

Application of the Best Value Approach in Procuring ERP Services in a Traditional ICT Environment

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The ICT industry has struggled with performance for years. Tools, processes, and techniques have been developed in attempts to improve performance, however, the level of performance has not significantly improved. The Best Value Approach has been proposed to increase both the procurement and execution of ICT projects. This researches focus is to further test, explore and confirm the claims associated with the Best Value Approach and its applicability in the ICT industry. Using case study research, the Best Value Approach was used in the selection of an ERP vendor for a client organization. The research findings confirm the claims of the Best Value Approach to be accurate in terms of being simpler, quicker, lower costing, requiring little expertise from the client and delivering an understandable, non-technical plan including detailed schedule, milestone schedule, and schedule that identifies all stakeholder activity.

Keywords: ICT Industry, performance, Best Value Approach.

Introduction

The Best Value Approach Technology is a revolutionary approach to improving the delivery of services, it is most commonly implemented through the Performance Information Procurement System (PIPS) as both a procurement and project/risk management methodology. The approach was first conceived in 1991 as part of Dean Kashiwagi's dissertation, where he used the Information Measurement Theory (IMT) as the theoretical foundation to identify the construction industry structure and the cause of poor performance (1991). The Industry Structure (IS) model proposes that the buyer or end user (people factor) may be the major source of project cost and time deviation. Initially the BVA was used strictly as a procurement model to select roofing systems and contractors for private organizations including Intel, IBM, and McDonald Douglas. The BVA has since been heavily documented and has spread to be tested in the entire supply chain (construction and non-construction services). Its methodology has been researched and developed in support of professional groups like the International Council for Research and Innovations in Building and Construction CIB and the International Facility Management Association for the last 23 years and has been identified as a more efficient approach to the delivery of professional services. Some of the impacts of the BV PIPS are as follows (Rivera, et al. 2016, Kashiwagi, 2017):

1. Most licensed university technology developed at Arizona State University with 52 licenses issued by the innovation group, AZTech, at Arizona State University. BVA PIPS tests have

been conducted in 32 states in the U.S. and five different countries besides the U.S. (Finland, Botswana, Netherlands, Canada, and Malaysia).

2. Documented performance of over 1,900 projects or \$6 billion (1,635 projects, \$4B construction and 315 projects, \$2B non-construction), customer satisfaction of 9.8 (out of 10), 94% of projects on time and 97% on budget.
3. Research tests show that in procuring of services outside of construction, the observed value is 33% or an increase of revenue or decrease in cost of 33% (Kashiwagi, 2013).
4. The results of PIPS testing have won numerous awards: 2012 Dutch Sourcing Award, the Construction Owners of America Association (COAA) Gold Award, the 2005 CoreNet H. Bruce Russell Global Innovators of the Year Award, the 2001 Tech Pono Award for Innovation in the State of Hawaii, along with numerous other awards.

Outside groups have analyzed the BVA PIPS system multiple times in the last 17 years. However, two investigations, the State of Hawaii audit (State of Hawaii PIPS Advisory Committee, 2002) and two Dutch studies (Duren JV & Doree A, 2008), performed a thorough study on the impact and effectiveness that the BVA PIPS system has had on 100+ unique clients with results that confirmed the high-performance claims.

The Best Value Approach Change in Paradigm

The Best Value Approach's success is primarily due to the change in paradigm required by both the client and vendor. The approach has identified that the problem is humanistic, not technological based. In applying BVA, the client releases control and allows the vendor to take on the expert role, with the client now acting as the utilizer of expertise. The differences in this approach include (Kashiwagi, 2011, Kashiwagi, 2013):

Vendor as the Expert

1. Requires the vendors to assume the client is not an expert in the vendor's field and all information communicated to the client must be simple and nontechnical.
2. Requires the vendors to differentiate themselves in the procurement process by using performance measurements of their key personnel and processes.
3. Requires the Best Value vendor to write the final contract and define the delivered product. Does not use negotiation of price.
4. Requires the Best Value vendor to deliver a complete project plan including milestone schedule, detailed schedule, actions of all stakeholders, risk management plan, performance metrics, and cost breakout before the project is awarded.
5. Requires the Best Value vendor to administer their own contract by tracking their own performance, schedule and deviation of project cost and time deviations.
6. Requires the Best Value vendor to understand that they have full control of the project, and by so doing will manage and minimize the risk and project deviation that is outside of their control, even if caused by the client, or un-foreseen events in the environment.

