Facility Managers Can Impact the Procurement Landscape by Modifying the Technical Requirements

Dean Kashiwagi, PE, PhD
Kashiwagi Solution Model, Inc.
Arizona, USA

Joseph Kashiwagi, MS
SKEMA Business School
Lille, France

Jake Gunnoe, PhD
Leadership Society of Arizona
Arizona, USA

A major problem for Facility Managers (FMs) is to get the procurement department to procure expert vendors. Hiring an expert is often neglected by a low-bidding vendor who seems to meet the organizations’ minimal technical requirements. A new approach has been developed and tested which changes the procurement landscape and ensures that the FM gets an expert vendor who pre-plans, identifies what they will deliver ahead of time in a simplistic fashion, and continually measures deviations as they perform their service. The new approach will automatically filter proposals that are not doable or deliverable and minimize risks that are caused by non-expert stakeholders’ decision making. Recent testing of this approach for a large bureaucratic organization led to 15% savings in cost, 50% savings in procurement time and elimination of extenuating and complex issues caused by stakeholders in a bureaucratic organization. This new approach is controlled by the FM professional. The approach eliminates major problems that procurement causes. The paper will review the case study and the method of application of this new approach.

Keywords: Best Value Approach, Facility Manager, Procurement, Risk Management, Project Management, Performance Metrics, Information Worker.

Introduction

A major issue for Facility Managers (FMs) is that the procurement department of organizations does not allow professional FMs to identify, select and utilize expert vendors (Rivera & Kashiwagi, 2016a, 2016b; Le, 2017). Traditional procurement processes often force the FM to accept the low-price vendor (D. Kashiwagi, J. Kashiwagi, Child, & Sullivan, 2014; Kashiwagi, 2015a). This practice encourages vendors to concentrate on getting work instead of maintaining a high level of performance. Vendors may be technically qualified based on the minimum requirements of the specifications, but do not have high performance or expertise that acts in the best interest of the professional FM.

A source of the problem is the requirement of the FM to create a technical specification that procurement uses to identify the low-priced bidder. Whenever a technical specification is utilized by procurement, it is assumed that all the participating vendors are of equal value, and therefore the lowest price is the best value. It is common knowledge that skilled craftspeople in the trades and construction are becoming a scarce commodity (AGC, 2015). Low price procurement awards lower the quality of service to the professional FM.
This concept is not new but has been an ongoing issue for over 30 years (Egan, 1998; Latham, 1994). Past research conducted in the construction industry has identified that performance has been low in terms of being on time, on budget, and with high customer satisfaction (CII, 2015; Egubu, 2008; HIS Markit, 2013; Horman, M. & Kenley, R. 2005; Lee, et al., 1999; PBSRG, 2017; Rivera, 2014). This is experienced by organizations throughout the world (PBSRG, 2017). This issue is also seen outside of the construction industry (Bo-Jie, et al., 2010; Buntaine, et al., 2013; Cervone, 2011; Deming, 1982; D. Kashiwagi & I. Kashiwagi, 2014; Miller, et al., 2013; PBSRG, 2017).

The requirement for the professional FM to be the technical expert in delivering all FM services in an increasingly complicated environment places an unrealistic expectation on professional FMs (Kashiwagi, 2018). The professional FM must identify the technical scope of the required service and must manage, direct and control (MDC) the project. As the requirements of facilities evolve and multiply due to green buildings, environmental issues and new systems, the approach that the professional FM continues to be the technical expert in the entire breadth of facility requirements is overburdening and increases the technical and legal risk of the professional FMs (Kashiwagi et al., 2015a; Rivera, Le, J. Kashiwagi, & D. Kashiwagi, 2016).

As the aging FMs retire, the young FMs do not have the experience to replace the outgoing professional FMs. The requirement for new professional FMs cannot be to replace the aging professional FM’s experience and knowledge (Gunnoe et al., 2018; Hightower & Highsmith, 2013; Sullivan et al., 2010). They do not have the opportunity nor the time to equal the retiring FM. The International Facility Management Association (IFMA) has proposed technical certifications for the professional FM. This is a knowledge transfer concept. This approach cannot continue to be successful. A problem with changing the approach for the future professional FMs is that the current “knowledge based” professional FMs are limited to encouraging the future professional FMs to be technically based (https://foundation.ifma.org/).

