Integrating Balanced Scorecard Performance Management with Crowdsourced Strategic Planning

Aaron Jette (aaron.jette@dot.gov, 617-494-2335)
Andrew Breck (andrew.breck@dot.gov, 617-494-2213)
Robert Johns (robert.johns@dot.gov, 617-494-222)

Affiliation:
Volpe National Transportation Systems Center
Office of the Secretary of Transportation
U.S. Department of Transportation
55 Broadway
Cambridge, MA 02142
Fax: 617-494-2370

Number of words: 5,917
Number of tables and figures (each 250 words): 6 x 250 = 1500
Total word count: 7,417
ABSTRACT

Recent research has shown that engaging employees in meaningful, creative and strategic thinking can improve employee satisfaction and productivity. There is also evidence that opening strategic and business planning processes to broader participation spurs creativity, allows for more adaptive strategic processes, and increases commitment to implement organizational strategies. Crowdsourcing, while it has traditionally been used to engage large networks of customers or other external stakeholders in performing defined tasks, represents a potential methodology for engaging a broad range of employees in creative strategic thinking to define goals and identify, develop and sustain strategies to achieve those goals.

This paper describes the application of crowdsourcing principles to the design of a strategic planning process in a research-based public agency, the U.S. Department of Transportation’s Volpe Center. The strategic planning process was designed to engage employees and overcome organizational siloes to generate innovative strategies that can improve organizational performance. This paper describes the design and implementation of the strategic planning process, assesses the preliminary results and explains how the selected strategic initiatives will be evaluated based on their contribution to the Volpe Center’s Balanced Scorecard outcomes over the next several years. The paper concludes by highlighting lessons learned from implementation of the strategic planning process and discussing the implications of crowdsourcing strategy for established theories of strategic management.
INTRODUCTION

This paper presents a strategic planning approach at the United States Department of Transportation (U.S. DOT) John A. Volpe National Transportation Systems Center (Volpe) as a case to test the hypothesis that the application of crowdsourcing principles to a strategic planning process can 1) improve employee engagement and development and 2) facilitate the identification and sustainment of strategic initiatives to achieve Balanced Scorecard (BSC) outcomes. It explores the following questions:

- How can crowdsourcing principles be applied to a strategic planning process to achieve organizational goals?
- What organizational characteristics may either help or hinder the use of crowdsourcing to generate strategic initiatives?
- How can crowdsourced strategic initiatives be integrated into a performance management system?
- What are the implications for the use of crowdsourcing for established strategic management theories and practices?

The first section of this paper provides context for the crowdsourcing of strategic planning at Volpe – describing the organization and previous strategic planning efforts and situating crowdsourced strategic planning in strategic management literature and theory. The section that follows describes the design and implementation of a crowdsourced strategic planning process at Volpe. The third section presents the data collected to inform an initial evaluation of the near-term outcomes of the strategic planning process. The following section presents evaluation findings responding to the four questions listed above. The conclusion summarizes the results of the case study and describes Volpe plans for a subsequent evaluation of the long-term outcomes of the strategic plan.

BACKGROUND

Located in Cambridge, Volpe is an unappropriated, fee-for service federal agency that employees approximately 570 federal employee and 500 on-site contractors. Volpe’s purpose is “Advancing transportation innovation for the public good.” To achieve this purpose, Volpe partners with public and private organizations to perform and evaluate transportation research, develop and deploy transportation technologies, and inform decision- and policy-making through transportation planning and policy analysis.

In 2010, Volpe began a participatory strategic planning process. This process, described in a previous research paper, “Impacts of Participatory Strategic Planning on Advancing Innovation at the Volpe Center” [1] provided several opportunities for employee participation in the development and selection of strategic initiatives and led to the successful implementation of a number of initiatives that improved employee engagement and supported Volpe’s strategic goals.

Volpe initiated a new strategic planning process called “Moving Volpe Forward” in 2014. The new round of strategic planning built on the success of the previous strategic planning process by using the principles of crowdsourcing and team-based competition to engage employees in generating initiatives for new strategic initiatives. In designing Moving Volpe Forward, the Volpe strategic planning team sought to build on the most successful elements of the previous strategic planning process while integrating elements of Volpe’s recently established performance management system based on the Balanced Scorecard.
Public Sector Balanced Scorecard

Like other public agencies with a transportation mission, Volpe has recently adopted a performance measurement system. However, as a non-appropriated, fee-for-service research center, Volpe’s purpose and mission differs significantly from Federal modal agencies or State Departments of Transportation who have responsibilities for developing and maintain a distinct, physical transportation system. A typical State DOT’s strategic plan focuses on how an agency can efficiently achieve outcomes representing aspects of system performance such as mobility, safety and the physical condition of infrastructure. As an organization focused on transportation research, however, Volpe does not have immediate responsibility for the performance of specific components of the transportation system and its impact on transportation system performance is often indirect. Therefore, in developing a performance management system, Volpe looked for frameworks that focused on outcomes more directly tied to organizational performance such as employee engagement, financial health, and customer satisfaction.