Client Role as the Utilizer of Expertise

1. Client does not use the contract to manage, direct, and control the vendor but utilizes the vendor's expertise.

2. Client minimizes the need for technical decision making and expertise of the client's technical representatives.
3. Does not require the client to have technical expertise in the service or product they are purchasing.
4. Does not require the buyer to identify a complete requirement of what is being procured at the beginning of the procurement.
5. Does not require the selection committee to have technical expertise to rate or select a vendor. All submittals are non-technical in nature, and technical questions are not asked or discussed until the Best Value clarification phase.
6. Forces the client's project manager (PM) to be a quality assurance-based PM, with nontechnical duties. Defines quality assurance as ensuring that the contractor/vendor is running their quality control/risk management system.

ICT Industry Performance Failure

ICT Project Performance

The information communications technology (ICT) industry has had problems with the delivery of projects that are on time, on budget and that meet client expectations as early as 1968 (NATO Science Committee, 1969). More recently the Standish Group has reported the ICT project failure as high as 83.8% in 1994 and 71% in 2016. Multiple sources have confirmed these claims, in a worldwide literature study investigating ICT project performance, over 25 ICT project performance studies were found, and all unanimously identified similar poor performance (Kashiwagi, 2017). The problem has been identified as global issue with multiple countries such as the United States (US Department of Commerce, 2011), United Kingdom (Public Administration Committee, 2011), Australia (Legislative Assembly of the Northern Territory, 2014), and The Netherlands (The House of Representatives of the Netherlands, 2014) holding nationwide government inquiries to investigate the millions being lost each year because of poor project performance.

Source of Poor Performance

The previous literature identifies that there is no consensus in the industry as the exact cause of the poor performance. A recent literature study compiled 19 previous studies that all formulated unique lists of factors. Among the factors cited include (Kashiwagi, 2018):

1. Poor project planning.
2. Insufficient vendor expertise.
3. Unclear project scope (requirements, objectives, and purpose)
4. Changing project scope (requirements, objectives, and purpose)
5. Committed support of top management and leadership
6. Lack of client involvement
7. Project alignment with business needs.
8. Lack of a project management methodology
9. Poor communication between stakeholders
10. Inability to manage project scope changes
11. Buyer creation of an unrealistic requirement
12. New technology, tools, and/or methods

13. Support and approval of user / client
14. Undefined project success criteria
15. Multiple interacting parts (vendors, systems, organizations, departments, community, etc.)
16. Conflict between client stakeholders (Departments, organizations, etc.)
17. Lack of user education and training
18. Vendor not given enough control over the project
19. Risk management
20. Large project size (duration and cost)

The study further identified that the factors of poor performance can be grouped into six categories (see Table 1):

1. Expertise: The lack of expertise and experience required either on client or vendor side.
2. Scoping: Unclear, unrealistic, unaligned, unmeasured, or changing requirements.
3. Planning: Insufficient methodology, coordination of resources, and project tracking.
4. Relationship: Support from client and correct project roles between buyer and client.
5. Technology: The high difficulty and innovation/newness.
6. Size: The amount of work or resources required in terms of man hours, deliverables, duration, and/or budget.

Of the factor categories, expertise was the most cited by the publications. Scoping, planning and the buyer – supplier relationship ranked relatively similar in importance. However, although the ICT industry is known to be an industry of changing technology and “mega” projects, technology and size were the least mentioned for publication frequency.

Table 1: Factors of Project Failure.

#	Factor Type	% Frequency (19 publications)
1	Expertise	51%
2	Scoping	45%
3	Planning	43%
4	Relationship	42%
5	Technology	24%
6	Size	18%

New solutions have been attempting to address these factors of project failure by minimizing the complexity of the project by focusing on the expertise of the supplier. Three prominent solutions in discussion that have shown documented proof to increase performance include:

1. Minimizing the size of projects (Netherlands house of representatives, 2014; Standish Group, 2013).
2. Use of agile project management to break project up into smaller milestones/projects to get to the final project deliverable (Cutter Consortium, 2008; PMI, 2014; QSM Associates, 2013; Scrum Alliance).