Another challenge to professional FMs is the diminishing access to the executive-level managers within a company (C-Suite). The C-Suite is interested in increasing the quality and controlling the costs of facilities. They are not technically oriented. The perception of increased cost and risk of the organization’s facility, results in the C-Suite perceiving the professional FM as a potentially “toxic” player in reducing cost and consequently is a candidate for outsourcing. There is a definite difference between the level of professionalism of an FM who is in the C-Suite, internal to the organization, and an outsourced service to the organization. Observation identifies that the farther away the FM is from the organization’s C-Suite, the lower the level of the FM’s professional value. This increases the need for the procurement’s function to low bid the FM services.

**Research Objectives and Methodology**

Organizations’ traditional procurement structures and processes are decreasing the value of the professional FM. The procurement structure becomes an obstacle to the development of FM value and professionalism. The FM professional needs a way to bypass the traditional
procurement structure to optimize their value and performance. The research objectives of this paper are to explore, identify, and validate these FM issues and an FM solution.

In order to meet the research objectives, the researcher proposes the following methodology:

- Propose a FM solution.
- Outline a theoretical framework for the solution.
- Design the FM transformation.
- Conduct a case study to validate the solution.
- Make conclusions and recommendations.

**Proposal**

The researcher proposes to do the following:

1. Create a proactive FM approach that allows the FM to control and override the traditional purchasing structure.
2. Create a new professional FM approach that simplifies the complexity of the professional FM.
3. Minimize the need for information transfer, experience, and management, direction, and control (MDC) that comes with being the traditional professional FM technical expert.
4. Simplify communications using the language of metrics [cost, customer satisfaction, operational capability] that the C-Suite can understand (Verway, I. Kashiwagi, Vries, & D. Kashiwagi, 2015).
5. Improve the value and worth of the professional FM to the C-Suite by increasing the value and decreasing the cost of facilities.
6. Allow the associate FMs to become the expert in delivering the FM services. Have them communicate their value through the use of metrics. This includes time, quality, and the tracking of time and cost deviations (Gajjar, Kashiwagi, Hurtado, & Sullivan, 2014).
7. Create flexibility within the delivery of FM services that can overcome perceived organizational procurement and legal requirements.

**Theoretical Solution**

Research and observation of the FM industry shows that traditional professional FMs have unknowingly put themselves in a box (Gastelum, 2017). It perhaps has been a critical mistake in differentiating themselves by using technical knowledge as the basis of their professionalism. They then used technical certification to differentiate the level of professionalism of FMs. However, as organizations attempt to become more competitive in the worldwide global economy, organizations have outsourced services that are not their core technical expertise [FM] (Kashiwagi et al., 2015b). By the movement to outsource the professional FM, the C-Suite view the professional FM as a cost. Outsourcing the professional FMs function, minimizes the value and contribution of the professional FM [reduced benefits, increased workload, and ever-increasing need for certification and education].
The theoretical solution proposed utilizes the following paradigm shifts:

1. Change the professional FM from a technical expert to non-technical Information Worker (IW) position (Gunnoe & Krassa, 2019; Rivera, D. Kashiwagi, J. Kashiwagi, & Doyle, 2016).
2. The information based professional FM (information worker) will be a leader and not simply a manager of FM technical services.
3. The associate FM will simplify their approach by utilizing metrics that are observable and countable to show their expertise and value to the C-Suite.
4. The professional FM will be an Information Worker (IW). They will become a part of the C-Suite.
5. The expert associate FM will be the technical expert and will use information that creates transparency that results in cost reduction and an increase in value, thus becoming more important to the C-Suite.
6. The new professional FM will utilize expert associate FMs to create a transparent environment which minimizes cost by 20% [lower cost, fewer stakeholders involved in the delivery of the FM services].
7. FM’s transparent environment will minimize C-Suite and stakeholder decision making and increase the breadth of the professional FM’s role.
8. The new professional FM role will require the understanding of dominant information [observable and countable that minimizes the need to make decisions].
9. The organization’s procurement will no longer use traditional technical specifications to procure. They will identify the requirement in terms of observable and countable metrics and cost. The contract will then be awarded to the vendor who delivers the highest value for the least risk and cost (D. Kashiwagi, J. Kashiwagi, A. Kashiwagi, & Sullivan, 2012).
10. The procurement approach will be a non-technical competition based on performance metrics and cost to meet a non-technical requirement. The selected vendor will identify their value using performance metrics and how they will deliver their service based on technical requirements.