Developed by Robert Kaplan and David Norton and broadly applied in the private sector in the 1990’s, the BSC was designed to expand the traditional private sector focus financial results by providing a framework with which private companies could define and measure other aspects of company performance that were seen as predictors of future financial success [2]. The original BSC system introduced three additional perspectives – those of customers, internal business processes, and learning and growth (see Figure 1 (a)). Companies have used this comprehensive approach to performance measurement to clarify and update strategy; communicate strategy; align individual and unit plans to strategic goals; and identify and align strategic initiatives [2].

More recently, the BSC approach has been adapted to the public and nonprofit sectors, which have long sought ways to measure aspects of performance other than financial results. The public sector BSC framework supplants financial results as the ultimate goal with accomplishment of the organization’s mission and expands the customer perspective to consider a broader range of stakeholders. To provide greater clarity regarding Volpe’s strategic goals and to establish a framework with which to measure progress towards those goals, Volpe leadership adopted a performance management system based on public sector BSC outcomes in 2013 (see Figure 1(b)).

(a) Private Sector BSC

| FINANCIAL | MISSION PERSPECTIVE | How do we achieve our purpose within the context of our values? |
| CUSTOMER | | |
| INTERNAL PROCESSES | CUSTOMER PERSPECTIVE | What do we need to do to satisfy our customers? |
| LEARNING AND GROWTH | FINANCIAL PERSPECTIVE | What do we need to do to attract and manage resources (i.e., be financially viable)? |

(b) Volpe BSC

| MISSION PERSPECTIVE | How do we achieve our purpose within the context of our values? |
| CUSTOMER PERSPECTIVE | What do we need to do to satisfy our customers? |
| FINANCIAL PERSPECTIVE | What do we need to do to attract and manage resources (i.e., be financially viable)? |
| ORGANIZATIONAL CAPACITY | How do we sustain our ability to learn and grow? |
| INTERNAL PROCESSES | At what business processes must we excel to meet our mission, satisfy our customers, and be financially viable? |

FIGURE 1. Comparison of the Private Sector Balanced Scorecard with the Volpe Public Agency Scorecard
Kaplan and Norton [2] suggest four management processes to operationalize the BSC as a strategic management system:

1. **Translating the Vision** – The BSC framework is used to guide the process of articulating and building consensus around a set of clear, comprehensive and integrated outcomes and metrics.

2. **Communicating and Linking** – By articulating the aspects and measures of performance that are most important to the organization, the BSC assists managers in communicating organizational goals to staff and linking individual performance to organizational performance.

3. **Business Planning** – The BSC can guide priority setting and the allocation of resources as mapped out in business and financial plans.

4. **Feedback and Learning** – The BSC guides the collection and analysis of data that informs strategy development, evaluation and modification.

To operationalize the BSC for Volpe, senior staff used the BSC framework to identify 19 desired organizational outcomes (2-4 outcomes for each perspective) and define organizational performance metrics. For example, for the Mission area the following outcomes have been defined:

- We produce and contribute to innovations that improve the national and global transportation system;
- We are recognized and valued by transportation stakeholders for our knowledge and the application of that knowledge to address current and future transportation issues; and
- We advance DOT’s goals and carry out the federal government’s mission of public service, with the highest ethics and integrity.

Examples of metrics for the Mission outcomes include:

- Project funding and number of projects by DOT strategic goals;
- Requests and downloads of Volpe work and innovations;
- Extent of recognition of Volpe work from customers and media;
- Number of unique visitors to the Volpe website; and
- Number of participants at Volpe thought leadership events.

The 19 outcomes were then used in Moving Volpe Forward to guide, organize and evaluate the crowdsourced strategic initiatives.

**Crowdsourcing**

Moving Volpe Forward applied crowdsourcing principles to identify strategic initiatives to achieve the BSC outcomes defined by management.

Jeff Howe coined the term “crowdsourcing,” which he defined as “the act of taking a task traditionally performed by a designated agent and outsourcing it by making an open call to an undefined but large group of people.” [3] Crowdsourcing emerged largely as a result of technological developments that made digital media technologies affordable and facilitated online collaboration. By expanding the labor pool, crowdsourcing increases the diversity and number of perspectives applied to a task or a problem. Crowdsourcing takes advantage of the fact that under the right conditions, crowds, as compared to a small group of experts, bring more data to bear to a problem and generate more potential solutions more quickly. In the 2000s, companies such as Wikipedia began to take advantage of these developments to collect, generate, edit and organize content online using volunteer labor. Since its development,
companies have successfully applied crowdsourcing for an expanding range of functions including:
prediction or information markets, problem solving exercises, innovation contests and fundraising [4].
In recent years, some technology companies such as Google and IBM have begun to use
crowdsourcing with its employees and stakeholders for forecasting, data analysis and brainstorming. Two
recent articles explored the use of crowdsourcing principles in company strategic planning. In
“Democratizing Strategy”, Stiegen et al. evaluate the application of crowdsourcing to foster strategic
dialogues in a mid-sized technology company [5]. The authors defined five crowdsourcing objectives that
they then use to evaluate the effect of introducing crowdsourcing to facilitate and incentivize strategic
dialogues. Those objectives were:

1. **Energizing** – to motivate participation, discussion and innovation.
2. **Listening** – to hear what others are saying about your organization, your strategies, and your
goals.
3. **Talking** – to start convey information and raise awareness of products, initiatives or issues.
4. **Supporting** – to facilitate supportive interpersonal connections between individual participants.
5. **Embracing** – to identify engaged employees with outstanding understanding of problems or with
innovative ideas.

In the article “The Social Side of Strategy”, Gast and Zanini [6] explore several cases where
companies have opened their strategic and business planning processes to contributions from large
networks of employees and stakeholders. The authors note that opening the processes to broader
participation enhanced accountability and transparency, spurred creativity, allowed for more adaptive
strategic processes, engaged employees and increased the commitment to implement strategies. They find
that “the actions companies can take that are most helpful in aligning individuals with the organization’s
direction are moves like ‘making the vision meaningful to employees at a personal level’ and ‘soliciting
employee involvement in setting the company’s direction.’”[6]

**Integration of Crowdsourcing and the Balanced Scorecard**

In choosing a crowdsourcing approach to strategic planning, Volpe’s leadership had objectives in mind
similar to those articulated in both articles. The crowdsourcing approach was intended to:

- Generate a diverse range of strategic initiatives aligned with BSC Outcomes (Energizing)
- Build enthusiasm and commitment for implementing strategic initiatives (Energizing)
- Improve employee understanding of BSC Outcomes (Talking)
- Build interpersonal relationships and encourage cross-divisional collaboration (Support)
- Improve management’s understanding of employee concerns (Listening)
- Identify and develop engaged employees with innovative ideas. (Embracing)

Crowdsourcing was seen as way of both building on Volpe’s strengths, such as its highly
educated workforce motivated by its innovation purpose, and addressing some of Volpe’s persistent
challenges, such as institutional and cultural barriers that inhibited cross-organizational communication
and collaboration. Furthermore, employee participation in the strategic planning process had proven
effective in the previous iteration of strategic planning in 2010 [1].

The 19 BSC outcomes articulated by senior management were used as a guiding framework for
the crowdsourcing approach. The framework provided by BSC was used to direct, organize and evaluate
staff generated strategic initiatives. The crowdsourced strategic planning process was intended to
operationalize the BSC using Kaplan and Norton’s suggested management processes [2].

To achieve these objectives, the strategic planning process was designed to maximize staff
participation and face to face interactions. Unlike traditional crowdsourcing efforts that utilize online
technologies to allow for remote and asynchronous collaboration and maximize opportunities for participation, Volpe instead used a series of face-to-face collaborative events as the primary device for soliciting input, generating strategic discussion and evaluating initiatives. The results of these events were then posted to a dedicated intranet site that allowed for further dialogue and electronic submission of initiatives and other feedback.

6 IMPLEMENTATION OF STRATEGIC PLANNING PROCESS

The strategic planning process was implemented in four phases.

1) Kick-Off Event – “Envisioning a Better Volpe”
2) Feedback Sessions – “Identifying Actions”
3) Employee Voting – “Selecting Solutions”
4) Management Presentations – “Prioritizing Investments”

Communications

To communicate the effort to the Volpe federal staff the strategic planning team developed a multi-faceted communications strategy. The strategic planning effort was titled Moving Volpe Forward and a logo and taglines were designed. This branding was included in all communications to staff. Communications efforts included weekly articles in the internal Volpe newsletter, blog posts from the Volpe Director, posters regarding the strategic planning events in the building lobby and elevators, and direct emails to Volpe employees.

Envisioning a Better Volpe

The purpose of the kickoff event was to build a fuller vision of what Volpe would look like if it achieved the desired outcomes defined for each of the BSC outcome areas. The kick-off event was designed based on the World Café method and appreciative inquiry principles. The World Café method creates a setting for in-depth exploration of selected issues through multiple rounds of small group discussions [7]. Facilitation is minimal, a few well-crafted questions are posed and informal conversations based on those questions ensue. Appreciative inquiry is a collaborative process of envisioning success through a focus on positive discussion, inquiry and learning [8]. It focuses on expressing aspirations, building on strengths, identifying opportunities and celebrating achievements. Both the World Café and appreciative inquiry methods are founded on a philosophy that conversation has generative power that can catalyze change.