3. Use the best value approach to deliver the project (Duren & Doree, 2008; Kashiwagi, 2013; Rijt & Santema, 2012).

Application of the Best Value Approach in the ICT Industry

There have been multiple studies which have shown the applicability of Best Value within the ICT industry. Six of these studies include:

1. Case Study with the State of Oklahoma COTS-IT Tax software (Kashiwagi, 2014). The project tasked the vendor with implementing a developed and commercially offered Commercial off the Shelf Integrated Tax Software (COTS-ITS) as the primary technology tool to manage all taxpayer data and account information. Utilizing the BVA the state was not expected to deliver a detailed scope requirement but a high-level expectation of the product. This new approach minimized their RFP from over 15 pages down to 1 page. The results included a selected Best Value vendor that was able to successfully develop a full detailed plan in less than 2 months. The project finished on time and on budget with no change orders. The expert vendor cut the government's cost by 40%.
2. Case Study with a traditional Large ICT vendor and client (Kashiwagi, 2014, Rivera, 2014). Arizona State University, the largest university in the United States, applied the Best Value Approach to their IT networking services. The results included: the ability to procure ICT services without a complete scope requirement, identification of a high performing vendor, a complete and executed proposal which offered increased capability to the university at a lower cost.
3. Case Study with Schuberg Philis (SBP) (D. Kashiwagi & I. Kashiwagi, 2014). SBP is one of the ICT companies in the Netherlands that is known for their high performance and unique company structure. The SBP company structure and practices follow the Best Value Approach principles and methodology. The company has shown to deliver over 991 projects, with their large projects reporting an average of 89% on time, 95% on budget and 93% with satisfied clients. The study results conclude that there are high performing experts within the industry and when the BVA practices are applied correctly, they will deliver high performance.
4. Case Study with a traditional Large ICT vendor and client (Kashiwagi et al. 2015). The Port of Rotterdam in the Netherlands procured an ICT project using the Best Value Approach in a traditional ICT environment. The study findings identified the implementation and project as a success. The findings also identified the challenge in the change in paradigm the BVA requires on both the client and vendor side.
5. Case Study with traditional Large ICT vendors sales and marketing group (Kashiwagi et al. 2015). The ICT vendor's sales and marketing core team have become experienced with the Best Value Approach and have applied it to the selection and planning (clarification) process of their projects. The vendor was able to consistently win bids by demonstrating their expertise to the client and providing an acceptable project plan. The findings show the potential impact when a vendor applies the BVA correctly.
6. Case Study with Telephone Facilities (Logemann & Kashiwagi, 2017). The municipality of Eesmond in the Netherlands ran a pilot Best Value Project with the Telephone Facilities which consisted of the delivery of a fully integrated "in the cloud" communications platform, including delivery of hardware and software needed for communications (computers, wires and computer programs). The Vendor would be responsible for hosting the (new) facilities

and the maintenance, which includes updates and upgrades during the contract. The Best Value Approach was implemented from selection to execution of the project. The results showed the highest quality vendor identified for the lowest cost, below budget and completion of the project on time, on budget, with high client satisfaction.

The case studies identified that:

1. The BVA can procure projects without a complete requirement including detailed specifications of how and what will be delivered.
2. The BVA can procure projects with little expertise in the service being procured.
3. The BVA can procure projects faster and at a lower cost than traditional methods.
4. The BVA can identify high expertise for the lowest cost.
5. When followed correctly the BVA will deliver high performance.
6. There is sufficient expertise within the industry capable to plan and execute projects successfully.
7. It is a change in thinking for clients and vendors to operate in the Best Value Approach paradigm.

Research Question & Methodology

The Best Value Approach has had multiple individual and longitudinal studies within the construction industry to support and verify the claims of high performance. There are similar cases in the ICT industry however, the documented results have not been as dominant as those in the construction industry. The purpose of this paper is to further test, explore and confirm the claims associated with the Best Value Approach and its applicability in the ICT industry. The research seeks to answer the following main research question:

Can the Best Value Approach be successfully used to identify an ERP services expert?

