Unveiling the effects of innovation awards on organizational innovations: comparison of bottom-up and top-down innovations

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Abstract

Purpose – This paper aims to explore the effects of innovation awards on subsequent innovation behaviors in organizations. Specifically, the authors investigate whether winning an external innovation award helps diffuse the award-winning innovations and develop additional innovation projects in the organization. Furthermore, the authors study the contextual influence of innovators' organizational hierarchy on experiencing and using the winning consequence.

Design/methodology/approach – The authors collected survey data from clinics and hospitals that participated in a state-level innovation award program sponsored by a large health-care insurer and provider in Midwestern states. The authors tested the hypotheses using ordinary least squares regressions and supplemented the method with a post hoc analysis using Fisher's least significant difference test.

Findings – The authors find that awards help a "bottom-up" innovation (i.e., an innovation initiated by a lower-level employee) disseminate at a larger scale due to award-bestowed legitimacy and reputation, whereas a "top-down" innovation (i.e., an innovation initiated by a top manager) does not experience the same benefit. On the other hand, the organizations that won the innovation award with a "top-down" innovation showed a higher number of additional innovation projects after winning, as manager–innovators experienced a boost in their confidence to engage in further innovation projects.

Originality/value – This paper offers a unique and nuanced examination of how innovation awards influence organizational innovation. By bridging literatures on awards and innovation, the authors propose the mechanisms through which innovation awards confer legitimacy and reputation upon the award winners and their innovations. Furthermore, the authors add insights into the recent academic interests in employee-driven innovation by showing the different benefits of innovation awards depending on the innovators' organizational hierarchies.

Keywords Awards, Organizational innovation, Bottom-up innovation, Top-down innovation

Paper type Research paper

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Introduction

Innovation is an integral driver of organizational performance and growth. In today's dynamic and competitive environment, organizations must continually innovate to stay relevant and gain a competitive advantage. However, when innovative ideas or inventions arise organically within the organization, they are often overlooked or rejected in favor of maintaining existing processes or routines (Battilana *et al.*, 2009; Naveed *et al.*, 2022). Organizational members can be skeptical about the value of the innovation, hesitant to invest resources for the innovation and reluctant to disrupt the status quo (Godefroid *et al.*, 2022).

To mitigate the barriers for adopting innovations, organizations can seek validation of emerging innovation from reputable third parties, via awards or certifications (Gallus and Frey, 2017). Celebrating and highlighting exemplary innovations through awards programs has been used by practitioners and policymakers as a promising avenue to foster innovations. For instance, the Edison Award has been honoring great innovations across sectors since 1987, and the Du Pont Award for Innovation in Packaging has been rewarding innovations in packaging design, material processes and technology for more than 30 years. The Du Pont Awards, in fact, have played a significant role in facilitating sustainable packaging as a common industry practice by acknowledging innovations such as plant-based PET bottles and fully compostable snack bags (Nachey, 2010).

Although the history of innovation awards in industry practice dates far, academic research on innovation awards in the management literature has been relatively scarce (Kay, 2011; Wei, 2007; Makkonen and Inkinen, 2014; Zhang *et al.*, 2014). More academic attention has been paid on innovation contests, such as innovation jam or idea crowdsourcing where employees or external parties (e.g., customers and suppliers) share their ideas to generate new ideas and realize early-stage innovations (Adamczyk *et al.*, 2012). Yet, more recently, scholars have studied the inventors' motivation for entering innovation awards (Kay, 2011; Makkonen and Inkinen, 2014), firms' financial performance post winning awards (Zhang *et al.*, 2014) and the effects on innovation for winners (Kay, 2011). Although these studies offer unique insights, the researchers call for further examination on other effects of innovation awards on awards participants (Kay, 2011; Makkonen and Inkinen, 2014).

Building on these prior studies, we seek to understand the effects of innovation awards on subsequent innovation behaviors in organizations. Specifically, we investigate whether winning awards helps diffuse the award-winning innovations and develop additional innovations in the organization. More importantly, we take a nuanced perspective that delves into a previously unexplored yet critical aspect of innovation development: the innovator's organizational hierarchy. We believe that the organizational hierarchy of award contestants can be a key contingency in award effectiveness because the consequence of winning can significantly differ for the top- versus lower-level employees. The awards literature suggests that awards have various positive effects on winners, such as signaling quality, enhancing credibility and boosting reputation and status (Gallus and Frey, 2017; Paik *et al.*, 2022; Wade *et al.*, 2006). However, these benefits can matter greatly to the members at lower levels of organizational hierarchy, compared to top-level executives whose rank already implies credibility and status. Thus, we propose that the impact of winning an award will show differently for a top- versus bottom-level employees. To sum, this paper asks the following research questions:

RQ1. Does winning an innovation award lead to more innovation in the winners' organization? Would the influence of winning work differently for organizations with top-down versus bottom-up innovations?

We propose that an innovation award bestowed by a professional third-party enhances the legitimacy and reputation of the innovation while boosting the confidence of award-winning

recipients. Consequently, this enhancement increases the likelihood of award-winning innovations being adopted and encourages recipients to develop subsequent innovations. We further argue that the organizational origin of the innovation can result in differing effects. Specifically, we suggest that winning an award with a "bottom-up" innovation (i.e., an innovation that initiated by a lower-level employee) can greatly enhance the implementation of the award-winning innovation on a larger scale than winning with a "top down" innovation (i.e., an innovation that initiated by a top manager). This is because employee–innovators often lack the legitimacy and reputation to implement their bottom-up innovations compared to top managers whose organizational authority grants easier implementation of the top-down innovations. Innovations, by their nature, entail risk-taking, resource commitment and resistance from those who wish to maintain status quo (Battilana *et al.*, 2009; Hargadon and Douglas, 2001). Without the authority to execute implementation, employee–innovators face hurdles in convincing managers and stakeholders of their innovation's value. Thus, winning an award provides these innovators with the credibility needed to persuade their organizations and stakeholders that their innovation merits implementation.

