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The Replacement of Client Decision Making with a Deductive Logic Structure

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Abstract

A deductive logic based system has been created to replace the need for client/buyer's professionals in a supply chain to make decisions on the selection, management, direction and control of suppliers. A structure has been created where the best value for the lowest price is identified, and the best value supplier performs to the expectation of the buyer without decision making by the buyer's representative. The structure assumes that the buyer in the supply chain does not know what is the best available solution. The delivery structure forces suppliers to use dominant information to differentiate, prove they are the best value and secure the contract. The structure uses simplicity, non-technical, dominant information (observation instead of decision making) to create transparency and thereby minimizing the need for the buyer's representative decision making. As decision making is minimized, risk is minimized, and the value and performance of the delivered product/service is optimized. The decision less best value system has been tested over 700 times over 16 years and has resulted in 98% performance, minimized up to 90% of client/buyer risk management transactions, and maximized vendor profit without an increase in price. The uniqueness of the system is that it minimizes decision making. It minimizes the need for decision making, analysis, and buyer expertise.

Key Words
decision making, transfer of risk and control, use of dominant information, new contract model

1. Introduction
Construction industry performance has had poor performance for the past ten years [1-8]. The delivery of IT services is even poorer [9-11]. The delivering of both services has been studied, new management concepts have been created, but has not led to major improvements. Both industries use project managers who have been trained and certified by either the Project Management Institute (PMI) or the International Project Management Association (IPMA.) However, there is no documentation to show that the training and certification of project managers representing the buyer/owners is effective.

The current environment of delivering services is the price based environment in Quadrant I (Figure 2). The environment has the following characteristics:
1. The buyer's professionals are decision makers as they must give directions to the vendors even though the vendors are supposed to be experts in doing their work.
2. The professionals make decisions to determine the minimum requirements.
3. The professional must decide if the low price vendor can meet the minimum requirements.
4. The professional must decide if the low price vendor has completed and met the minimum requirements at the end of the project.

The decision making in the price based environment results in confusion, reactive vendor behavior, diminishing quality, and an adversarial relationship. Decision making by professionals is sometimes seen as a "practice of experts." It is a common belief that the greater the level of expertise, the better their decision making. They can also use decision support systems to make decisions. However, people only make decisions when they don't know the outcome or think that there are potentially multiple outcomes. Decisions actually increase risk. Making decisions is a practice that maximizes risk. People, who are more expert, can predict the future outcome, and make

fewer decisions. They minimize risk because they can see the delivery and outcome of the service before they do it. Experts minimize decision making.

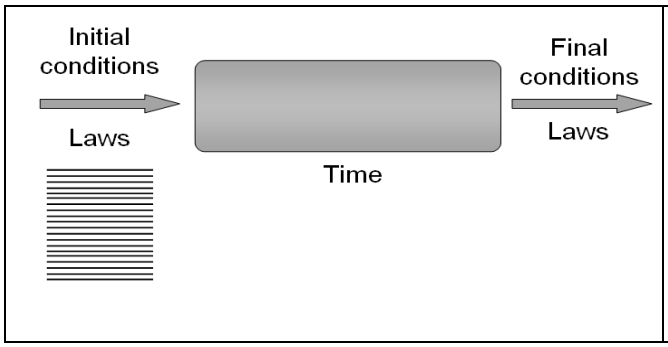


Figure 1: The Event

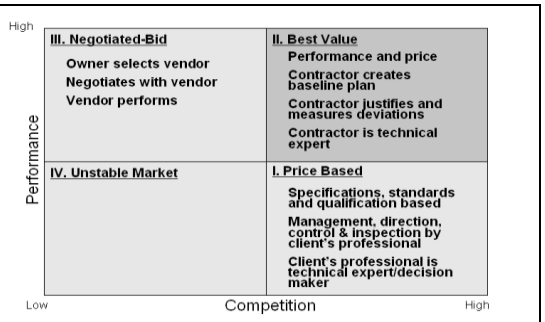


Figure 2: Industry Structure

There are a number of issues with the above scenario:
1. The buyer's professional is not a better expert than the vendor.
2. The expert vendor is being directed by a person with less expertise.
3. The buyer's professional makes more decisions than the expert vendor because they have less knowledge.

In Quadrant II, the best value environment, the professional identifies the requirement/intent to the best of their ability. However, the best value vendors identify how they will deliver the requirement. The vendors are the experts, make fewer decisions because of their expertise, and can create milestone schedules, and manage and minimize risk and deviations because they know both the initial requirement and the final conditions (Figure 1). Expert vendors know the initial conditions and the future outcome, and therefore know that the initial conditions dictate the steps to the final conditions. They minimize decision making and risk. In preplanning, they can predict the project from beginning to end, and thereby minimize their decision making.