Simply put, the following paradigm shifts will be made:

1. The professional FM will become an information worker (IW) who delivers high performance for a much lowest cost. An IW is a professional that uses simplicity, data, and information to make his decisions instead of his own or other peoples’ bias, opinion, and judgement.
2. The associate FM will become the technical expert and will create transparency by monitoring and reporting their performance with observable and countable metrics that show value and lower cost.
3. The professional FM will be certified in being an IW.
4. The associate FM will become the technical expert and require the technical certifications.

This new approach has been tested over 25 years with stunning results of high performance and low costs. In research tests, the IW professional can accomplish ten times the number of projects, minimize cost by 5 to 30%, and communicate the results in a very simple manner (Duren &
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Dorée; 2008; Kashiwagi, 2013; Krouwel, 2018; Natasja & Kashiwagi, 2017; State of Hawaii PIPS Advisory Committee, 2002; Sullivan et al., 2010).

**Design of FM Transformation to Take Control of Procurement**

*The FM Requirement*

The FM will change their specifications from technical to include non-technical requirements. The FM will identify their requirements in the most simplistic terms. Requirements will be in terms of observable and countable metrics. Vendors will show their performance by showing their capability to provide services matching the requirements as close as possible with their capability shown by past performance (I. Kashiwagi, D. Kashiwagi, & Gambla, 2018).

Table 1 is an example of what an FM used for his requirement for providing photovoltaic panels. Column one is the client/facility requirements. Column two is a vendor’s proposal based on their capability [past performance]. If the difference between the two columns is minimized, the vendor is an expert vendor. The vendors will compete based on their ability to show their level of expertise, capability and their lower cost.

**Table 1: Solar Panel Requirement/Vendor Capability**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Client Requirement</th>
<th>Vendor’s Past Project Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td># of PV installations</td>
<td>2</td>
<td>55</td>
</tr>
<tr>
<td>Schedule</td>
<td>2 months</td>
<td>1.5 months</td>
</tr>
<tr>
<td>Average budget</td>
<td>$45K</td>
<td>$20K</td>
</tr>
<tr>
<td># of people using the building</td>
<td>600</td>
<td>800</td>
</tr>
<tr>
<td>Existing KW/hr. charge</td>
<td>$0.40</td>
<td>$0.35</td>
</tr>
<tr>
<td>Reduction in KW/hr. charge</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Return on Investment (ROI)</td>
<td>15 years</td>
<td>30 years</td>
</tr>
<tr>
<td>Time Deviation</td>
<td>0%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Cost Deviation</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>9.5/10.0</td>
<td>9.5 / 10</td>
</tr>
</tbody>
</table>

**Selecting Vendors**

The selection of the vendor will be based on the highest performance [performance metrics] and lowest cost that matches the requirement as proposed by the client (Smithwick, Schultz, Sullivan, & Kashiwagi, 2013). The FM will use the following as contractor performance criteria of the requirement:

1. Expertise in doing projects that are very similar to the requirement [Level of Expertise].
2. Identification of risk and how the risk will be mitigated [Risk Assessment].
3. Value added proposals on how to make the service or project better [Value Added].
4. Cost breakout of their price for the project. The client is looking for the lowest cost [Price].
5. An interview of the vendor’s expert who is delivering the project/service [Interview].
All vendor communications in the selection approach must utilize observable metrics identifying the level of experience and performance that supports a performance claim. This includes risk mitigation and value added. The submittal must include with the risk mitigation and the value added, how many times [the number of times that the vendor was successful in applying the risk mitigation or value added on similar projects].

The FM will identify the importance of their five selection criteria by using a weighting system that represents identifying and utilizing expertise for the lowest cost (Claaasen, Roodhorst, & Taba, 2019; D. Kashiwagi, J. Kashiwagi, Sullivan, & I. Kashiwagi, 2015; Kashiwagi, Rivera, & Taba, 2019; ). A selection committee will then rate the vendor’s proposals. The ratings of all the selection committee will be averaged for each vendor proposal to come to an average score for each criterion [an example is shown in Table 2]. Price is the only criteria that is not rated.

The ratings will then be normalized with the pricing as shown in Tables 2. The normalized score is then multiplied by the weight [assigned by the FM] to assign points to each vendor.