In contrast, winning an award with a top-down innovation will increase the likelihood of subsequent new innovations being introduced in that organization, because the award enhances confidence in top managers to engage in further innovation projects. Their increased confidence in innovation will enable them to take further risks in pursuing new ideas and initiatives. Also, the prestige associated with winning an award incentivizes top managers to strive for more innovations, possibly to win additional awards.

To empirically test our hypotheses, we conducted a survey of clinics and hospitals that participated in a state-level innovation award held in the health-care industry. Such awards are important signals to clinics, hospitals and their constituents, where validation for the quality of patient care is highly appreciated. Our survey was developed based on field interviews with several award participants (winners and nonwinners), the awards program administration and grounded in prior literature on innovative organization culture (Amabile *et al.*, 1996; Mutonyi *et al.*, 2020). Our results largely support our hypotheses.

This paper contributes to the innovation literature by highlighting an important yet underexplored role of innovation awards programs in implementing a newly developed innovation at a larger scale and in initiating subsequent innovations in award-winning organizations. By bridging the awards literature and innovation literature, we suggest the mechanisms of how external innovation awards programs provide legitimacy and reputation to the award winners and their innovations. Furthermore, we add insights to the recent academic interests in bottom-up innovations or employee-driven innovation (Das *et al.*, 2017; Haapasaari *et al.*, 2018; Kesting and Ulhøi, 2010; Weigt-Rohrbeck and Linneberg, 2019). Studies on employee-driven innovation acknowledge the challenges of bottom-up innovations, such as lack of resources, legitimacy and support. Our findings show that such innovations can benefit by winning an innovation award to receive the legitimacy of the quality and value of the innovation to implement in a larger scale.

Theoretical background

Impact of awards

Management scholars have recognized the role of awards and other various certificate mechanisms in developing audience perceptions and organizational behaviors, especially through bestowing legitimacy and reputation to the award winners and raise their confidence (Chatterjee and Hambrick, 2007; Gallus and Frey, 2017; Wade *et al.*, 2006). Awards represent a social endorsement of a recipient's credibility in the field (Frey, 2007;

Paik *et al.*, 2022). In most cases, a creditable third-party (e.g., a professional society, ratings agency, auditor a government agency) administers an awards program for specific purposes, sets technical criteria to determine winners and nonwinners, publicly announces its decision and bestows the awards to winners. Across various fields, we see these awards programs, such as Nobel Prizes and Oscars.

An awards program reinforces and promotes excellence through two pivotal mechanisms: legitimacy and reputation. Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within a social system (Suddaby *et al.*, 2017). At minimum, being legitimized indicates passing the standard to earn the right to exist and being accepted by its environment (Kostova and Zaheer, 1999; Trittin-Ulbrich and Böckel, 2022). For organizations, being legitimate helps them to be favorably accepted by their stakeholders, to raise capital resources and to survive (Pollock and Rindova, 2003; Sine *et al.*, 2007).

We examine legitimacy bestowed on innovations and, in particular, the legitimacy regarding quality of innovation. According to Ruef and Scott (1998), technical legitimacy focuses on the core technology, quality of services and qualifications of actors that can be bestowed to endorse acceptability/desirability in quality. As for the social entity that evaluates what is acceptable and what is desirable, Greenwood *et al.* (2002) posit that professional associations (e.g., ratings agencies, auditors) can confer the endorsement thereby creating professional legitimacy. Information intermediaries, such as financial analysts and the media, can legitimize organizations by influencing stakeholders' perceptions of what is desirable and appropriate (Benner, 2010; Pollock and Rindova, 2003; Deephouse, 2000; Zuckerman, 1999). Thus, a credible third-party bestowing an award to an entity based on quality of innovation can be interpreted as bestowing professional and technical legitimacy to the innovation and the innovator.

Reputation, on the other hand, is the collective assessment of observers regarding the quality or capabilities of a focal actor or organization within a specific domain (Deephouse and Carter, 2005; Graffin and Ward, 2010; McDonnell and King, 2018; Ravasi *et al.*, 2018). Reputation helps an organization to stand out among the crowd and to be known for a certain distinction (Bitektine, 2011; Whetten and Mackey, 2002). Awards provide reputation enhancement to the winners by distinguishing successful award contestants. Moreover, awards are often publicized to stakeholders of the award domain. Awards build prominence for the winners by drawing attention of the field to the winners' achievements (Farys and Wolbring, 2021).

Moreover, awards are significant confidence booster for winners. Many researchers across disciplines, including management and behavioral finance, suggest and show that awards and other public recognition for a person or an entity's high performance help build their self-esteem and can even lead to overconfidence (Frame *et al.*, 2006; Livengood, 2013; Malmendier and Tate, 2008; Wade *et al.*, 2006). Enhanced self-confidence can benefit the award winners in their further endeavors as they are more motivated to execute their ideas and more easily gather support of organizational members.

Impact of awards on organizational innovation

The domain of the awards program we study in this paper is for innovations in health care by organizational members in hospitals and clinics. An innovation is the creation and implementation of a new idea (Choi and Van de Ven, 2013; Poole and Van de Ven, 2021). Creation of a new idea may arise from creativity of an individual or a group of individuals but implementation (adoption) of the idea throughout an organization needs organizational level support. The process from creation to implementation is often so dynamic and complex

that many good ideas drop out without ever being implemented, whereas some ideas are generously supported (Van de Ven *et al.*, 2008). Considerable investments (e.g., financial and human resources, time and effort) are typically required for implementing and diffusing innovations. Even with appropriate investment not all innovations become successful when implemented. Due to this risk, uncertainty and cost, many innovations are often not well-supported in organizations. Moreover, innovation, by its very nature, causes changes in the status quo. Consequently, innovations must overcome the social forces that account for stability of the existing system (Battilana *et al.*, 2009; Hargadon and Douglas, 2001). Organizational members do not always welcome changes that do not directly benefit them but require them to build new routines and learn new procedures (Hon, Bloom, and Crant, 2014). Thus, it is interesting to examine whether the third-party acknowledgement of the quality of the innovation changes the organizational resistance to the innovation, which is the aim of this study.

