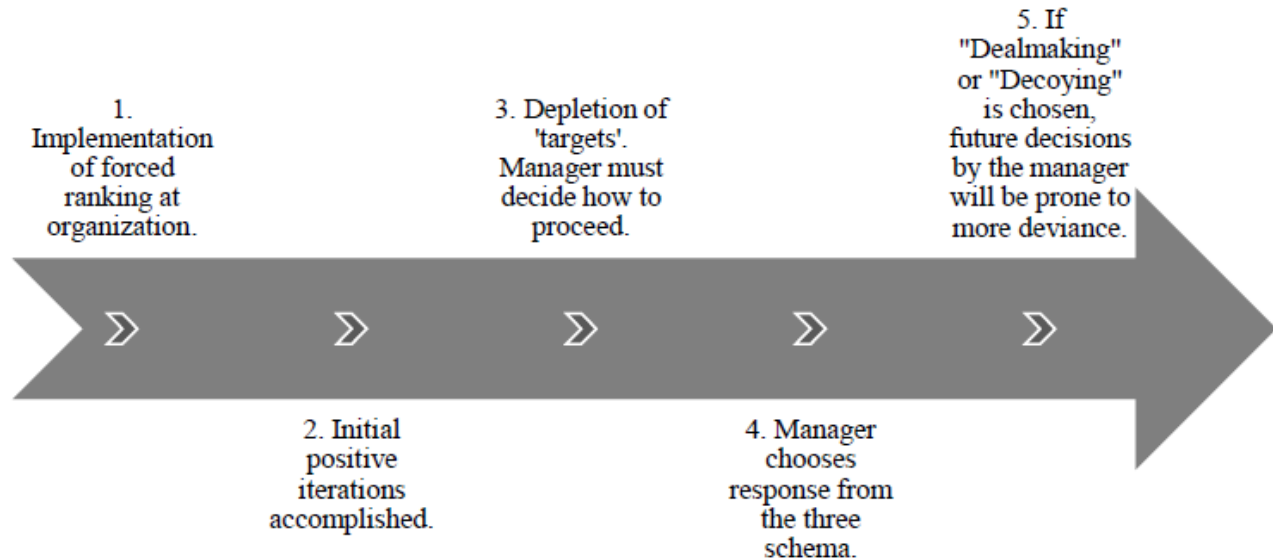
and in fact, many managers obviously do so. Interestingly, by adding team mental models to the view, we can see potential upsides from a forced ranking system, namely that team mental models are generally more functional in teams with modest turnover, and turnover increases communication, which leads to continued improvement of shared mental model sharedness. However, logic and anecdotal evidence from practitioners suggest other alternative responses to the commencement of a forced ranking system are available (and frequently see use). The two remaining alternatives would both be considered “gaming the system”.

In the second method, a manager could respond to a forced ranking system by hiring people specifically to be the new ‘targets’ of forced ranking. We label this practice as “Decoying”. Rather than hiring very qualified candidates, they may decide to hire dead weight at a cut-rate cost. These people would then become the natural candidates for a C ranking that year, allowing the manager to leave his stable of quality employees intact. This also allows the department to save money, because average salaries would be lower in the short run, anyway. This has little effect on team mental models, because the turnover events only occur with essentially temporary workers, leaving the core of the team (and its model) intact.

We label the third and last way a manager might deal with this problem as “Dealmaking”. Managers might make deals with moderate performers to quietly give them C rankings, promising a future A. This method works better in a looser system that doesn’t guarantee termination of C ranked employees, in fact, would only work in an organization in which a manager could prevent a C ranked employee from being terminated. This method allows for a relatively stable team environment, and while not everyone is getting raises annually, it spreads the raises around in a rotation. This also has little effect on team mental models, as the core of the team remains unchanged.

Figure 2 shown below is a simple timeline demonstrating the decision-making response process to the institution of a forced ranking system imposed on managers.