All federal staff were invited to the 75-minute event. Ten tables were assigned to the five BSC outcome areas - two tables for each of the outcomes. Each outcome area was assigned two “champions” from Volpe senior management. Outcome area champions established the ground rules, described the outcome areas, and invited staff to sit at tables corresponding to the outcome areas for which they had the most interest. Participants discussed one outcome area for the first half of the event then moved to second table to discuss a different outcome area for the second half. At the start of this second session the facilitator would brief the main ideas generated by the prior group in order to both validate (or not) those ideas and generate additional ideas. At each table the champions posed three simple questions tailored to each outcome area. To allow for multiple, free ranging discussions at each table, the groups were asked to discuss each question and take notes on butcher paper laid out over the table.

Participants were asked to envision what Volpe would look like if it were to achieve each of the outcome areas. Facilitators used the appreciative inquiry method, asking participants to focus on strengths and opportunities rather than problems and weaknesses and to provide constructive, positive responses. As an example, for the Mission outcome area, participants were asked:
• What would it look like if we were achieving the Volpe vision of “advancing transportation innovation for the public good”?

• What are examples of situations where we have:
  o Produced innovations that improved the national and global transportation system?
  o Addressed high priority current and emerging transportation issues?
  o Been recognized for innovation in the way we manage our operations and lead our staff?

• What are examples of situations where you have been proud of your ability to contribute to the nation’s transportation problems?

The notes from the kick-off event were compiled and themes were identified for each outcome area. For example, the following themes were identified for the mission area:

• **Thought Leadership:** We invest in thought leadership to anticipate future transportation challenges and help act on critical issues in support of U.S. DOT’s goals.

• **Innovation:** We invest in innovation as an ongoing part of our culture and are ready to take risks and push the envelope.

• **Recognition:** We are recognized by others as the transportation think tank and facilitate innovation across sectors.

• **Multi-Disciplinary:** We are known as a source of multi-disciplinary innovation that leverages our multimodal experience.

• **Impact:** We have a real-world, visible impact.

• **Job Satisfaction:** We are proud of our contributions.

### Identifying Actions

To expand employee participation, refine the results of visioning session, and engage employees in seeking solutions, five one-hour sessions were held corresponding to each of the outcome areas. At these open sessions, the champions presented the themes from the kick-off event and facilitated brainstorming to identify potential actions to achieve the desired outcomes. At the end of each session, volunteers were asked to form teams and submit initiatives to achieve the outcomes envisioned.

Volpe employees submitted initiatives through an online form. The online form asked those submitting actions to summarize the following:

• Team members
• BSC outcomes the action would help to achieve
• Project outputs
• Anticipated project impact
• Hurdles to success
• Resources needed

At the end of the three week period, 26 initiatives were submitted. Those who submitted initiatives were provided a template (a single PowerPoint slide) with which to present the information regarding their project on a poster. Among the submitted initiatives were topics that addressed each of the BSC outcome areas. They included initiatives to improve Volpe’s facilities, provide opportunities to engage with the local community, expedite internal processes, improve the accessibility of professional development opportunities, increase collaboration across Volpe, and enhance Volpe capabilities in emerging areas of business.
Selecting Solutions

The initiatives were presented to all Volpe employees at a one-hour open poster session. Attendees were given seven votes (stickers) and asked to vote for their favorite initiatives using a points method, where voters could place multiple votes on a single idea. After the session, the posters summarizing the initiatives were posted in the cafeteria so that those unable to attend the session could review the initiatives and vote. Based on the results of the voting, voting a natural cut off point was determined (i.e., 40 votes), resulting in 17 initiatives selected to move forward. Of those initiatives, the two that received the least votes were combined with initiatives that received more votes with the consent of both teams. One initiative, which required minimal resources and organizational support, was designated for immediate implementation. In sum, 14 initiatives were selected to move forward to compete for organizational support and resources.

Prioritizing Investments

Teams for the 14 selected initiatives were asked to develop and present a 3-minute pitch to all 50 members of the Volpe management team (directors and chiefs). To refine their initiatives and improve their pitch, the teams were given a suggested presentation template and team members were invited to participate in three facilitated team working sessions. The working sessions covered analytical and managerial tools that could be used to explain their initiatives:

1. Logic Models – to explain how initiatives would contribute to desired outcomes and identify success metrics.
2. Force Field Analysis – to identify driving forces and potential challenges and to develop strategies based on those driving forces and challenges.
3. Project Planning – to develop a project schedule, estimate project costs, and identify project stakeholders.

Using this template, the teams presented their initiatives to the Volpe managers. The teams provided slides summarizing their ideas and gave short, 3-minute presentations. Volpe managers rated each of the presentation on three primary criteria:

• Impact: To what extent will the initiative, if successful, help to achieve BSC outcomes?
• Feasibility: What is the likelihood of the idea achieving the intended outcomes?
• Project Planning: Is there evidence of a reasonable plan to accomplish the initiative?

The ratings provided by the management team were used to rank the strategic initiatives and informed the selection of a set of strategic initiatives for investment.