Hypotheses development

Winning an innovation award indicates that a specific innovation, among a pool of other innovations developed by award contestants, is excellent (in quality, novelty, impact, etc.) and worthy of recognition. Such positive external validation leads to a favorable condition to diffuse the award-winning innovation. For instance, Terlaak and King (2006) found that ISO 9000 certification (a form of external award validation), which certifies a level of product quality, reduces the uncertainty about supplier product quality and thus foster growth in manufacturing facility. Organizational members will more easily adopt the innovation that won an external innovation award as the award helps confirm quality of the innovation by legitimizing the winning innovations (Makkonen and Inkinen, 2014; Rampa and Agogué, 2021; Rossman, 2014). The uncertainty and risks associated with implementing an innovation are reduced while confidence in the innovation enhances by receiving external recognition (Sine *et al.*, 2007).

In addition, awards provide positive reputation to the award-winning innovations. By being known for high quality innovation, award winners become more prominent in their organizational field (Paik *et al.*, 2022; Rindova and Fombrun, 1999). The external nature of the award process inherently makes the innovation public, or at least observable to interested stakeholders as participants in the award process learn about what is being recognized and valued. Subsequent to the announcement of award winners, the news of winning can spread through multiple mechanisms and help the winning innovations to diffuse. The increased legitimacy and attractiveness of the award-winning innovation facilitates the innovation's diffusion. Specifically, we hypothesize:

H1. Winning an innovation award leads to greater diffusion of the focal innovation both in and out of the initiated organization.

We further propose that winning an award will lead to more subsequent innovation activities in the award-winning organization, reflecting success-breeds-success dynamics (Van de Rijt *et al.*, 2014). Van de Rijt *et al.* (2014) found that an initial success bestowed upon randomly selected recipients in the form of funding, status, endorsement and reputation led to significant improvements in these recipients' future success compared to the group of nonrecipients. Following the success of winning an award, winners benefit from having a good reputation and being validated for their capabilities, which help them gather more support in making future success.

Motivation is an important antecedent of innovation because it is the internal force that drives innovation and helps to overcome challenges in the process (Amabile, 1983;

Shalley and Gilson, 2004). Without motivation, individuals would not be fully engaged in developing innovation even though they have creative personality, cognitive skills and knowledge (Amabile, 1983). Awards signal competence in and out of organizations (Gallus and Frey, 2017). Such validation is highly motivating, enhancing the recipient's self-confidence and efficacy in their capabilities in the award-area. This is particularly important in innovation because innovation is about taking a risk, and an individual is more likely to take a risk when they believe in themselves for their likelihood of success. Awards also serve as an encouragement for future endeavors. Awards are powerful motivators for subsequent positive behaviors (Gallus, 2017; Rashid *et al.*, 2006). Even with no material or financial resources bestowed to award recipients, the recognition and symbolic meaning of the award can be enough to motivate the award-winners to maintain their effort or even expend greater effort to keep their status as winners (Gallus, 2017). Recipients can also feel that they are honoring the award by continuing their efforts to create quality innovation. Therefore, we argue:

H2. Winning an innovation award leads to a higher number of new innovation activities in the award winner's organization.

The above discussion differentiates between potential innovation award outcomes into diffusion of focal innovation and development of additional innovation. Although an innovation award may result in both outcomes occurring, we argue that these effects may manifest differently within an organization. We propose that the impact of innovation award bestowed on winners may differ depending on the innovators' position within organizational hierarchy. Some innovations are initiated at employee-level (i.e., bottom-up innovations), as grassroots creativity with diffused origins or from individuals working at the operational level (Das *et al.*, 2017; Haapasaari *et al.*, 2018; Kesting and Ulhøi, 2010; Weigt-Rohrbeck and Linneberg, 2019). As creative ideas from employees can be a major contribution to a firm's value creation, more organizations are encouraging employees to offer innovative ideas and take initiatives (Flocco *et al.*, 2022). Alternatively, some innovations initiate under the leadership of top managers (i.e., top-down innovations). Top-down innovations have been traditionally more prevalent, as top managers are responsible to set goals, deploy resources and oversee innovation development (Keko *et al.*, 2018). As innovations involve risk-taking, require a commitment in resources and often face resistance to change the status quo, it is generally more difficult for bottom-level employees to successfully implement and diffuse their innovation, irrelevant to the quality of innovation or the potential benefits it can bring to the organization (Hargadon and Douglas, 2001; Van de Ven *et al.*, 2008). Contrarily, managers already have legitimacy from their organizational authority to implement the innovative ideas they have developed and can execute more immediately. Top-down innovations often benefit from resource allocations, have more centralized coordination and are associated with specific managers who champion them (Das *et al.*, 2017). The manager–innovators have a lot more leeway to commit their organizations in implementing their innovative ideas and to invest necessary resources for those ideas than employee-level innovators. In contrast, employee–innovators need approval and support of higher supervisory levels to develop and diffuse their innovation ideas.

Given these difficulties that a bottom-up innovation faces in its organization, becoming legitimate is especially more important for bottom-up innovations compared to top-down innovations. By earning third-party recognition as a credible innovation, employee-level innovators can go back to their organizations and pursue support from their organizations. For the award-winning innovators, the award serves as a reflection of their talent in innovation. The award helps employee–innovators gather organizational support for their

focal innovations, because managers will be more confident in the innovator (Gallus and Frey, 2017; Graffin and Ward, 2010). Without the legitimacy given by an external third party, employee-level innovators may find barriers to resources and support. Winning an award can offset these disadvantages and increase the likelihood of expanding the award-winning innovation within and outside of the employee's organization. On the other hand, top-down innovations would be relatively more independent from external validation mechanisms. Top managers, whether they win or lose the award, can pursue further implementation of the innovation because they have the organizational authority to do so. Therefore, we hypothesize:

H3. The positive relationship between winning an award and innovation diffusion (*H1*) will be more salient for the organizations who win with bottom-up innovations than the organizations who win with top-down innovations.

