THE NEXT GENERATION OF THE FACILITY MANAGER

Dean Kashiwagi, PhD, PE, IFMA Fellow
Arizona State University

May 1, 2015
Learning Objectives

- To Utilize Expertise, Performance Metrics, and Alignment
- To learn the language of metrics
- To lead other management personnel
The FM Dilemma

Thoughts on the daily life of an FM

Jon E. Martens, CFM, IFMA Fellow
President, JEMCOR, LLC
Innovative Facility Solutions
Background
The FM is doing their job!
The first step – A Problem Arises
What does the FM do?
Now things are beginning to happen!
The FM is doing their job!
REALITY

Service Provider

FM

Customer
The New FM

- Board / Boss
  - Talks Simply
- Technical Managers
  - Knows Expertise
- Workers

ASU • performance based studies research group • www.pbsrg.com
THE “WRONG” FUTURE

Executive in Delivering Value

Service Provider → Customer
Service Provider → Customer
Service Provider → Customer
Service Provider → Customer

Service Provider → Customer
Service Provider → Customer
Service Provider → Customer
Service Provider → Customer
THE “RIGHT” FUTURE

FM Leader

Service Provider
Service Provider
Service Provider
Service Provider
Service Provider

Customer
Customer
Customer
Customer
Customer
By observation, I dumped my traditional wisdom

- Parents
- Myself and my Wife
- Children
- Children's Future Families
- Children's Future Jobs
- Children's Future Children

30K Foot Level

Simplicity/Dominant Information

Technical Details

ASU - performance based studies research group - www.pbsrg.com
System Created to Assist People to See
System Created to Increase Value and Performance
Autonomous Cars
Think Less, No DM, No Stress, Visionary Results

DEDUCTIVE LOGIC AND
LEADERSHIP EDUCATION

“A Revolutionary Change in Thinking”

What Is Deductive Logic Education?
Backed by 20 years of research ($13M) and 1,400 tests, an approach using natural laws and common sense allows students to learn faster, improve their ability to perceive and implement accurate concepts and bring tremendous value to society. The new approach speeds up learning, and allows students to understand events up to ten times faster by applying natural laws instead of memorizing and reading huge amounts of data. It allows students to know almost everything without knowing almost anything.

The course is now the most popular Honors class (top 5% of 75,000 students at ASU);
• 4 years; 17 registered ASU courses
• 600+ students
• 4.77/9 university course rating
• Scheduled course for Fall 2014 at the University of SJCE, Mysora India

Dean Kashwagi

“Know Almost Everything Without Knowing Almost Anything”

Online Resources and Videos
Successful Student Results
http://www.youtube.com/playlist?list=PLDD1752245445121d
Parent Perspective of value of the course
http://www.youtube.com/watch?v=5zkqYa9IaD0
Course Companion Website
http://kashwagi.com
Rate My Professor Kashwagi [Google Search]

Course Content
This is an overview of natural laws, logic and the observation of human behavior and the sciences. Sourced from the minds and works of history’s greatest visionaries, including Socrates, Shakespeare, Einstein and Deming. This approach simplifies life.

What Is the Impact on students’ lives?
Changes Lives: Students learn the value of their parents’ and teacher’s experience and expertise. They can utilize the expertise of experts and minimize addictions, depression and rebellious actions that most students go through due to the lack of simplistic understanding of life. Their minds are freed to explore the world at a much faster speed and comprehension.
The class package contains curriculum ranging from general concepts to more specific industry topics. Material is divided into several core modules covering the logic, leadership and different applications. The package can be utilized as an online courseware or as an in person class curriculum. The curriculum includes:
• Video lectures with Dr. Dean Kashwagi and Dr. Jacob Kashwagi
• Accompanying PowerPoint presentations
• Activity instructions
• Exams, quizzes, and assignments
• Instructor guidelines

Supporting Industry research
The Performance Based Studies Research Group (PBSRG) is a group of researchers and educators at Arizona State University that have developed a Deductive Logic and Leadership Model to reduce cost and improve value. The model is based on leadership principles and aims at driving accountability and efficiency through the use of measurement.
• 1600+ Projects Tested
• $5.7B of Services Delivered
• 98% Customer Satisfaction
• 41 Industries Where Our Model has been Tested
• Seven countries tested
• Projects in 16 states

For More Information Contact
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Arizona State University
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Tempe, Arizona 85281
www.PBSRG.com

Who is the founder?
Dean Kashwagi, Ph.D., P.E., is a professor at Arizona State University’s School of Sustainable Engineering and the Built Environment, Director/Creator of PBSRG, and CIB W117 coordinator. He is a world renowned expert in best value research. His credits include the creation of the IHT, PIPES, and PIRMS processes.