EVALUATION OF STRATEGIC PLANNING PROCESS

This paper reports on the results of an initial evaluation of the near-term outcomes of the strategic planning process. A subsequent evaluation of the long-term outcomes resulting from the implementation of selected strategic initiatives is planned. The near-term outcomes, summarized below, are aligned to the five crowdsourcing objectives (energizing, talking, listening, supporting, embracing) identified by Stiegen et al [5]. This section describes the design of the evaluation and analyzes evaluation data. Evaluation data includes labor data representing staff participation in Moving Volpe Forward, outputs of the Moving Volpe Forward process including submitted initiatives and discussion notes, and employee perspectives on near-term outcomes derived from “exit interviews” conducted at the conclusion of Moving Volpe Forward events.
Evaluation Design

To guide the evaluation the authors developed a logic model of the strategic planning process (see Figure 2). A logic model is a series of logical statements that links program components (inputs, activities, outputs, outcomes and impacts) in a chain of causality. It describes the relationship between program resources, planned activities and expected results. It is not intended to be a comprehensive or linear description of all program processes and activities, but rather to make explicit how program activities are expected to affect change.

FIGURE 2. Moving Volpe Forward Logic Model

The logic model helped to clarify the design and intended outcomes of the strategic planning process and allowed the authors to identify potential success indicators and collect relevant data. Data was collected regarding the activities, outputs, and near-term outcomes of the strategic planning process identified in the logic model. Data included participation data, notes and presentations from events, ad-hoc feedback, as well as notes from interviews of members of the planning team and participants in the process.

The Moving Volpe Forward logic model identified the activities of both the planning team and of general staff, the outputs of the process, and the intended near and long-term outcomes. Inputs are not included in the figure, but they are summarized in the list below.

- **Inputs** – include the labor time of the planning team, senior management, and administrative staff for designing and implementing the planning process, as well as the time of general federal staff for participating in strategic planning activities. Inputs also include the results of previous strategic planning activities, such as Volpe’s strategic plan and the BSC outcomes.

- **Planning Activities** - comprise the activities of the planning team and administrative support staff for designing and implementing the strategic planning process, including team meetings, communications to promote events, the development and management of an online platform for idea submissions and discussions, facilitation of events, and note taking.
• **Staff Activities** - encompass the activities of federal staff invited to participate in strategic planning events, including participation in the general all-Volpe sessions as well as the work of teams to develop and present their ideas.

• **Outputs** - are the direct material results of the activities such as, the notes from the general sessions, discussions on the online forum, and the proposals and presentations of action ideas.

• **Near-Term Outcomes** – are closely related to the objectives of the strategic planning process described above and include:
  - Energizing - Increased employee engagement and workplace satisfaction, and built enthusiasm for implementing strategic initiatives;
  - Talking - Increased employee awareness of BSC Outcomes;
  - Supporting – Encouraged cross-divisional collaboration;
  - Listening - Improved understanding of employee concerns;
  - Embracing - Identified and developed engaged employees with innovative ideas.

• **Long-Term Outcomes** - include the successful implementation of selected ideas and the resulting impact on the BSC outcomes they support.

The initial evaluation summarized in this report focused on the extent to which the strategic planning process achieved the intended near-term outcomes.

**Evaluation Data**

This section summarizes the data collected to support the initial evaluation of the strategic planning process including data related to staff activities, outputs of the process, and near-term outcomes.

**Staff Activities**

Employee labor data were reviewed to assess employee participation in the strategic planning process. A significant portion of Volpe employees participated in the organized strategic planning events, submitted initiatives for consideration, and participated on teams to develop the strategic initiative proposals. More than 240 employees spent more than 400 labor hours participating in at least one of the Moving Volpe Forward activities. Approximately 130 employees participated in the kick-off event, Envisioning a Better Volpe; 15-30 employees participated in each of the feedback sessions; and at least 170 employees voted for ideas at the poster session. In total, nearly one half of Volpe’s federal staff participated in at least one Moving Volpe Forward event.

Different sectors of the federal employee population were broadly represented in participation data. Employees from all Volpe’s technical, operational and administrative divisions participated in all Moving Volpe Forward events. Table 1 shows participation of staff by salary grade level, from the senior executive level to the most junior entry level. Participation was highest among junior staff cohorts and senior staff; although no junior staff submitted ideas. Participation rates were significantly higher among staff with less than five years tenure at Volpe than those with longer tenures, as shown in Table 2. That said, approximately half of the ideas submitted, were submitted by participants with tenures at Volpe of greater than 10 years.