Next, we examine how the organizational hierarchy of an award recipient influences the relationship between winning and new innovation development (*H2*). We expect organizations who win the award with top-down innovations are more likely to initiate subsequent innovation projects. Managers can be bolder about attempting another innovation project when they receive external recognition for their previous innovation and become confident in their innovation capabilities. Studies have shown that CEOs develop more innovations when they are confident, especially post media spotlight or receiving awards for their managerial capabilities (Galasso and Simcoe, 2011; Hirshleifer *et al.*, 2012; Wade *et al.*, 2006). Because confidence drives managers to be more risk-taking and innovation projects require investing at risk, we expect winning an innovation award is an important element in leading to a higher number of subsequent innovations. Nonetheless, this relationship will particularly hold stronger when the recipient of innovation award was a top-level manager than a lower-level employee, because organizational authority allows the top managers to easily take actions and commit organizational resources for their plans.

In contrast, organizations that win innovation award with bottom-up innovations are more likely to be committed in implementing and diffusing their award-winning innovations than initiating new innovation projects. As bottom-up innovations lacked organizational support prior to winning an award and can finally receive such support post-winning, more attention will be directed to implementing those innovations. Organizations that win innovation awards with top-down innovations would not go through the same attention redirecting process. Instead, these organizations are in position to initiate another innovation project. The motivation and confidence of managers in their organizations to innovate will accelerate their pursuit of subsequent innovations. Thus, we maintain:

H4. The positive relationship between winning an award and new innovation developments (*H2*) will be more salient for the organizations who win with top-down innovations than the organizations who win with bottom-up innovations.

Figure 1 outlines our research model. In sum, we propose that innovation awards encourage winners to implement their focal innovation (i.e., the innovation that was applied for in the awards program) and create new innovations. We also posit that the impact of awards is moderated by the inventor's organizational hierarchy.

Methods

Research setting and sample

We examine the impact of innovation awards in the health-care industry setting. The health-care industry is appropriate for this study because innovations are valued highly and

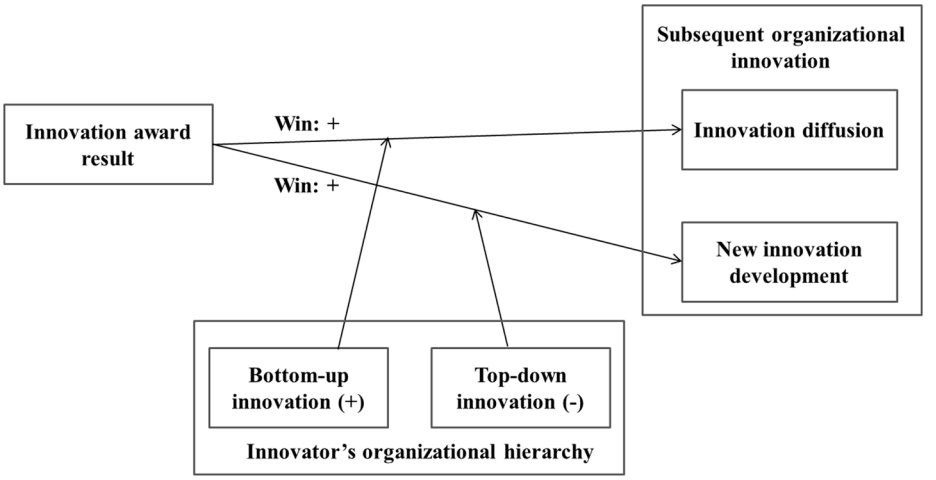

Figure 1.
Research model

Source: Figure created by authors

appear through various improvements from new therapies to mobile health-care tools in the industry (Lazarus and Fell, 2011). The awards program examined here is the annual innovation award granted to medical clinics and hospitals sponsored by HealthPartners. HealthPartners is a large health-care insurer and provider that reimburses over one million patients for services provided in the hospitals and clinics located in Midwestern states.

HealthPartners initiated an innovation awards program for the purpose of promoting patient care innovation among clinics and hospitals. All health-care organizations in the region are welcome to apply for the award by proposing an innovation that decreases the cost of patient care and/or increases the quality of care. Each year, HealthPartners forms a seven-member committee and a two-step blind review process to select innovation award winners. The committee consists of four executive and medical directors from HealthPartners and three members from outside the organization: a university professor, a vice-president of a large organization and a specialist in information technology. In the first step, committee members independently review anonymous submissions, rating each innovation on seven criteria using a five-point scale: improvement in health-care quality and cost, goal clarity, strength of evidence base, innovation impact, overcame barriers and outcome measurement. A secretary compiles and shares the reviews with all members. In the second step, the committee meets to discuss combined ratings and selects award winners unanimously.

Over a five-year period in our sample from 2008 to 2012, there were total of 119 applicants and 33 winners (27.8% winning rate). Examples of innovation-award winners include (1) a "time-out towel" that a nurse places upon a patient lying on an operating table to remind the surgical team to go through a due-diligence checklist to avoid medical errors before beginning a surgery, (2) new procedures for the treatment of patients with ailments, such as low-back pain or physical rehabilitation following knee or hip surgery and (3) more efficient billing and bookkeeping systems that decrease the administrative costs. The winners are announced at the annual banquet held by HealthPartners that approximately 250 guests attend per year. The audience includes physicians, surgeons medical group administrative managers and officers in the region.