**FIGURE 2: FORCED RANKING TIMELINE**



Managers who choose Acquiescence as the approach to the issue follow the company line. There is no reason to expect that this will have lasting impact on the manager, aside from perhaps a proclivity toward managerial distancing [9]. This could have negative repercussions on the organization in the long term but is not the focus of this paper. We also believe that the increased turnover from an Acquiescence strategy results in higher levels of team mental model sharedness on a team. As a result, we propose the following two hypotheses:

*Hypothesis 1: Managers who choose the Acquiescence approach to forced ranking exhibit no change in likelihood for deviance in decision-making.*

*Hypothesis 1a: Managers who choose the Acquiescence approach to forced ranking have teams that have higher levels of sharedness among the team's mental models.*

Managers who choose Decoying are another matter. They see the need to retain their existing employees after a number of iterations and creatively set up targets for the forced ranking process's ranking. Employees underneath the manager likely have no idea that this process is happening and may simply suspect tenure bias. Therefore, while this may have no effect on their subordinates, the manager is another matter. Because of this situation the manager feels forced into getting creative with their hiring practices in order to preserve their employees. While they may have previously been somewhat prone to deviate from corporate policies in the past, this new breach makes future deviations more likely. We also believe this subversion eliminates the turnover in the 'core' of the team that forced ranking systems attempt to achieve. This will lead to less communication, more siloing, and while the team mental models may be richer, they will be more likely to diverge amongst team members. Therefore:

*Hypothesis 2: Managers who choose the Decoying approach to forced ranking exhibit a greater likelihood of deviance in decision-making in future decisions.*

*Hypothesis 2a: Managers who choose the Decoying approach to forced ranking will have teams*

*that have less sharedness among the team's mental models.*

Managers who choose dealmaking, are in a similar situation. These managers are presented with a difficult situation and may feel more loyalty to their employees than to the organization. This creates a bias for deviance in the manager's mind. While they may have been somewhat prone to deviate from corporate policies in the past, this new, almost forced subversion leads to other more deviant decisions on a manager's part.

Worse, this can also encourage future promotions to behave in similar ways, as they see their manager as a role model and are aware of the deviance from company policy in this specific case. This also can create a climate of paternalism, where employees feel more loyalty to their supervisor than their organization.

Finally, much like with decoying, such a subversion of policy will result in little turnover in the team. This will again lead to less communication and siloing, and eventually more divergent mental models. As a result, we propose the following hypotheses:

*Hypothesis 3: Managers who choose the Dealmaking approach to forced ranking exhibit more deviance in decision-making.*

*Hypothesis 3a: Former (and current) subordinates of a manager who chose the Dealmaking approach are more likely to also choose the Dealmaking approach with respect to their own employees.*

*Hypothesis 3b: Managers who choose the Dealmaking approach to forced ranking will have teams that have less sharedness among the team's mental models.*

Moreover, in the cases of Decoying and Dealmaking, we argue that this effect is amplified over time. The longer a period in which the manager is essentially trained to deviate from corporate policy, the more ingrained the concept becomes in their minds. Deviation eventually becomes the norm, not the exception. Therefore:

*Hypothesis 4: After a forced ranking system has been implemented, a Dealmaking or Decoying manager's willingness to deviate from company directives will be positively correlated with the amount of time under the forced ranking system.*

Finally, again speaking about Dealmaking and Decoying supervisors, it is important to recognize how this deviance came about. The reason for it in the first place was that the manager saw the forced ranking as a threat to their preferred employees, and as a corollary, as a threat to themselves. They chose deviance over Acquiescence because they valued their employees or their well-being more highly than following company policy. This choice has meaningful implications to future decision-making. Namely:

*Hypothesis 5: In managers who chose Dealmaking and Decoying, this deviance in decision-making will be most pronounced when it will benefit the manager's career or the well-being of his(or her) employees, as these are similar reasons why the forced ranking system was subverted in the first place.*

## **LIMITATIONS AND FUTURE DIRECTIONS**



A very valid concern about the proposed study is the lack of true longitudinal data. While patterns in deviance can be established between different managers in different companies over different durations of forced ranking systems with a sufficient sample, there is still a potential for bias in not following the same actors over a period of time. Unfortunately, a longitudinal study of this type would be difficult because of turnover, role changes, and the like. A case study then might be an interesting venue to study this phenomenon on a much smaller scale.

Another limitation is that there is a lack of existing academic work on forced ranking systems. Despite their prevalence, it seems that there is comparatively little academic work on the subject. This obviously is a challenge for an author on such a topic, as establishing theoretical foundations becomes more difficult. Regardless, the topic is absolutely worth pursuing, and future efforts can only help clarify these phenomena (and others) associated with forced ranking.