To answer this research question, a case study research approach has been performed to identify, understand and analyze the results of implementing the Best Value Approach in the procurement of an ERP project. The following methodology was followed:

1. Identify a client within the traditional ICT industry to perform a case study with the BVA.
2. Assist the client in implementing the Best Value Approach in the selection of vendor and planning (clarification phase) of an ERP project.
3. Document the results of the case study test and determine if the project is successful. Success will be determined as being simpler (minimized scope description), quicker, lower costing, and delivering a complete plan including detailed schedule, milestone schedule, and schedule that identifies all stakeholder activity.
4. Identify future actions for the execution of project.

Case Study: Client Organization

Background

The client organization is a Saudi Arabian registered company with more than 40 years of success training the Saudi Arabian National Guard. The client is a recognized world-class leader and provider of technical services, military training, program management, facilities operation and maintenance, educational and vocational training, and logistics support.

The client's leadership's strategic direction is to optimize the organization to be more efficient and effective. The leadership had identified the need for the optimization of many operational functions and roles within the organization. The ERP system was considered a critical piece to this optimization as it would be a catalyst to this change. The ERP system would be used as the change management mechanism to train and transition client employees to the desired optimized organization. For this reason, the ERP system was of high priority within the organization and its schedule reflected this urgency. The entire schedule was expedited to less than half a year (159 calendar days) see table 2.

Table 2: Client Procurement Schedule.

Milestone Schedule				
#	Activity	Cumulative Calendar Days	Calendar Days	Schedule
1	RFP Announcement	0	0	7/26/2017
2	Release RFP	14	14	8/9/2017
3	Educational Webinar (Online)	19	5	8/14/2017
4	Vendor pre-proposal educational meeting	34	15	8/29/2017
5	Submittal of proposals	53	19	9/17/2017
6	Rating of submittals / Shortlisting	54	1	9/18/2017
7	Interviews	55	1	9/19/2017
8	Identification of Best Value	57	2	9/21/2017
9	Notification sent to Best Value vendor	64	7	9/28/2017
10	Clarification kickoff meeting	116	52	11/26/2017
11	Final Clarification briefing	148	32	12/21/2017
12	Signing of contract	148	0	12/21/2017
13	Execution Phase	159	11	1/1/2018

For this research study, the client was identified to be in alignment with desired case study conditions. The client organization had little experience with the Best Value Approach. The BVA was introduced to the organization through a client sponsor, a newly appointed Finance Manager. The client sponsor was first exposed to BVA through the implementation of an ERP system in his previous employment, where the BVA was able to deliver the ERP project successfully (faster and significantly under budget). Under these conditions, the client, vendor pool and environment were identified to be aligned with a traditional ICT environment (environment unfamiliar with the BVA), as the client sponsor was the only individual in the organization familiar with the BVA and previous testing of the BVA within the area of the Gulf Region had not been done.

Client & Vendor Preparation

The Best Value Approach requires a change in paradigm on both the client and vendor side. As the project sponsor was the only individual on the client and vendor side familiar with the approach two educational sessions were held jointly with client and potential vendors. The first educational meeting was an online seminar with the focus of allowing all participants to better understand the BVA process and paradigm. The second meeting was an in-person pre-proposal educational meeting. The intent of this meeting was focused more on the client requirement and clarification required by competing vendors. The client invited and preselected all ERP experts within the Gulf Region to participate.

Client Requirement

The client’s ERP program objective was identified to replace the client’s independent business operation’s current manual and semi-automated systems with a single system. The initial requirement of implementation given to the vendors was divided into two phases. Phase I included 6 core ERP functions as the requirement that would be bid for and Phase II included 14 future ERP functionality that were not included in the current requirement, see figure 1.