HealthPartners' innovation award provides an ideal setting to examine the legitimacy and reputation aspect of an awards program, because the reward is recognition and reputation in the healthcare community and not a monetary reward. The absence of monetary reward makes the recognition and reputation impact of awards clearer. Our primary contact for this research was a director of HealthPartners who founded and manages HealthPartners' innovation awards program. The director collaborated with us through multiple meetings during the research project. The director and his award administration team helped us select organizations for interviews and introduced us to those organizations. Our interview and survey results were shared and discussed with HealthPartners to add industry-expertise perspective for data interpretation. We also conducted preliminary interviews with 11 participants in the awards program from four health-care organizations. The purpose of conducting preliminary interviews was to enhance our understanding of the research setting and the sample before creating and distributing survey questionnaires.

Based on the preliminary interview results and previous literature, surveys were developed and administered online. A total of 520 online surveys were sent to the awards program participants and a total of 119 individuals responded (22.9% response rate). However, excluding incomplete data allowed us 89 responses regarding innovation diffusion and 71 responses regarding new innovation development. Respondents include innovators who came up with the innovation idea, implementers who implemented the innovation, supervisors who oversaw the innovation implementation and application submitters who wrote and sent the application for the awards program. Demographic distribution of the respondents showed that about 58% are female, with the mean age 50 (range from 25 to 71). About 53% of respondents were working at a clinic, whereas 47% were at a hospital.

Measures

Table 1 lists survey items and their scales we used to measure the following constructs.

Dependent variables.

- *Innovation diffusion*: This measures the extent of diffusion of the focal innovation (i.e., the innovation applied to the awards program) post the awards announcement using two survey items (Cronbach's $\alpha = 0.77$). Items measured the sharing of information about the focal innovation within and outside the organization on a five-point scale that ranged from "Not at all" to "To a great extent". We then summed the responses from the two items to generate the innovation diffusion variable.
- *New innovation*: This is a count of the number of new innovations started within the respondents' unit and their organization using two items (Cronbach's $\alpha = 0.82$). This measure is intended to capture whether the innovation actually occurred. This variable was scaled with values from 1 to 6 (1 = Never, 6 = Five or more innovations).

Independent and control variables.

- *Award winners*: Winning and nonwinning respondents were identified using a list of award winners provided by HealthPartners. Award winners were coded as 1 and nonwinners were coded as 0.
- *Bottom-up innovation*: This variable indicates the organizational hierarchy of the inventor (top-down vs bottom-up innovation). Two items were used to assess whether the innovation idea was developed more by employees (bottom-up) or

Table 1.
Survey items

Construct	Survey item	Scale/measure
Innovation diffusion	• Since the award announcement, to what extent have you or others in your unit shared information about the focal innovation within your organization? • Since the award announcement, to what extent have you or others in your unit shared information about the focal innovation with other organizations?	Five-point scale ranging from 1 (Not at all) to 5 (To a great extent)
New innovation	• Since the award announcement, how many new innovation projects have started in your unit? • Since the award announcement, how many new innovation projects have started in your organization?	Six-point scale ranging from 1 (None) to 6 (5 or more)
Bottom-up innovation	• To what extent did the idea for the focal innovation come from employees (i.e., bottom-up)? • To what extent did the idea for the focal innovation come from managers (i.e., top-down)?	Five-point scale ranging from 1 (Not at all) to 5 (To a great extent)
Innovative culture	• To what extent are you expected to innovate in your organization? • To what extent does your supervisor or leader allow you to make honest mistakes? • To what extent is innovation encouraged and valued in your organization? • To what extent does top management support innovation? • To what extent will you be rewarded for doing innovation in your organization? • To what extent does your organization support learning and development opportunities (e.g., training and conferences)?	Five-point scale ranging from 1 (Not at all, almost never, or none) to 5 (To a great extent, always, or very much)

(*continued*)

Construct	Survey item	Scale/measure
	• To what extent do you have sufficient resource to innovate? • How often are innovative ideas shared across in your organization? • How often do people feel free to critique what is being done in your organization? • How much are you recognized for what you do in your organization? • How much free and open communication exists within your work group? • How much influence do you have in deciding how you perform your work? • How much influence do you have in developing policies and procedures that may affect your work?	
Organization type	Is the organization, in which you work, a medical clinic or a hospital?	Indicating clinic or hospital
Award ceremony attendance	Please place a check by year(s) of excellence dinner that you attended	Indicating the year of attendance

Source: Table created by authors

Table 1.

managers (top-down). Informants were asked on a five-point scale the extent to which their innovations were top-down and the extent to which they were bottom-up. The difference between their responses was then calculated. Positive values represented the innovation generated from lower level in the organizational hierarchy, whreas zero and negative values represented the innovation generated from higher/top-level in organization. Then we dichotomized the variable to 1 and 0 to indicate 1 for bottom-up innovation and 0 for top-down innovation to provide a clear distinction between the two groups.

- *Innovative culture*: Cultural difference among organizations may also impact innovation. To measure the extent of an organization's innovative culture, we used a 13-item construct. These items were adapted from previous innovation literature (Amabile *et al.*, 1996; O'Reilly, 1989; Van de Ven and Chu, 1989; Van de Ven and Ferry, 1980) to measure various aspects of an innovative culture including risk taking, support for innovation, reward, openness, autonomy, and resource. Items were measured on a five-point scale. The 13-item construct demonstrated good internal consistency (Cronbach's $\alpha = 0.90$). We averaged item scores to develop an innovative culture score. Higher scores reflect highly innovative organization cultures.
- *Organization type*: Hospitals and clinics have different organizational structures, treat different types of patients and provide different services. It is possible that differences in organizational structure will affect both odds of winning an award and subsequent innovation activities. For instance, relatively larger organizational size of a hospital compared to a clinic can pose more challenges or require more time to diffuse an innovation. To control for the effects of organization type, respondents were asked to indicate whether their organization was a hospital or clinic. Clinics were coded as 1 and hospitals as 0.
- *Awards ceremony attendance*: Attending an awards ceremony can influence the perspective of organizational members about the significance of winning or losing, their future motivation for innovation and give them chance to communicate other stakeholders of their industry, which could be inspirational for future innovation attempts or develop networks to diffuse their innovation. Thus, we asked respondents to indicate whether they attended the award announcement dinner ceremony on the year of their participation. Responses were coded as 1 if they attended and 0 otherwise.