For future direction, a more organizational behavior approach could be taken such as a study of the personality of managers involved, compared to their big five personality traits. This could be used to then establish what personality traits most often lead to deviance in forced ranking management. This could then be used by companies to better understand the likelihood and risks of implementing a forced ranking system, given the personalities of their existing managers.

Further, while we argue in many cases that team performance suffers from forced ranking, at least in the case of team mental model accuracy the inverse may be true. Empirical testing to determine if this benefit outweighs the other negatives identified will be of great value to practitioners.

## **CONTRIBUTIONS AND CONCLUSION**

This paper makes several important contributions to decision-making and organizational behavior literature and is prescriptive to practitioners as well. First, the paper explains a little-understood mechanism whereby managerial deviance is unknowingly introduced into organizations. Agency theory and corporate governance work consistently struggles with this agency problem, and forced ranking systems are shown to exacerbate that problem. This view also provides a rich test bed for data regarding such agency issues.

Secondly, this paper demonstrates that a forced ranking system can actually have some very negative unintended consequences for organizations and illustrates those consequences specifically. This obviously can be prescriptive for practitioners and high-ranking decision makers at companies. This is certainly a circumstance where a decision maker at a firm might get a lot more than they bargained for with the institution of a forced ranking system.

Thirdly, for the first time in the literature, specific actions managers might take are theorized and codified in the Decision Schema. This has not been done in prior work and based on practitioner work and anecdotal interviews with former decision makers, these are likely responses. Note that there are likely others, but we have simply identified the two we think are most likely.

Fourth, we note some potential legal pitfalls firms that seek to adopt this type of performance review program may encounter. This is particularly relevant to practitioners in Asia, as they seek to adopt widespread management practices used in other locations.

Lastly, we identify conditions under which team mental models may ameliorate or even swing the

negative effects from forced ranking potentially into positive effects. We believe this only could occur under Acquiescence conditions, and empirical testing will be critical to determine how large a positive effect this might have.

Ultimately, we are left with an interesting picture regarding forced ranking. Companies have successfully used it to eliminate dead weight, to the betterment of the firm. Some companies have paid dearly for it, however, like Ford. It is becoming generally more accepted that forced ranking is generally not sustainable in an organization over a long period of time, for the reasons previously stated.

However, we have introduced other possible ramifications besides simple unhappiness with the system that decision makers should consider when adoption of forced ranking is being considered. A view of managers creatively subverting the organization's policies might inspire romanticism in the eyes of some, this outcome is largely viewed as undesirable in the corporate world. As stated earlier, agency theory has long identified a problem between manager's actions and those in the best interest of stakeholders [27]. As a manager's actions drift further and further from the ones intended by stakeholders, this problem is only intensified. Decision makers would do well to judge the ramifications of such a choice for their own organization.

#### REFERENCES

- [1] Cannon-Bowers, J. A., & Salas, E. (1990). *Cognitive psychology and team training: Shared mental models in complex systems*. Paper presented at the Annual Meeting of the Society of Industrial and Organizational Psychology, Miami, FL.
- [2] Cannon-Bowers, J. A., Salas, E., & Converse, S. (1993). Shared mental models in expert team decision making: Current issues. In N. J. Castellan (Ed.), *Individual and group decision making* (pp. 221-246). Hillsdale, NJ: Lawrence Erlbaum.
- [3] Cannon, M. D., & Edmondson, A. C. (2001). Confronting failure: Antecedents and consequences of shared beliefs about failure in organizational work groups. *Journal of Organizational Behavior*, 22(2): 161-177.
- [4] Cooke, N. J., Gorman, J. C., Duran, J. L., & Taylor, A. R. (2007). Team cognition in experienced command-and-control teams. *Journal of Experimental Psychology: Applied*, 13(3): 146.
- [5] Daniel, S. J., Lee, D., & Reitsperger, W. D. (2014). Raising quality consciousness among Chinese manufacturing personnel: Testing the effectiveness of performance management tools. *Asia Pacific Journal of Management*, 31(2): 549-573.
- [6] DeChurch, L. A., & Mesmer-Magnus, J. R. (2010). Measuring shared team mental models: A meta-analysis. *Group Dynamics: Theory, Research, and Practice*, 14(1): 1.
- [7] Denison, D. R., Hart, S. L., & Kahn, J. A. (1996). From chimneys to cross-functional teams: Developing and validating a diagnostic model. *Academy of Management Journal*, 39(4): 1005-1023.
- [8] DiMaggio, P., & Powell, W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2): 147-160.
- [9] Folger, R., & Skarlicki, D. P. (1998). When tough times make tough bosses: Managerial distancing as a function of layoff blame. *Academy of Management Journal*, 41(1): 79-87.
- [10] Johnson, T. E., Lee, Y., Lee, M., O'Connor, D. L., Khalil, M. K., & Huang, X. (2007). Measuring sharedness of team-related knowledge: Design and validation of a shared mental model instrument. *Human Resource Development International*, 10(4): 437-454.