**TABLE 1. Participation by Level**

<table>
<thead>
<tr>
<th>Level</th>
<th>Participants</th>
<th>% By Level</th>
<th># of Ideas Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Staff</td>
<td>84</td>
<td>57%</td>
<td>11</td>
</tr>
<tr>
<td>Mid-level Staff</td>
<td>93</td>
<td>36%</td>
<td>11</td>
</tr>
<tr>
<td>Junior Staff</td>
<td>67</td>
<td>50%</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>244</td>
<td>41%</td>
<td>26</td>
</tr>
</tbody>
</table>
TABLE 2. Participation by Tenure

<table>
<thead>
<tr>
<th>Tenure Cohort</th>
<th>Participants</th>
<th>~ % of Tenure Cohort</th>
<th># of Ideas Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than a year</td>
<td>30</td>
<td>56%</td>
<td>0</td>
</tr>
<tr>
<td>1 - 5 yrs</td>
<td>74</td>
<td>56%</td>
<td>7</td>
</tr>
<tr>
<td>6 - 10 yrs</td>
<td>36</td>
<td>34%</td>
<td>6</td>
</tr>
<tr>
<td>11 - 15 yrs</td>
<td>44</td>
<td>30%</td>
<td>5</td>
</tr>
<tr>
<td>16 - 20 yrs</td>
<td>16</td>
<td>25%</td>
<td>2</td>
</tr>
<tr>
<td>More than 20 yrs</td>
<td>44</td>
<td>40%</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>244</td>
<td>41%</td>
<td>26</td>
</tr>
</tbody>
</table>

Outputs

The strategic planning process generated a diverse range of strategic initiatives; 26 in all. The strategic initiatives were led by employees across the organization, many of whom formed teams to develop a proposal. The initiatives supported the following BSC outcomes:

- Organizational Capacity – 11 initiatives
- Mission Perspective – 7 initiatives
- Customer Perspective – 5 initiatives
- Financial Perspective – 2 initiatives
- Internal Processes – 1 initiative

While participants used an online form to officially submit ideas, few participants utilized the online discussion boards established to promote online discussion and refinement of Moving Volpe Forward Ideas. There were only three comments posted to discussion threads. Efforts to promote online forums as a supplement to the in-person events failed to generate significant participation. Volpe did not invest in a software platform designed specifically for crowdsourcing activities, but rather utilized an existing SharePoint platform, which many Volpe employees do not use.

Near-Team Outcomes

A range of participants in Moving Volpe Forward were interviewed to understand their initial perceptions of the preliminary outcomes of the strategic planning process.
### TABLE 4. Near-Team Outcomes of Strategic Planning Process

<table>
<thead>
<tr>
<th>Objective</th>
<th>Preliminary Results</th>
</tr>
</thead>
</table>
| **Energizing**  
*Increased employee engagement and workplace satisfaction; and built enthusiasm for implementing strategic initiatives* | Employee participation in the face-to-face strategic planning events represented more than a third of Volpe employees. Feedback from participants regarding the face-to-face events was almost universally positive. Approximately half of those submitted ideas did so as the result of encouragement from a supervisor or project manager. Several employees that submitted ideas noted that the low entry barrier for submitting idea – a simple electronic form with minimal requirement – encouraged them to submit ideas. Some staff who submitted ideas also noted that they appreciated the opportunity to invest time addressing issues to improve their productivity or to represent specific stakeholder groups, such as other administrative assistants or the “Green Team.” Working in teams with colleagues with shared interest was a motivating factor for some participants. The competitive aspects of the process motivated some employees to campaign for their ideas by sending emails to groups of their colleagues to encourage them to attend the poster event and vote for their proposed initiative, for example. |
| **Talking**  
*Increased employee awareness of BSC Outcomes* | The “Envisioning a Better Volpe” event engaged employees in the elaboration of BSC outcomes by connecting those outcomes to individual employee aspirations. Many of the staff interviewed acknowledged that this was the first time they had been made aware of Volpe’s BSC outcomes and indicated that by seeking ways to align their ideas to the outcomes they gained a deeper understanding of them. One of those interviewed noted that as a result of the process she felt more connected to Volpe and her colleagues. |
| **Support**  
*Encourage cross-divisional collaboration* | The strategic planning events provided ample opportunity for strategic thinking and informal discussion among a broad range of employees. Many of the teams formed to support the initiatives crossed the organization and included employees with technical, administrative and operational backgrounds. Moving Volpe Forward presented a rare opportunity for such employees to work together. Nearly all of those interviewed suggested they had formed broader and deeper professional relationships across the organization as a result of working together to develop ideas and seeking support for those ideas. Teams understood that cross-organizational support was a criterion for success and sought out stakeholders from across the center to support their ideas. |
| **Listening**  
*Improved understanding of employee concerns* | Members of Volpe’s senior management participated as facilitators, mentors and judges in the process and had ample opportunity to listen to Volpe employees concerns and aspirations. The “Envisioning a Better Volpe” and “Identifying Actions” sessions generated significant discussions regarding Volpe’s goals and performance. Themes were identified from these discussions and shared with the senior management team. Proposals that were not selected for implementation provided evidence of issues and opportunities that could be monitored and/or addressed through alternative means. |
| **Embracing**  
*Identified and developed engaged employees with innovative ideas* | The process helped to identify those employees at the Center with creative solutions and the motivation to develop those solutions. Those employees were given time to develop those solutions, provided access to training workshops and mentoring resources, and their contributions were recognized by the Volpe Management Team. Volpe employees appreciated the opportunity to have their talents and ideas recognized by Volpe’s management team, as well as the mentorship provided by assigned champions. One senior manager noted that the process allowed them to see employees in a different context and better understand their talents and interests. |
Long-Term Outcomes

Those responsible for developing strategic initiatives created logic models that illustrated the connection between their proposed strategic initiatives and the BSC outcomes. The logic models were intended to lay the foundation for future evaluation of the selected strategic initiative by helping to identify potential near-term and long-term performance metrics. Volpe plans on refining and monitoring the metrics identified for selected initiatives in the coming months as the initiatives are implemented. These metrics will provide data for a planned evaluation of the long-term outcomes of the strategic planning process.