Estimation

We used ordinary least squares (OLS) regression to estimate main and interaction effect models for both dependent variables (i.e., innovation diffusion and new innovation). We then followed with a post hoc analysis using Fisher's least significant difference (LSD) test.

Results

Tables 2 and 3 provide descriptive statistics and correlations for the variables used in our models. Correlation test shows there is no multicollinearity issues. Summary statistics show that there is a 50:50 distribution in sample between organizations who applied the awards program with bottom-up innovations and the organizations with top-down innovations. Table 4 includes four models. The dependent variable for Models 1 and 2 is *innovation diffusion* and the dependent variable for Models 3 and 4 is *new innovation development*.

Model 1 tests the effect of control variables (e.g., *innovative culture, organization type* and *attending award ceremony*) on *innovation diffusion*. The result shows that *innovative culture*

strongly predicts higher levels of diffusion, but *organization type* (e.g., hospital versus clinic) and *attending award ceremony* did not have statistically significant relationship with the diffusion. In Model 2, we test *H1* and *H3*. In *H1*, we argued that winning an innovation award leads to more diffusion of the focal innovation, but found no statistical significance ($b = -0.90$, n.s.). We interpret what this could imply in the discussion section. In *H3*, we suggested that the award contestants with *bottom-up innovations* will have a higher level of diffusion of the focal innovation if they win the award. Essentially, we tested the interaction effect of winning and the organizational hierarchy of innovator on the effect of diffusion of innovation. We found a strong result supporting our hypothesis ($b = 1.97, p < 0.05$).

In Model 3, we tested the effect of control variables on development of *new innovation*. Again, we see a positive effect of *innovative culture* on this dependent variable, but did not find any other control variables making an impact. In Model 4, we examine *H2* and *H4*. Supporting our *H2*, we found that winning an innovation award increase further innovation development in the winning organization ($b = 1.43, p < 0.05$). Moreover, we find support for *H4*, which predicted that organization with top-down innovation will have more subsequent innovation after winning an award, compared to the ones with bottom-up innovation ($b = -2.25, p < 0.01$). To sum, we found support for *H2, H3* and *H4*.

In addition, we conducted a post hoc analysis to investigate the interaction effects between winning and bottom-up innovation on our two dependent variables. Our interactions create four different groups – award winner with bottom-up innovation, award winner with top-down innovation, nonwinner with bottom-up innovation and nonwinner with top-down innovation. Using Fisher's LSD method, we examined pairwise differences in these four groups on two dependent variables (Williams and Abdi, 2010). We report this test in Table 5. Results indicate that the organizations who lost with top-down innovation had

Variable	Mean	S.D.	Min	Max
Innovation diffusion	5.92	2.13	2	10
New innovation	4.19	1.52	1	6
Award winner	0.28	0.45	0	1
Bottom-up innovation	0.51	0.50	0	1
Innovative culture	3.70	0.67	2	4.85
Award ceremony attendance	0.77	0.42	0	1
Organization type	0.46	0.50	0	1

Source: Table created by authors

Table 2.
Descriptive statistics

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Innovation diffusion	1.000						
(2) New innovation	0.119	1.000					
(3) Award winner	0.002	−0.031	1.000				
(4) Bottom-up innovation	−0.282*	−0.126	0.059	1.000			
(5) Innovative culture	0.339*	0.254	−0.271*	−0.213	1.000		
(6) Award ceremony attendance	0.122	−0.037	0.126	0.090	0.121	1.000	
(7) Organization type	−0.112	−0.010	0.247*	0.193	−0.073	−0.282*	1.000

Note: *Shows significance at $p < 0.01$
Source: Table created by authors

Table 3.
Correlations

Variables	DV: innovation diffusion Model1	Model2	DV: new innovation Model3	Model4
Innovative culture	1.02** (0.32)	0.85* (0.35)	0.62* (0.28)	0.68* (0.30)
Award ceremony attendance	0.44 (0.64)	0.74 (0.63)	−0.49 (0.62)	−0.73 (0.63)
Organization type	0.30 (0.34)	0.10 (0.34)	0.16 (0.27)	0.29 (0.27)
Award winner		−0.90 (0.67)		1.43* (0.60)
Bottom-up innovation		−1.55** (0.55)		0.49 (0.43)
Award winner X bottom-up innovation		1.97* (0.90)		−2.25** (0.78)
Constant	1.35 (1.31)	2.74+ (1.51)	1.97+ (1.17)	1.49 (1.29)
Observations	89	88	71	70
R-squared	0.13	0.21	0.08	0.18

Table 4.
Regression results

Notes: Standard errors in parentheses; $^{**}p < 0.01$; $^{*}p < 0.05$; $+p < 0.1$
Source: Table created by authors

statistically greater diffusion of focal innovations than the organizations who lost with bottom-up innovation (Group 3 versus 4, $p < 0.05$) and the award-winning organizations with bottom-up innovation had greater diffusion of the focal innovations than organizations who lost with bottom-up innovation (Group 1 versus 3, $p < 0.1$). Together, the results suggest that organizations with bottom-up innovation will benefit from winning an award to implement their innovation in a larger scale, supporting *H3*. Regarding subsequent innovation development, the pairwise comparison using Fisher's method suggests that the winners with top-down innovations had statistically higher number of new developments than winners with bottom-up innovations (Group 1 versus 2, $p < 0.01$). We further found that the winners with top-down innovations, compared to losers with top-down innovations,

Group 1: Win with bottom-up innovation
Group 2: Win with top-down innovation
Group 3: Lose with bottom-up innovation
Group 4: Lose with top-down innovation