2. Hypothesis

The authors are proposing that risk of nonperformance in the delivery of services is maximized by human decision making in Quadrant I. Rather than supplementing the knowledge of client's risk/project management with decision making tools, the authors are proposing to create a structure or system that replace decision making and eliminates decision support systems. The hypothesis is that a "decision-less system" will deliver high performance services. The new project management and risk management model will be a "decision-less" system.

3. Methodology

The objective of this research is to create an environment that minimizes the need for decision making by creating a structure/system that identifies decision making by buyer's project managers as a risky, inefficient, and transaction causing exercise. The following assumptions are also made about the traditional environment where the client's professional makes decisions to create the specifications and to direct the expert suppliers (experts by definition because they are hired due to their expertise in installing systems and providing services):
1. The problem has been around for a long time despite project management and risk management education and training/certification.
2. There are researchers and practitioners who have been trying to solve the problem, but have been relatively unsuccessful.
3. The problem may be a systems problem, where the supply chain is a "stable" system but not optimal due to the inefficiency and ineffectiveness of the system [12].

Therefore, the authors are proposing to implement a decision-less system to optimize the performance of delivered services and systems. The methodology for the research will be:
1. To validate through deductive logic that decision making is a source of risk.
2. To identify and remove activities in the delivery of services which have decision making.

3. Develop a structure and process to identify the expert supplier without forcing the professional to use their technical expertise and decision making.
4. Change the activities of the professional from management, direction, and control to the transfer of risk and control to the expert vendor.
5. To modify the professional's responsibilities to ensure that the client's requirements are being met without managing and controlling the expert vendor.

4. Decision Making Is the Source of Risk

Figure 3 is a representation of what a person knows and does not know. The dividing marker divides what a person knows and does not know. The extreme right of the scale is knowing everything there is to know, and the extreme left is knowing nothing. Most individuals dividing marker is to the far left. This is due to what we know, we learn through our limited personal experience, even an expert. A person makes more decisions on what they do not know, then what they do know. Risk is greater when a person does not know, and when decisions are made. Therefore decision making is a source of risk.

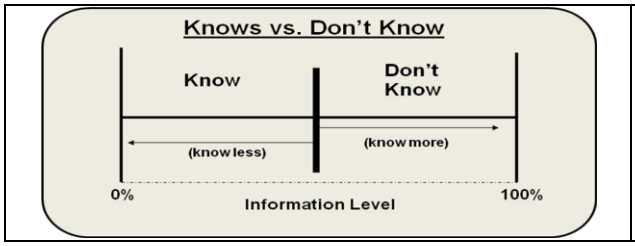


Figure 3: Know vs. Don't Know

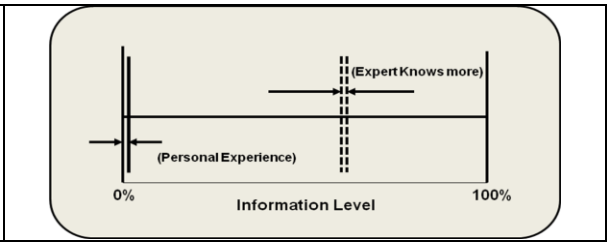


Figure 4: Find an Expert Who Does Know

The problem that results is when a person is confronted in the "don't know" area with a task, what do they do if they cannot make a decision? The answer lies in finding someone whose "expertise and experience" is in that area (Figure 4) However, the person is still faced with the situation of identifying an expert. Normally the client's professional uses their technical expertise to make a decision to select the expert.

5. The Identification of an Expert

The authors propose that a system of deductive logic will identify the best expert. Based on the concepts of deductive logic, an expert has the following characteristics [13]:

1. Their past performance can be measured. They have done the task before.
2. They can predict the future outcome because of their ability to perceive the initial conditions.
3. They can quickly, simply and concisely describe a unique project in their area of expertise.
4. They have no technical risk in the area of their expertise.
5. They understand they have no control over other people.
6. Their only risk becomes the risk that they cannot control.

Experts have no technical risk. They understand their technical area. By definition they can explain why things happen, can simplify and explain to anyone, and can therefore predict what will happen before it happens [13]. In "Six Easy Pieces," Feynman explained that the only reason physics is so difficult to understand, is that the "experts" do not understand what is going on. When they finally understand, anyone will be able to understand quantum mechanics. Using Feynman's deductive logic, the only risk that an expert has is the risk that they do not control. Experts realize to be a success (maximize profit) they must manage and minimize the risk that they do not control. This will minimize their activity and transactions (activity that can be avoided if a risk management plan is implemented before the risk occurs.) Managing and minimizing the risk that a vendor does not control forces a vendor to:

1. Preplan.
2. Think of all other participants who will be in the delivery of service and predict what they will do before hand.
3. Assist all other participants to not create risk and transactions.
4. Forces the vendor to know the technical scope of the project.