Phase I functions (6)	Phase II not included in base bid (14)	
<p>Human Resources</p> <ol style="list-style-type: none"> 1. Personal Data 2. Compensation 3. Travel & Government relations <p>Finance and Accounting</p> <ol style="list-style-type: none"> 4. Timekeeping 5. Payroll 6. Value added tax 	<p>Human Resources</p> <ol style="list-style-type: none"> 1. Benefits enrollment and administration 2. Recruitment 3. Talent management <p>Other Functions</p> <ol style="list-style-type: none"> 4. Supply Chain 5. External Training and Decision Support Processes 6. Employee learning 	<p>Finance and Accounting</p> <ol style="list-style-type: none"> 7. General ledger 8. Accounts payable 9. Expense reporting 10. Budgeting and forecasting 11. Asset management 12. Cash management/Treasury 13. Billing 14. Accounts receivable

Figure 1: Initial Client Requirements.

The ERP system was expected to be fully operational within the client’s identified conditions:

1. Saudi Arabian registered company (42 years).
2. Multiple sites within Saudi Arabia (internet connected).
3. Approximately 1,900 regular staff.
4. Currently running iSeries 400 and Maximo.
5. Existing manual processes in place for over 20 years.
6. 161 power users (amendment to RFP 8/29/17)
7. Price to include 5-year licensing of ERP technology.
8. Budget not provided.

After the 1st educational online seminar, due to vendor and internal client feedback, the client saw it would be beneficial for them to make a change in the requirement. The client increased the quantity of ERP functions and expanded their scope to include both Phase I and Phase II. This

changed the requirement from 6 included functions and 14 future functions to 41 included functions (see figure 2). This change in requirement was announced to the competing vendors during the 2nd educational pre-proposal meeting. During this meeting it was also clarified that the ERP system was to be offered as a cloud solution, with an on-premise solution as an optional service. Due to the vendor’s submittal deadline being unchanged, the vendors had 14 days (4 working days excluding holiday and weekends) to incorporate these changes into their proposal.

Phase I Functions (11)	Phase II Functions (30)	
<p>Human Resources</p> <ol style="list-style-type: none"> 1. Personal Data 2. Wage changes 3. Transfers 4. Promotions, rewards 5. Compensation 6. Travel & Government relations 7. Vacation planning & other absences with approval workflow 8. Automated workflow <p>Finance and Accounting</p> <ol style="list-style-type: none"> 9. Timekeeping 10. Payroll 11. Value added tax 	<p>Human Resources</p> <ol style="list-style-type: none"> 1. Employee performance 2. Benefits 3. Recruiting <p>Finance and Accounting</p> <ol style="list-style-type: none"> 4. General ledger 5. Accounts payable 6. Expense reporting 7. Budgeting and forecasting 8. Asset management 9. Contracts 10. Cash management / treasury 11. Billing 12. Accounts receivable 	<p>Procurement and Supply Chain</p> <ol style="list-style-type: none"> 13. Vendors, PR and PO, receiving 14. E-procurement 15. Catalog management 16. Supplier management 17. Strategic sourcing 18. Inventory/warehouse management 19. Facilities maintenance 20. Fleet management 21. Utility billing 22. Business licensing <p>Decisions Support Processes</p> <ol style="list-style-type: none"> 23. Portal management 24. Data warehousing 25. Manager/employee self service 26. Performance scorecard 27. Ad-Hoc reporting 28. E-Trg (e.g. Ethics) <p>Training Processes</p> <ol style="list-style-type: none"> 29. Learning Management 30. Learning Development

Figure 2: Updated Client Requirements.

Vendor Prioritization & Selection

The BVA PIPS process was run to prioritize and select the Best Value vendor with the following assumptions:

1. BVA was run by Best Value Expert Advisors, KSM Inc., as described in the RFP for the client.
2. BVA was run with the best interest of the client in mind.
3. Maximum information was collected from all vendors in the best interest of the client.
4. The client was attempting to identify the BV for the lowest cost based on 5 selection criteria with predetermined weighting
5. All vendors were given an equal opportunity to give the required information.

The client received six proposals to their RFP. The first issue identified was that the vendors’ cost submittals needed additional clarification (see table 3). Although the client requirement now included both Phase I and Phase II, the vendors were still asked to provide a breakout of their cost by Phase I and Phase II. Vendor C was the only one to follow these instructions. Due to the available information, the client had a concern of the range of vendor pricing, ranging from less than a million to five million in total costs. The wide range made the client wonder if all the vendor’s pricing included the same content. The range in project duration for some vendors also seemed suspicious. As the client was not an expert in the field, they found it to be in their best interest to keep all vendors in the competition but ask for clarification due to unclear/incomplete pricing.