Groups	Contrast	SD	*t*	$P > \|t\|$	[95% confidence interval]	
DV: innovation diffusion						
1 and 2	0.42	0.71	0.59	0.555	−0.99201	1.835284
1 and 3	1.07	0.62	1.73	0.087	−0.16068	2.309582
1 and 4	−0.48	0.64	−0.74	0.459	−1.74962	0.797535
2 and 3	0.65	0.65	1.00	0.321	−0.6489	1.954527
2 and 4	−0.90	0.67	−1.34	0.185	−2.23518	0.439812
3 and 4	−1.55	0.55	−2.83	0.006	−2.64119	−0.4598
DV: new innovation						
1 and 2	−1.76	0.65	−2.72	0.008	−3.04845	−0.46459
1 and 3	−0.82	0.56	−1.46	0.148	−1.93724	0.299235
1 and 4	−0.33	0.56	−0.59	0.561	−1.4529	0.794861
2 and 3	0.94	0.59	1.59	0.117	−0.24085	2.115881
2 and 4	1.43	0.60	2.39	0.020	0.235702	2.619299
3 and 4	0.49	0.43	1.13	0.263	−0.37689	1.356863

Table 5.
Post hoc group comparisons using Fisher's least significant difference

Source: Table created by authors

had higher number of new innovation developments (Group 2 versus 4, $p < 0.05$). Overall, our post hoc analysis strengthens our results for *H3* and *H4* and provides additional information to compare groups.

Discussion and conclusion

Innovation is an important topic among strategic management and organization scholars (Kahn, 2018; Poole and Ven de Ven, 2021). Numerous studies have explored the means to enhance organizational innovations (e.g., exploration and exploitation, alliance, joint venture, R&D, absorptive capacity, employee creativity, self-efficacy, leadership, etc.); however, we know little about how external awards can influence organizational innovations (Kay, 2011; Makkonen and Inkinen, 2014). This research provides new insights into the impact of an innovation awards program on subsequent innovation behaviors (i.e., diffusing an innovation and developing new innovations). Our goal was to examine what differences are observed between winners and nonwinners of an innovation award and whether organizational hierarchy of an innovator can explain different impact of awards on their organizations' innovation.

Using the innovation awards program sponsored by a health-care insurer for innovations in health-care industry, we found that the results of winning or not winning an award are more complex than commonly expected. Our results show that winning innovation award help the winning organization to pursue and execute subsequent innovation projects, but not necessarily help diffusing the award-winning innovation, unless the award was given to an innovation initiated by an employee. Interestingly, when we disregard the organizational hierarchy of the innovator, winning itself does not indicate more diffusion of the award-winning innovation. This result challenges the findings from Sine *et al.* (2007) and Terlaak and King (2006) that suggest getting certified by an external authority for the quality of a product or business idea help the certified organizations to facilitate growth of their products or ideas.

We propose several explanations for how our findings differ from other work. One possible explanation is that some winning innovations in our sample may have already been successfully implemented and diffused sufficiently across organizations. This can happen as the award participants could submit their applications regardless of the stages of their innovation. Some organizations may choose to submit their applications after their innovation has been effectively implemented, whereas others may submit their applications when their innovation is at a pilot stage within an organizational unit. Another possible explanation is that the nonwinners may put extra efforts on diffusing the innovation after losing in the awards program to compensate for the fact they lost, reducing the differences between winners and losers in subsequent innovation diffusion. Alternatively, our findings confirm that awards bestow legitimacy (Anand and Watson, 2004; Rao, 1994) and highlight the importance of incorporating organizational hierarchy of award recipients to understanding the impact of award-bestowed legitimacy. For instance, an Oscar-winning director winning a second or a third subsequent Oscar may only marginally help the director's newest films due to the preestablished legitimacy of the director, whereas an up-and-coming director winning a first Oscar may help his or her film greatly. Our result thus sheds light on this important preconditional factor to magnify or curve the impact of awards.

In fact, the benefit of winning is clear for employee-level innovators to persuade their organizational members and other health-care organizations to adopt their innovations. The bestowed legitimacy and reputation as an award-winning innovation gave employee-level innovators an edge that top-manager innovators enjoyed due to their organizational hierarchy. This result highlights the difficulties employee-level innovators face in

implementing their innovations to a larger scale and the advantage of winning an award to overcome the challenges, which confirms Flocco *et al.* (2022) suggestion that bottom-up innovations face more challenges in organization than top-down innovations.

We also posited and found support that top-down innovation winners had higher levels of initiating subsequent innovations. These results together can suggest that manager–innovators implement their innovations in a large scale even prior to winning an award due to different initial resource allocations and organization attention, whereas the employee–innovators can boost diffusing their innovation after winning an award. The manager–innovators' legitimacy, reputation and confidence in their innovativeness seem to empower them to go further in developing new projects for future innovations.

In our study, we identified a pivotal contextual factor influencing the outcomes of post-award innovation activities: the origin and position of the innovator within the organizational hierarchy. Specifically, we examined whether the innovation originated at the managerial or employee level. We proposed and found that the mechanisms driving these outcomes stem from the preexisting legitimacy and reputation associated with the award-winning innovations. Innovators holding managerial positions, whose organizational authority already lends credibility and reputation to their innovations, tend to experience smoother diffusion of their ideas. On the other hand, employee-innovators lacking such positional authority often encounter barriers in implementing their innovations. Thus, for employee–innovators, the validation provided by third-party awards becomes a valuable asset in facilitating the implementation of their innovations. For top-manager innovators, while awards may contribute little to the legitimacy and reputation of their innovations, they serve to bolster confidence, as suggested by Gallus and Frey (2017). This increased confidence among manager–innovators following award recognition can lead to greater risk-taking behaviors and a heightened pursuit of innovation. This diverging result could indicate that the interpretation of awards varies depending on the recipient's organizational hierarchy. Lower ranking or line employees tend to focus on the innovation itself, whereas higher-ranking managers perceive awards as personal recognition of their leadership in innovation.