The structure of risk management may also assist a vendor who is not an expert become an expert. It is a structure that forces logical thinking, perception of the initial conditions, prediction of future conditions, and implementing risk management before the risks occur. It also allows the transfer of risk and control to the vendor, because they are experts and have no technical risk. They will also minimize the non-technical risk that they do not control. Instead of being in a reactive decision making mode, they will be in a proactive, risk managing mode.

6. "No Decision" System

The client/buyer of service will identify to the best of their ability what they want. They will use a request for proposal (RFP) to request vendors/suppliers to propose the following:

1. Identify the initial conditions of the service.
2. Identify the risk that they cannot control and how they will manage and minimize the risk by minimizing deviation of cost and time.
3. Identify the beginning to the end in terms of dominant milestones.
4. Identify how they will measure the changing conditions.
5. Interview their key personnel to identify if they have the characteristics of an expert in the technical area (Type A characteristics.)
6. Select the dominant expert. If the experts look the same, select the low priced vendor, and put them in a structure that forces them to manage and minimize the risk that they do not control without decision making.

In the selection of the best value expert vendor, the client's professional is encouraged to not make decisions. If they cannot easily differentiate between expert vendors, they are directed to give all vendors the same score in the category. Only if a vendor is dominantly better at predicting the future and understanding the client's initial conditions, a vendor receive a better score. If no vendor is dominantly better, the lowest priced vendor will be prioritized as the best value, and they will be forced to preplan to manage and minimize the risk that they cannot control, and to use a risk management system that allows them to manage the deviation of the project.

7. Ensuring the Minimization of Decision Making

The methodology to minimize the decision making of the client's professional requires the acceptance of the assumption that professionals sometime use their limited experience to solve problems where they have no knowledge (Figure 4). To validate this concept, and to create an environment with no decision making, the researchers did the following:

1. Selected three tests where the client's professionals had no technical expertise.
2. The client's professionals could not make decisions because they had no technical expertise.
3. The risk brought by decision making ensured that the professionals did not make a decision.

The client's professional experience was in civil engineering. The test areas selected was the delivery of food services, sports marketing, and the outsourcing of IT networking. The professionals performed the selection of the expert vendors, the transfer of risk and control to the vendors, and setup the management of risk by the vendors who managed the risk that they did not control. In all three cases, the expert vendors had no technical risks because by definition, they were experts.

8. Performance Information Procurement System (PIPS)

The authors used the Performance Information Procurement System to deliver the services. The past performance of the system delivering construction services without decision making included [14]:

1. 15 years of testing (1994-present) delivering 700+ construction services projects valued at over $800M.
2. Research funding of $8M.
3. Minimized client risk/project management activities by up to 90%.
4. Maximized vendor profit by up to 100%, at no additional cost to the client.
5. Delivered performance of 98% on time, no contractor generated cost and time deviations, and meeting client's expectations.

It is not the purpose of this paper to explain the details of the PIPS. Another paper in the conference explains the process in detail. PIPS does have the following characteristics:

1. It is a structure/system that requires no technical expertise or decision making. It has been tested extensively with personnel who have no construction knowledge.

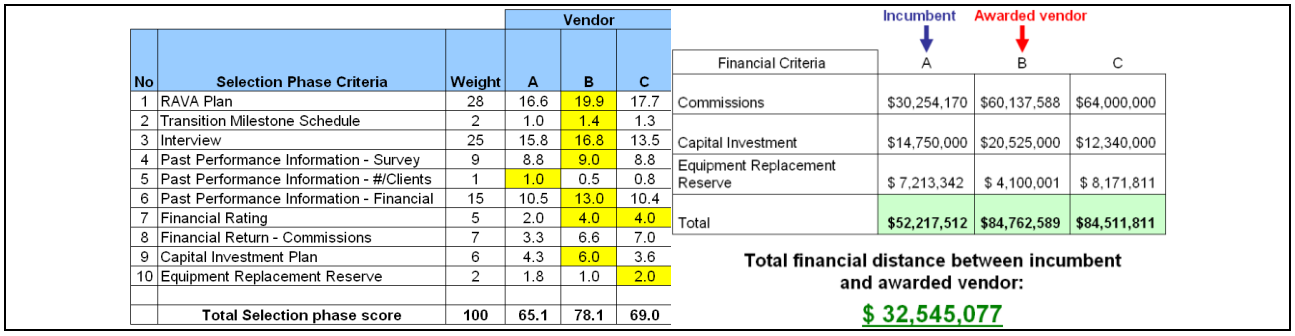
2. It forces vendors to have expertise. Without expertise, the transparent system makes it impossible for a vendor to deliver the services.
3. The vendor is forced to write their contract, and without technical expertise, it is too risky a proposition.
4. The structure ensures that the vendor has past experience, and can address the project risks before they write their own contract.