Table 3: 1st Cost Submittals of Vendors.

	A	B	C	D	E	F
Total Cost Phase I and II (\$M)	\$3.60	N/A	\$0.91	\$3.64	\$2.48	\$5.28
Implementation	\$1.23	N/A	\$0.35	N/A	N/A	\$0.60
License Fee (5 years)	\$2.38	N/A	\$0.56	N/A	N/A	\$4.68
Total Duration (days)	N/A	N/A	112	1688	N/A	226
Phase I Cost (\$M)	\$3.60	\$0.22	\$0.60	\$1.88	\$2.48	\$5.28
Implementation	\$1.23	\$0.22	\$0.13	\$0.93	N/A	\$0.60
License Fee (5 years)	\$2.38	N/A	\$0.47	\$0.95	N/A	\$4.68
Phase 1 Duration (days)	270	N/A	55	120	257	226
Phase 2 Cost (\$M)	N/A	N/A	\$0.31	\$1.76	N/A	N/A
Implementation			\$0.22			
License Fee (5 years)			\$0.09			
Phase 2 Duration (days)	N/A	N/A	57	1568	N/A	N/A

After clarification of vendor pricing, vendor B and D were nonresponsive in the request for pricing clarification and were excluded from the process. Vendor E confirmed their prices included Phase I and Phase II and Vendors A, C and F resubmitted their pricing to meet client’s requirement (see table 4). After the pricing was clarified, there were four responsive bidders (A, C, E and F).

Table 4: Clarified Cost Submittals of Vendors.

	A	B	C	D	E	F
Total Cost Phase I and II (\$M)	\$4.93	N/A	\$2.64	N/A	\$2.46	\$6.05
Implementation	\$2.30	N/A	\$0.35	N/A	\$0.74	\$1.05
License Fee (5 years)	\$2.64	N/A	\$2.29	N/A	\$1.73	\$5.00
Total Duration (days)	270	N/A	116	N/A	257	394
Phase I Cost (\$M)	\$4.93	\$0.22	\$0.93	\$1.88	\$2.46	\$5.60
Implementation	\$2.30	\$0.22	\$0.13	\$0.93	\$0.74	\$0.60
License Fee (5 years)	\$2.64	N/A	\$0.80	\$0.95	\$1.73	\$5.00
Phase 1 Duration (days)	270	N/A	74	120	257	226
Phase 2 Cost (\$M)	Included	N/A	\$1.71	N/A	Included	\$0.45
Implementation		N/A	\$0.22	N/A		N/A
License Fee (5 years)		N/A	\$1.49	N/A		N/A
Phase 2 Duration (days)		N/A	42	N/A		168

Based on the project manager and technical lead interviews and three project capability submittals which evaluated the vendors level of expertise, risk assessment, and value-added options, the vendors were rated and prioritized based on the predefined weights of each criteria, see table 5 for results. The following observations were made:

1. Vendor E was prioritized as the Best Value for the lowest cost. Vendor E scored the highest within the four quality criteria and had the lowest cost, \$157K lower than the 2nd prioritized vendor.
2. Vendor C was identified as 2nd prioritized. Their score is explained as they scored well in both the interview and submittals and had the 2nd lowest cost.

3. Vendor A was identified as the 3rd prioritized. Their score is explained as they scored the highest in all 3 documents and scored well in their interview. However, their cost was second to highest, more than \$2.5M more than the prioritized Best Value.
4. Vendor F was identified as the last prioritized. Their score is explained as they failed to submit the three project capability documents which led to scoring neutral on all 3 documents. They also scored the lowest on their interview and came in as the highest price, more than \$3.5M more than the prioritized Best Value.

Table 5: Prioritized Scoring of Vendors.