As an example, one proposal was to establish an innovation task force to explore Volpe’s role in accelerating the diffusion of innovations. The task force would write case studies based on Volpe’s work and identify and implement strategies for enhancing Volpe’s capabilities in this area. This initiative would be aligned with Volpe’s Mission BSC outcomes. The proposer identified near-term success metrics for the initiative including output-based metrics, such as the completion of deliverables, and near-term outcome metrics such as the incorporation of materials into training and business development activities and growth in funding for work in this area. The link between the initiative, near-term outcomes and the BSC outcomes was illustrated using the abbreviated logic model shown in Figure 3.

Figure 3. Innovation Task Force – Strategic Initiative Logic Model

EVALUATION FINDINGS

This section returns to the questions posed in the introduction to this paper to examine: 1) the extent to which Moving Volpe Forward effectively incorporated crowdsourcing principles, 2) the factors that contributed to or inhibited the success of Moving Volpe Forward; 3) the extent to which the design of Moving Volpe Forward aligned crowdsourced initiatives with Balanced Scorecard Outcomes; and 4) broad implications for theories of strategic planning and managements.

How can crowdsourcing principles be applied to a strategic planning process to achieve organizational goals?

The design of the Volpe strategic planning process effectively incorporated some crowdsourcing and principles and competition, but it also differed from typical crowdsourcing efforts in significant ways. Similar to crowdsourcing, the process shifted a task, strategy development, traditionally undertaken primarily by a small group, in this case senior leadership, to a larger, more diverse group of employees by providing opportunities for all Volpe staff to contribute to the process of creating a vision and developing
initiatives to achieve that vision. Senior leadership effectively acted as clients, developing guidelines and selectively choosing the most appropriate strategies from a large number potential innovative strategies.

The process diverged from crowdsourcing in that the number of employees involved was ultimately much smaller than typical external crowdsourcing designs that may involve thousands of stakeholders. The smaller size of the ‘crowd’ allowed Volpe to use in-person events to solicit strategies and collect feedback effectively. TheMoving Volpe Forward process also placed greater emphasis on the “embracing” aspects of crowdsourcing than is typical in larger, more typical crowdsourcing efforts. While typical crowdsourcing efforts often allow for editing and refinement of ideas through relatively anonymous mediated forums, Moving Volpe Forward provided mentoring and training opportunities to support those that submitted ideas. In this way, Volpe invested in the development of the employee that submitted the idea in addition to the idea itself.

Volpe staff members who were interviewed suggested that this “embracing” aspect of crowdsourcing was one of the most rewarding aspects of their participation. They appreciated the opportunity to have their talents and ideas recognized by Volpe’s management team. Several suggested that the task of developing a strategic idea into a feasible and compelling proposal was a unique and engaging challenge that helped them form new professional relationships and develop new technical skills.

What organizational characteristics may either help or hinder the use of crowdsourcing to generate strategic initiatives?

Certain characteristics of the Volpe workforce may have contributed to the success of crowdsourcing efforts. The organization is relatively “flat,” many employees have project management responsibilities and direct customer relationships, and the workforce is highly educated, almost half of Volpe’s technical staff have an advanced degree. These factors may have facilitated employees understanding of and enthusiasm for the strategic planning process.

The strategic planning process, and, in particular, the face-to-face events may have helped to address concerns regarding employee engagement and a lack of cross-organizational collaboration directly. As a fee-for-service organization, Volpe’s culture has traditionally been very customer- and project-oriented. While this has allowed Volpe to provide excellent customer service and sustain long-lived customer relationships, it also has created frustrations among staff regarding internal competition, missed opportunities, and inefficient processes. The Moving Volpe Forward strategic planning process addressed these issues head-on by emphasizing all-employee, face-to-face events that allowed for wide ranging discussions about cross organizational issues and encouraging the formation of cross-organizational teams to develop strategic initiatives.

How can crowdsourced strategic initiatives be integrated into a performance management system?

The strategic planning process was designed to align strategic initiatives with BSC outcomes that had been defined by the management team. In prioritizing strategic initiatives for investment, the management team evaluated the proposals, in part, on their perceived ability to impact the BSC outcomes.

The talking and listening functions of the crowdsourced strategic planning process also helped to operationalize the BSC outcomes, through the four management processes suggested by Kaplan and Norton [2].