9. Results of the Tests of the No Decision Environment

The results of the three tests where services were delivered with the no decision environment included [15, 16]:

1. Arizona State University (ASU) increased their financial investment by the vendors by $100M over the next ten years.
2. ASU minimized their management, direction, and control activities by 80%.
3. The new environment is measured, minimizes the flow of information that leads to decision making, and the service values are increased, the costs are decreased, and the university no longer has to direct the experts.
4. The university has adopted the "no decision" environment for major acquisitions.

The selection matrix for the food services is shown in Figure 5, and the measurement of performance a year later, is shown in Table 1. The increase of value of the outsourced IT networking service delivery is shown in Table 2 and Figure 6.



			Vendor		
No	Selection Phase Criteria	Weight	A	B	C
1	RAVA Plan	28	16.6	19.9	17.7
2	Transition Milestone Schedule	2	1.0	1.4	1.3
3	Interview	25	15.8	16.8	13.5
4	Past Performance Information - Survey	9	8.8	9.0	8.8
5	Past Performance Information - #/Clients	1	1.0	0.5	0.8
6	Past Performance Information - Financial	15	10.5	13.0	10.4
7	Financial Rating	5	2.0	4.0	4.0
8	Financial Return - Commissions	7	3.3	6.6	7.0
9	Capital Investment Plan	6	4.3	6.0	3.6
10	Equipment Replacement Reserve	2	1.8	1.0	2.0
	Total Selection phase score	100	65.1	78.1	69.0

	Incumbent	Awarded vendor	
Financial Criteria	A	B	C
Commissions	$30,254,170	$60,137,588	$64,000,000
Capital Investment	$14,750,000	$20,525,000	$12,340,000
Equipment Replacement Reserve	$ 7,213,342	$ 4,100,001	$ 8,171,811
Total	$52,217,512	$84,762,589	$84,511,811

Total financial distance between incumbent and awarded vendor:

$ 32,545,077

Figure 5: Selection Matrix for Food Services

Table 1: Food Service Performance after 1 Year

No	Category	FY 06-07 Incumbent	FY 07-08 New Vendor	Difference	% Difference
1	Total Revenue ($M)	$27.02	$30.37	$3.35	12%
2	Total Return & Commissions ($M)	$2.17	$2.67	$0.50	23%
3	Capital Investment ($M)	$14.75	$30.83	$16.08	109%
4	Capital Investment 2006 vs. 2007 ($M)	$0.26	$5.70	$5.44	2092%
5	ASU Administration (# of People)	7	1.5	-5.5	-79%
6	Customer (Student) Satisfaction (1-10)	5.2	7.1	1.9	37%
7	Mystery Shopper Satisfaction (1-10)	NA	9.6	-	-

Table 2: Increased Value of IT Networking

ASU Maintenance Annual Cost	Qwest Maintenance Annual Cost	Total Annual Qwest Savings	**Total Qwest Annual Value Added and Savings**
$13,981,934	$12,500,000	1,481,934	**2,756,934**

Value Added	Estimated Annual Value
Voicemail Integrated w/email	$75,000
Experts in other areas of Qwest to draw upon	$75,000
Reduction of ~2000 sqft ASU office space & utilities	$44,000
Skysong state-of-the-art Network Operations Center	$100,000
New Contact Center Solution	$400,000
University Benchmarking	$50,000
Measurement & Reporting	$50,000
Engineering & Design	$150,000
Speech Enabled Voice Messaging	$25,000
Conferencing & Collaboration Capabilities	$9,000
IP Fax Capabilities	$12,000
Unified Communications Management Toolset	$85,000
Green initiatives (Kw savings)	$200,000
Total Additional Estimated Annual Value to ASU:	**$1,275,000**

Dominant Measurements	ASU Current	Qwest Proposal
Overall Cost of Network		
Annual IT Spend Ratio (new vs maintenance)	17/83	48/52
Top-of-the-line Networking		
% Converged	7%	100%
% Mobility	2%	100%
% Equipment not out-of-date	58%	95%
Network Sustainability/Accessibility		
% Equipment not needing replacement (Not at end-of-maintenance)	88%	100%
Customer Satisfaction		
Speed/Quickness Available (Wired / Wireless):		
% 1Gb - Wired Connections	59%	98%
% of 300Mb - Wireless Connections	8%	32%

Figure 6: Increased Value of IT Networking

10. Conclusions

A decision less system has been created that delivers tremendous vendor service performance. The research results confirm decision making as a source of risk. The decision less system/structure minimizes the need for client's professionals to make decisions. This was shown by delivering services where the professionals had not expertise and therefore could not make decisions. The client's professional's major task becomes quality assurance. The results of the confirmatory deductive tests were dominant enough to warrant further investigation of the hypothesis.

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