Total Score 84 81 79 47				
Criteria (Normalized)	E	C	A	F
Level of Expertise rating (25)	14.1	20.8	25.0	12.6
Risk Assessment rating (10)	6.3	7.7	10.0	5.5
Value Added rating (5)	3.5	4.3	5.0	3.2
Interview rating PM (15)	15.0	10.5	11.2	6.2
Interview rating TL (15)	15.0	9.3	12.5	7.3
Cost (30)	30.0	28.2	15.1	12.3
Other Factors	E	C	A	F
Total Cost Phase I and II (\$M)	\$2.46	\$2.64	\$4.93	\$6.05
Implementation	\$0.74	\$0.35	\$2.30	\$1.05
License Fee (5 years)	\$1.73	\$2.29	\$2.64	\$5.00
Total Duration (days)	257	116	270	394

*Weight of criteria is identified in parenthesis by criteria.

Before Vendor E was able to move into the clarification phase a reference check was done to confirm expertise and capability to deliver the project at the proposed price and time frame. As Vendor E did not provide any individual case studies with metrics to be verified, the client asked Vendor E to provide references that could be contacted for this reason. Three references were contacted and surveyed which confirmed the vendor as a high performing company and ERP system (see Table 6). However, the following observations were made:

1. References did not confirm the vendor’s ability to implement the client’s specific project in terms of scope and time, as they were not comparable projects.
2. If Vendor E proceeds into the clarification phase, in absence of references that confirm the vendor’s ability to implement successfully, it will be critical to ensure a clear plan is provided before awarding the contract.
3. Vendor C has also provided high performance information to support them as the secondary vendor that will enter the clarification period if Vendor E fails to meet the requirements.

Table 6: Reference Check Results.

#	Customer Satisfaction (out of 10)	Average of 3 References (out of 10)
1	Satisfaction with Vendor E	7.8
2	Satisfaction with ERP System	7.7
3	Satisfaction with Training Program	8.0
4	Satisfaction with Vendor post-project support	7.7
5	# willing to demo system for client	3

Clarification Phase

Vendor E was identified as the prioritized Best Value vendor for the lowest cost and continued to the clarification phase. During the clarification phase the Best Value Expert advisors of the client assisted Vendor E in delivering the following clarification documents:

1. Finalized scope documents.
2. Cost Breakout and Price Schedule – The price schedule is an invoice schedule, identifying what major tasks the vendor will be invoicing for, and when. It should match the cost breakout, and milestone schedule.
3. Description of the end deliverable in terms of simplified metrics.
4. Detailed schedule – Including all activities required by the vendor, client and client stakeholders to perform the work.
5. Milestone schedule – A simplified milestone schedule based on the detailed schedule, written in terms of all stakeholders and major action items.
6. Client action item list – A simplified schedule based on detail and milestone schedule with a list of deliverables and actions required by the client.
7. Risk Management Plan (RMP) - document identifying risks that vendor does not control that could occur on this contract and assumptions the vendor has made that could cause risk if inaccurate. This plan will also have mitigation strategies. This plan includes concerns from the client and how the vendor will minimize those concerns.
8. Weekly Risk Report (WRR) that will track time and cost deviations.
9. PowerPoint presentation that describes the scope of the project in terms of cost, time, deliverables and how the deliverables acceptance will be decided.

Research Findings*Results and Analysis*

The project was awarded with the following accomplishments:

1. A Best Value selection process was run utilizing the BVA PIPS process.
2. The client preselected the most qualified vendors in the Gulf Region capable of implementing an ERP platform.

3. In the short time span available, the vendors were competed, and the Best Value vendor was identified. The prioritized Best Value was the lowest cost, and the highest performance based on level of expertise, ability to identify and mitigate risk, value add and interview.
4. A clarification period was run, confirming that the vendor was the most capable, had a fair price and proposed a detailed schedule, milestone schedule, risk mitigation plan, scope document and weekly risk report that would track the project time and cost deviation.