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria (Raw Scores)</th>
<th>Unit</th>
<th>Vendor A</th>
<th>Vendor B</th>
<th>Vendor C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Level of Expertise [LE]</td>
<td>(1-10)</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>2</td>
<td>Risk Assessment [RA]</td>
<td>(1-10)</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>3</td>
<td>Value Added Plan [VA]</td>
<td>(1-10)</td>
<td>10.00</td>
<td>10.00</td>
<td>5.00</td>
</tr>
<tr>
<td>4</td>
<td>Interview</td>
<td>(1-10)</td>
<td>1.00</td>
<td>5.00</td>
<td>10.00</td>
</tr>
<tr>
<td>5</td>
<td>Total Cost</td>
<td>$</td>
<td>50,000.00</td>
<td>80,000.00</td>
<td>82,000.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria (Normalized Scores)</th>
<th>Best Score</th>
<th>Vendor A</th>
<th>Vendor B</th>
<th>Vendor C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Level of Expertise [LE]</td>
<td>10</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>2</td>
<td>Risk Assessment [RA]</td>
<td>5</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>3</td>
<td>Value Added Plan [VA]</td>
<td>10</td>
<td>1.00</td>
<td>1.00</td>
<td>0.50</td>
</tr>
<tr>
<td>4</td>
<td>Interview</td>
<td>10</td>
<td>0.10</td>
<td>0.50</td>
<td>1.00</td>
</tr>
<tr>
<td>5</td>
<td>Total Cost</td>
<td>50,000.00</td>
<td>1.00</td>
<td>0.63</td>
<td>0.61</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria (Assigned Points)</th>
<th>Weight</th>
<th>Vendor A</th>
<th>Vendor B</th>
<th>Vendor C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Level of Expertise [LE]</td>
<td>35</td>
<td>17.50</td>
<td>35.00</td>
<td>35.00</td>
</tr>
<tr>
<td>2</td>
<td>Risk Assessment [RA]</td>
<td>5</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>3</td>
<td>Value Added Plan [VA]</td>
<td>5</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
</tr>
<tr>
<td>4</td>
<td>Interview</td>
<td>20</td>
<td>2.00</td>
<td>10.00</td>
<td>20.00</td>
</tr>
<tr>
<td>5</td>
<td>Total Cost</td>
<td>35</td>
<td>35.00</td>
<td>21.90</td>
<td>21.30</td>
</tr>
</tbody>
</table>

The best performing vendor will then be requested to provide the technical specifications that they will be using to deliver the service. They will be asked to identify their performance and monitor deviations to their proposed performance.
Case Study: Facility Supplies Project

Client Requirement

A large organization required a vendor to provide janitorial supplies for use by in-house janitorial workers. The organization’s requirement was identified by the following client conditions:

- 7,000 facilities in the USA and Canada [621].
- List of products.
- List of janitorial services activities.
- On-site janitorial services clean facilities 1-2 times per week.
- Deep cleaning of each facility is done 1-4 times per year by outsourced suppliers. The outsource supplier uses their own products.
- The service is a 10-year contract broken out by year.

Selecting the Vendor

Three vendors met the requirements and submitted proposals. The selection committee rated the vendor proposals and the information was put in the selection matrix [see Table 3] After analyzing the submittals, Vendor B provided a cost that was ~25% below the cost of the other vendors. Vendor B identified their value by utilizing information.

Table 3: Assignment of Points for Facility Supplies Project

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria (Raw Scores)</th>
<th>Distance</th>
<th>Vendor B</th>
<th>Vendor G</th>
<th>Vendor I</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Level of Expertise [LE]</td>
<td>(1-10)</td>
<td>5.0</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td>2</td>
<td>Risk Assessment [RA]</td>
<td>(1-10)</td>
<td>7.0</td>
<td>8.0</td>
<td>6.0</td>
</tr>
<tr>
<td>3</td>
<td>Value Added Plan [VA]</td>
<td>(1-10)</td>
<td>7.0</td>
<td>8.0</td>
<td>5.0</td>
</tr>
<tr>
<td>4</td>
<td>Interview</td>
<td>(1-10)</td>
<td>5.0</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>5</td>
<td>Total Cost (Millions)</td>
<td>$3.0</td>
<td>9.4</td>
<td>7.5</td>
<td>10.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria (Normalized Scores)</th>
<th>Best Score</th>
<th>Vendor A</th>
<th>Vendor B</th>
<th>Vendor C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Level of Expertise [LE]</td>
<td>7.0</td>
<td>0.7</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>2</td>
<td>Risk Assessment [RA]</td>
<td>8.0</td>
<td>0.9</td>
<td>1.0</td>
<td>0.8</td>
</tr>
<tr>
<td>3</td>
<td>Value Added Plan [VA]</td>
<td>8.0</td>
<td>0.9</td>
<td>1.0</td>
<td>0.6</td>
</tr>
<tr>
<td>4</td>
<td>Interview</td>
<td>10.0</td>
<td>0.5</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>5</td>
<td>Total Cost (Millions)</td>
<td>7.5</td>
<td>0.8</td>
<td>1.0</td>
<td>0.7</td>
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</table>