Theoretical implications

This paper contributes to the literature on innovation management by shedding light on awards programs as a key facilitator for innovation activities. The paper also uniquely investigates and informs about the different growth in innovation activities depending on whether the award was given to a top-down or a bottom-up innovation. Doing so, the study highlights a key contingency factor – organizational hierarchy of the award recipient – that changes the influence of awards. For low-level employees, the external awards can be extremely valuable to spread their innovation, and although top managers do not find the same benefit, they can use the winning accomplishments to facilitate future innovations. The findings help us understand the varying impact of awards and why awards are valued differently based on the recipients.

The study resonates with work on employee-driven innovations (Das *et al.*, 2017; Haapasaari *et al.*, 2018; Kesting and Ulhøi, 2010; Weigt-Rohrbeck and Linneberg, 2019) and extends the literature by offering innovation awards as a catalyst to foster employee-driven innovations. Prior research suggests that the "ordinary" employees, who are not in a research and development team, are not typically expected to generate innovative ideas for implementation in the workplace. Consequently, they often encounter challenges when proposing alternative work routines, even if their ideas aim to enhance productivity or efficiency. This paper highlights that employees who seek to diffuse their innovation within and outside of their organizations can use innovation awards.

The paper also brings the awards literature to innovation management to emphasize the role of external constituents (e.g., professional and authoritative agencies, certified institutions and specialists) in encouraging organizational behaviors (Paik *et al.*, 2022; Sine *et al.*, 2007; Zuckerman, 1999) and provides insights about when the legitimacy and reputation bestowed by external constituents have stronger impact on organizational behaviors.

Practical implications

Our paper delivers a practical insight that managers can promote organizational innovation by using the recognition of an award from external stakeholders (Gallus, 2017). It may be risky to implement every innovative idea suggested by employees (Birkinshaw *et al.*, 2011). By going through an external evaluation for the innovation's value, internal and external stakeholders of the organization can rely on the awards program to implement the innovation and take the risk of changing the status quo. Employee-level innovators can find these external avenues to promote their innovation and benefit from winning.

Our findings also offer insights for award-granting agencies seeking to design effective innovation award programs and judge contestants. To encourage the diffusion of early-stage innovations, award-granting agencies can incorporate specific criteria in their application requirements that focus on innovations with minimal adoption, thereby providing a platform for promising but underrecognized ideas to gain traction. Alternatively, they may consider establishing separate award categories tailored specifically for early-stage ideas; thereby, innovations that need external validation to flourish can benefit from winning the awards. Conversely, if the award-granting agencies aim to recognize innovators for their successful adoption and implementation of innovations, they can tailor their application requirements accordingly. In that context, the awards serve as a means to celebrate and honor significant innovators within the industry and encourage these innovators' future innovation efforts.

Furthermore, our results suggest that the organizations awarded for top-down innovations initiated a greater number of new innovation projects following their award, whereas the organizations awarded for bottom-up innovations worked on diffusing their award-winning innovations within the industry. These findings hint at a potential tendency among manager–innovators to prioritize the development of new innovations over the thorough implementation of their award-winning innovations. These manager–innovators can be preoccupied with winning more awards and enhancing their personal reputation than focusing on diffusing impactful innovations for the benefit of industry stakeholders. Thus, award-granting agencies should consider the diversity of organizational hierarchies among their award recipients.

Limitations and future studies

There are some important limitations in our study to note. The awards program we studied has been in existence for only five years at the time of data collection, so our ability to collect a large sample was limited. It is also important to highlight some contextual factors surrounding the awards program we studied that may affect the generalizability of the results, such as the award structure, the nomination process and the status of the awards program. First, the HealthPartners awards program included no financial grant, which was fitting for our interest in studying the legitimacy and reputation of an awards program. Financial awards add other incentives that can confound legitimacy and reputational effects. Outcomes for winners and nonwinners may differ in programs with financial awards. Second, the awards program required applications from those attempting to win the award. Some other types of award programs require a nomination from a third party. A nominating process could impact nonwinners differently as there could be a level of legitimacy or reputational gain though the nomination process which would not exist in a self-application process. Third, the

HealthPartners awards program is still building its own reputation. Other awards programs may be more widely recognized in their field than the HealthPartners awards program. The level of legitimacy and reputation that an awards program can bestow can impact the nature of the applicants and the subsequent impact of winning and not winning.

Moreover, we acknowledge that our study focused exclusively on the health-care industry. Although we would argue that our findings have broader applicability beyond health-care practices, we recognize that our data sources are limited to this specific industry and the innovations for that industry. For example, innovations in our study ranged from changes in medical procedures to improvements in health record collection and documentation processes. Innovation adoption in the health-care industry often requires a systematic review of potential health risks, which is distinct from many other industries. Due to health-related risks, innovation adoption rates in health care can be slower than more dynamic industries, such as technology. Accordingly, innovation awards can be very useful to diffuse innovation in the health-care industry relative to other industries where changes can be more easily made. In addition, it is noteworthy that organizations in health-care industry often exhibit bureaucratic characteristics with a strong culture of organizational hierarchy. Our analysis of how organizational hierarchy (top-down versus bottom-up) contextually influences innovation adoption and development may be constrained by these hierarchical organizational structures. In industries where flat organizations are prevalent and employees are encouraged to be innovative, our findings regarding how subsequent organizational innovations differ depending on the organizational hierarchy of the award-winners may manifest differently. We encourage future studies to examine other innovation award programs (e.g., grants from the National Science Foundation) to see which aspects of our paper are further generalizable or unique to our sample.

Limitations notwithstanding, our study has shown that awards program can be an effective instrument to facilitate innovation across different ranks in organizations and particularly valuable to diffuse bottom-up innovations and to encourage top managers to pursue more innovation opportunities. In this dynamic era, where creativity and innovation are in great need for organizational performance and survival, yet diffusing good idea is often difficult due to organizational inertia and resistance, we encourage organizations and industry associations to use award programs to celebrate and recognize meaningful innovations.

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