In the analysis of the use of Best Value over traditional process the client participants which included the leads of all departments, were surveyed (7 individuals). The survey was on a scale from 1 to 10, with 10 representing that you were very satisfied/in complete agreement with the statement and 1 representing that you were very unsatisfied/in disagreement with the statement and 5 being neutral. Their responses identified the BV process to be faster, simpler, more efficient, better at minimizing client risk, and better at requiring pre-planning (see table 7). The measurable estimated benefits by the client include (See table 8):

1. The ability to procure without developing a complete scope requirement. This simplified the size of the scope requirement to 2 pages, a reduction of 48 pages (96% reduction) and saved 136 days (91% savings) and \$500K dollars (100% cost saving).
2. The efficient, faster, and lowering costing identification of a Best Value vendor. This saved 136 days (50% reduction) in procurement and the reduction of 97 internal manhours (87% savings).
3. The delivery of a complete vendor proposal which the client understands and is satisfied with, that meets the client’s requirement. The proposal is 30 days and \$2.5M dollars less than expected (10%, 51% savings respectively), with a lower internal requirement from client project management from .8 FTE to .05 (94% reduction).

Table 7: Client Traditional vs Best Value Surveyed Results.

Vendor Proposal	Best Value	
Understand the vendor's proposal including the deliverables and schedule.	8.57	
Understand the time, actions, deliverables, and resources required from my department.	8.29	
Overall customer satisfaction and comfort level in hiring the vendor	9.43	
Process Survey Questions	Traditional	Best Value
The process minimizes the time it takes to deliver the project/service	5.5	9.0
The process forces the vendor to pre-plan, identify and minimize risks before the project begins.	5.8	8.9
The process is simple and easy to implement	6.5	8.3
The process is efficient (minimizes cost, time, and effort)	5.0	9.3
The process identifies the highest performing and lowest costing vendor	7.5	9.0
The process minimizes the risk to the client	6.8	8.9
Overall satisfaction with the selection and clarification process	6.3	9.4

Table 8: Client Traditional vs Best Value Estimated Results.

RFP Creation	Traditional*	Best Value**
Time to develop requirement statement	150 days	14 days
External Cost to develop requirement statement	\$500K	\$0
Size of scope requirement (pages)	50 pages	2 pages
Selection	Traditional*	Best Value**
Time to procure ERP project	270 days	134 days
# of people to rate and score vendors including submittals and interview	10	9
Client hours to rate and score vendors including submittals and interview (total / per person)	100 / 10 hrs	12.1 / 1.3 hrs
Vendor Proposal	Traditional*	Best Value**
Awarded duration of project	300 days	270 days
Awarded cost of project	\$5 M	\$ 2.46 M
Client PM estimated (FTE)	.8	.05

*Estimated. **Actual.

In answering the papers research question, the Best Value Approach was found to have been implemented successfully and capable to identify an ERP implementation expert. The BVA claims were confirmed with documented results to being simpler, quicker, lower costing, and capable to deliver a complete plan including detailed schedule, milestone schedule, and schedule that identifies all stakeholder activity.

Recommended Future Actions

The project was considered a success in selecting a Best Value expert, however, the project is not yet over and still must be executed. The Best Value Approach requires a change in paradigm both on the client and vendor side. During the selection of the vendor, a BVA expert advisor was used to hold both client and vendor accountable to this new paradigm. Without the assistance of the BVA expert advisor the project would have had many opportunities of reversion. The project will continue with the expert vendor executing their approved plan and following the BVA process which includes the Weekly Risk Reporting system. The greatest risk to the project moving forward is still the reversion of either client or vendor to the traditional paradigm. The following are observations of the BVA expert advisors:

1. The vendor may have difficulty in transforming from their traditional approach to be a Best Value vendor acting in the best interest of the client.
2. The client may have difficulty in their new role as the utilizer of the vendor’s expertise. Client decision making, and direction of the vendor must be minimized.

3. The vendor may not understand how to use metrics to optimize ERP performance and identify the value of the implemented ERP system including the analysis needed to reflect this impact in the VA organization.
4. The vendor is new to and not accustomed to the effective use of the BVA's reporting tool (the Weekly Risk Report), vendor must be further mentored in their usage and content must be refined during the beginning of the execution phase.
5. The client may not know how to optimize their implemented ERP system due to decision making and traditional mode of operation. One example is the usage of the ERP system to automate all significant procurement activities.

Due to the existing risk of reversion, it is advised that Best Value advisors be maintained throughout the completion of the project to minimize and mitigate these risks.

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