- **Translating the Vision** - The Envisioning a Better Volpe event used the BSC framework to guide the process of articulating and building consensus around a set of clear, comprehensive and integrated outcomes. Through appreciative inquiry, Volpe employees by expressing their personal aspirations for the Center, brought greater depth and resonance to the BSC outcomes defined by the Volpe management team.
• **Communicating and Linking** - By engaging employees in strategic thinking the strategic planning process helped employees to relate to and contribute to the broader organizational strategies.

• **Business Planning** – The BSC outcomes were used by the management team to guide priority setting and the allocation of resources among the proposed strategic initiatives.

• **Feedback and Learning** - Designing the process with evaluation in mind, by using logic models and defining success metrics for proposed strategic initiatives, facilitated the collection of data to inform future strategy development, evaluation and modification.

By tying strategic initiatives generated through crowdsourcing to performance metrics aligned with BSC outcomes, Volpe is linking broad organizational outcomes and measures to specific initiatives aimed at achieving performance improvements. As part of the strategic planning process, staff who proposed strategic initiatives were encouraged to define performance measures that were clearly tied to BSC outcomes. It is expected that this will help instill a culture of performance management across Volpe.

What are the implications for the use of crowdsourcing for established strategic management theories and practices?

In his paper, “The Future of Strategic Planning in the Public Sector: Linking Strategic Management and Performance”, Theodore Poister notes that over the past 30 years strategic planning has become ubiquitous in the public sector[9]. Yet, much strategic planning in the public sector still appears to be of a formalized, top-down nature, the primary goal of which is to meet external requirements for transparency and accountability. Such planning processes are what Mintzberg so trenchantly critiques as “planning as public relations,” [10] in which an organization merely restates existing strategies or lists a number of platitudes it has no intention of implementing, merely to provide the necessary illusion of control that external authorities are demanding.

Crowdsourced strategic planning, is clearly an antidote to such hollow formal exercises. Moving Volpe Forward used crowdsourcing principles to open the strategic planning process to all Volpe employees and created events that encouraged broad ranging strategic discussions. In his 1994 article, “The Pitfalls of Strategic Planning” Mintzberg called for strategy that “functions beyond the boxes, to encourage the informal learning that produces new perspectives and new combinations.” [11] Crowdsourced strategic planning allows for such discussions and informal learning to take place. Mintzberg also notes, citing the sociologist Philip Selznick, that “strategies take on value only as committed people infuse them with energy.” Crowdsourced strategic planning engages the most passionate and committed people and encourages them to generate broader support for their ideas. The public, participative nature of the process enforces a degree of accountability that helps to ensure management commitment to those ideas that generate sufficient support.

In Mintzberg’s essay “Five Ps for Strategy,” he quotes LaPierre’s definition of strategy as “dreams in search of reality.” [12] Crowdsourcing, by opening strategic thinking to perspectives from across the organization, can help to ground strategy in the reality of employees’ issues and aspirations. The data generated by crowdsourcing can be used to identify the issues that are impacting employee performance and draw resources towards effective strategies to address those issues. Crowdsourced strategic planning by creating forums for input from a broad, diverse group of self-selected employees can allow emergent strategies to be recognized, refined, and invested in and engaged employees to be acknowledged and given opportunities to learn and contribute. In this way the process itself can help organizations recognize emergent strategic patterns while generating new patterns through employee engagement and culture change.

Over the past decade the focus on strategic planning, at least in the transportation sector, as shifted to a focus on performance measurement. Poister writes that performance measurement systems and reports have become “ubiquitous,” and that “in many quarters, performance measurement seems to be
assumed to automatically lead to improved performance.” Poister notes that while transportation agencies have more performance data available than they did a decade prior, there is little evidence that these data are being used to inform decision-making. One challenge for transportation agencies will be to go beyond “performance measurement as public relations.”

Crowdsourced strategic planning encourages the “bottom-up” generation of aligned strategies tied to performance measures, allowing for an organization to develop dynamic and adaptive organizational strategies that respond to external and internal challenges.

CONCLUSION

This paper presented the results of an initial evaluation of an approach to strategic planning that incorporated crowdsourcing principles. Volpe intends to conduct an evaluation of the long-term outcomes of the strategic planning process that will assess the results of the implementation of selected strategic initiatives and their contribution to Volpe’s BSC outcomes. This evaluation will be described in a subsequent paper submitted at a later date.

The results from this initial evaluation of near-term outcomes are very promising. Participation levels in Moving Volpe Forward were high, a large number of promising strategic initiatives were generated, and feedback from staff participating in the process has been extremely positive feedback. Moving Volpe Forward has demonstrated that crowdsourced strategic planning, by encouraging creativity and entrepreneurialism, can help to: engage employees in strategic thinking; identify talented employees; and overcome organizational siloes. In this way crowdsourcing may be used by organizations like Volpe to move beyond strategic planning to strategic management, and from performance measurement to performance management.
REFERENCE LIST