- [11] Keizer, A. B. (2011). Flexibility in Japanese internal labour markets: The introduction of performance-related pay. *Asia Pacific Journal of Management*, 28(3): 573-594.
- [12] Klimoski, R., & Mohammed, S. (1994). Team mental model: Construct or metaphor? *Journal of Management*, 20(2): 403-437.
- [13] Klores, M. S. (1966). Rater bias in forced-distribution performance ratings. *Personnel Psychology*, 19(4): 411-421.
- [14] Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, 7(3): 77-124.
- [15] Langan-Fox, J., Anglim, J., & Wilson, J. R. (2004). Mental models, team mental models, and performance: Process, development, and future directions. *Human Factors and Ergonomics in Manufacturing & Service Industries*, 14(4): 331-352.
- [16] Lawler, E. E. (2003). Reward practices and performance management system effectiveness. *Organizational Dynamics*, 32(4): 396-404.
- [17] Levesque, L. L., Wilson, J. M., & Wholey, D. R. (2001). Cognitive divergence and shared mental models in software development project teams. *Journal of Organizational Behavior*, 22(2): 135-144.
- [18] March, J. G. (1994). *A primer on decision making*. New York: Free Press.
- [19] Marks, M. A., Zaccaro, S. J., & Mathieu, J. E. (2000). Performance implications of leader briefings and team-interaction training for team adaptation to novel environments. *Journal of Applied Psychology*, 85(6): 971-986.
- [20] Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Cannon-Bowers, J. A., & Salas, E. (2005). Scaling the quality of teammates' mental models: equifinality and normative comparisons. *Journal of Organizational Behavior*, 26(1): 37-56.
- [21] Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and performance. *Journal of Applied Psychology*, 85(2): 273.
- [22] McGregor, J. (2016). Why performance reviews like Yahoo's are out of favor. *The Washington Post*.
- [23] Mills, D. Q. (2005). Asian and American leadership styles: How are they unique. *Harvard Business School Working Knowledge*.
- [24] Mohammed, S., & Dumville, B. C. (2001). Team mental models in a team knowledge framework: Expanding theory and measurement across disciplinary boundaries. *Journal of Organizational Behavior*, 22(2): 89-106.
- [25] Mohammed, S., Klimoski, R., & Rentsch, J. R. (2000). The measurement of team mental models: We have no shared schema. *Organizational Research Methods*, 3(2): 123-165.
- [26] Pfeffer, J., & Sutton, R. I. (2006). Evidence-based management. *Harvard Business Review*, 84(1): 62-74.
- [27] Ross, S. A. (1973). The economic theory of agency: The principal's problem. *American Economic Review*, 63(2): 134-139.
- [28] Rouse, W. B., & Morris, N. M. (1986). On looking into the black box: Prospects and limits in the search for mental models. *Psychological Bulletin*, 100(3): 349.
- [29] Simon, H. A. (1972). Theories of bounded rationality. In C. McGuire & R. Radner (Eds.), *Decision and Organization*. Amsterdam: North-Holland.
- [30] Welch, J. (2005). The vitality curve. *Leadership Excellence*, 22(9): 4-5.
- [31] Westphal, J. D., & Zajac, E. J. (1998). The symbolic management of stockholders: Corporate governance reforms and shareholder reactions. *Administrative Science Quarterly*, 43(1): 127-153.