<table>
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<tr>
<th>No</th>
<th>Criteria (Assigned Points)</th>
<th>Weight</th>
<th>Vendor A</th>
<th>Vendor B</th>
<th>Vendor C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Level of Expertise [LE]</td>
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<td>25.0</td>
<td>35.0</td>
<td>35.0</td>
</tr>
<tr>
<td>2</td>
<td>Risk Assessment [RA]</td>
<td>10</td>
<td>8.8</td>
<td>10.0</td>
<td>7.5</td>
</tr>
<tr>
<td>3</td>
<td>Value Added Plan [VA]</td>
<td>15</td>
<td>13.1</td>
<td>15.0</td>
<td>9.4</td>
</tr>
<tr>
<td>4</td>
<td>Interview</td>
<td>30</td>
<td>15.0</td>
<td>30.0</td>
<td>30.0</td>
</tr>
<tr>
<td>5</td>
<td>Total Cost (Millions)</td>
<td>10</td>
<td>8.0</td>
<td>10.0</td>
<td>7.1</td>
</tr>
<tr>
<td>-</td>
<td>Total Points</td>
<td>100</td>
<td>69.9</td>
<td>100.0</td>
<td>88.9</td>
</tr>
</tbody>
</table>

Prioritization

|     | 3 | 1 | 2 |
When Vendor B was asked how they determined that they could reduce the client’s spend rate by 25%, they provided the following information:

1. Using history for the quantity of items being ordered.
2. Identifying that 80% of spend was based on paper products and cleaners.
3. Differentiating between types of buildings and identifying algorithms to represent the different types of buildings.
4. Used 30 facilities to compare spend rates which they used a year spend of previous suppliers with a year’s spend based on their deliveries.
5. Used another sample of 100 facilities where they used nine months spend of a previous supplier compared with a year’s spend of their services.
6. Determined by their information models representing different types of facilities that they could reduce the spend rate of facilities by 25% by delivering the right amounts of janitorial supplies.

The client organization took the information from the selection competition and added another requirement. They also required the vendor to deliver the janitorial supplies into their facility janitorial closets. The client also wanted the vendor to use their information modeling to automate the ordering of 80% of the janitorial supplies. The successful vendor increased their cost by 19% and took the responsibility of delivering the supplies into the janitorial closet. The client perceived that they had reduced their spend rate by 6%, received automated ordering and had the supplies delivered into the janitorial closets [increased value].

The information-based vendor automated the ordering of 80% of the janitorial supplies using the different information models for the different types of buildings and began building models for the 18% of the other janitorial items and delivered the supplies into the janitorial closets instead of delivering it to the client’s facility managers [who then stocked their own closets]. The information-based vendor then tracked the spend rates every week. The results were staggering. By automating and charging 19% more for delivering into the closet, the client’s spend rate has dropped by 31%. The FM now has less responsibility and has become more important to the organization’s C-Suite.

Conclusion

The professional FM can change the procurement landscape to providing value, rather than low cost, by changing their own paradigm. Instead of being the technical expert, the professional FM can be an information worker (IW) who uses information to define their requirement and select the best value vendor. By changing into an information worker, the professional FM can identify and utilize expert FM associates to increase the value of FM services while minimizing the cost. By using performance information [non-technical metrics that are observable and countable] the professional FM can utilize the expertise of FM associates. The new model increases the capability of the professional FM [increases the capability to do ten times the projects] and increase the ability to communicate with the C-Suite. The professional FM of the future also requires the FM associates to become the technical experts of FM services. This aligns the technical experts who do the work to be the experts. The minimization of the FM professional
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attempting to manage, direct and control the expert FM associates has led to a more efficient and effective supply chain that improves performance and reduces cost. The new approach allows the professional FM to increase their professionalism and value. The new model is a leadership model that aligns expertise. This model has been tested over 25 years and has led to a reduction of 5 - 30% of the cost of FM services.

**Recommendations**

The authors recommend that the International Facility Management Association (IFMA), or other professional certification groups, create a professional FM Information Worker (IW) course that teaches how to develop appropriate performance and cost metrics that will add value to the C-Suite and have the associate FMs increase their technical experts by technical certifications.

**References**