In his main publications, Information Measurement Theory and Best Value Standard, Dr. Dean details the conception, history, and application of the IHT and PIPES processes. These textbooks are companion to the class courseware, and can be purchased at the link below

BV Environment Changes People

- Tested concept in Kashiwagi family
- Now testing in ASU honors program
- Optimizes behavior through simplicity, natural laws and transparency
- Minimizes negative behavior [depression, drugs, instability, suicide]
- Creates vision
Saint Louis High School

- Result of Barrett Summer Honors efforts

- 2015 Summer Pilot Test Project

- Saint Louis High School [major private school in Hawaii] will incorporate teaching approach in fall 2015.

- Objective:
  - Identify whether Deductive Logic: Leadership and Management Techniques [BV approach] Course can quicken learning speeds and minimize stress and confusion.
Observation of the FM Future

• FMs are being outsourced.
• FMs are being viewed as a cost of doing business and not a core expertise of their organization.
• FM is being viewed as a commodity technical service that can be acquired for the lowest price.
• FM is being observed as “non-value added” by the organizations.
• Even the outsourced FM no longer has the capability to “add value”
New FM Model

• Organizations will outsource any technical service that is not in their core expertise.
• Any service that is considered a cost will continually receive less funding in the future.
• The only way to effectively cut cost is to utilize expertise instead of managing, directing and controlling [MDC].
• The FM model has to change to maintain professionalism.
New FM Area of Expertise

• The purpose must be to redesign the FM model with the future environment in mind. If it does not change the paradigm from being the expert to utilizing expertise, the profession will be a managed, cost based, and outsourced.

• The expertise must be changed from being the technical expert to utilizing technical expertise.
New FM Area of Expertise

• The expertise is to integrate the supply chain to think in the best interest of the organization.
• There is no more “fat” to cut. Cut the transactions.
• The language of new FM must be the language of simplicity, metrics, non-technical communications and transparency.
New FM Area of Expertise

- The core expertise of the new FM is the how to deliver higher quality at a lower cost by utilizing expertise.
- The functional areas of the new FM will be increased to all potential functions including organizational procurement, areas of core expertise of the organization, IT, security and FM functions.
FM of the Future

- Integrate high performance vendors who use metrics to show performance and value
- Penetration into organization leadership by doing more with information
- Acting like a leader
- Bypassing all silo like activities
- Showing dominant value
FM of the Future

• Talking simple [other executives understand]
• Having value [cutting cost and improving value]
• Utilize expertise of entire supply chain
• Get re-educated quickly
## Best Value Leadership Research

**#1 Worldwide**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Projects</td>
<td>1,622</td>
</tr>
<tr>
<td>Construction Projects ($)</td>
<td>$4B</td>
</tr>
<tr>
<td>Non-Construction Projects</td>
<td>95</td>
</tr>
<tr>
<td>Non-Construction Projects ($)</td>
<td>$2B</td>
</tr>
<tr>
<td>Projects on Budget</td>
<td>96.7%</td>
</tr>
<tr>
<td>Projects on Time</td>
<td>93.5%</td>
</tr>
<tr>
<td>Largest Awarded Client</td>
<td>ASU</td>
</tr>
<tr>
<td>Total $ Award to Date at ASU</td>
<td>$1.7B</td>
</tr>
<tr>
<td>Testing in Number of States</td>
<td>31</td>
</tr>
<tr>
<td>Testing in Number of Countries</td>
<td>6</td>
</tr>
</tbody>
</table>
Dutch Implementation

- Over-management of vendors
- Procurement and execution takes too long [12 years]
- Infrastructure repair is critically needed [drivers spend 1-2 hours on road going and coming]

- 16 project, 6 awards, $1B test of best value PIPS
- Goal is to finish 10 projects in 3 years
Results

• Program results: 15 projects finished (expectation was 10)
• Delivery time of projects accelerated by 25%
• Transaction costs and time reduced by 50-60% for both vendors and client
• 95% of deviations were caused by Rijkswaterstaat or external [not vendor caused]
• NEVI, Dutch Professional Procurement Group [third largest in the world] adopts Best Value PIPS approach
• Now being used on complex projects and organizational issues
• Concept in entire supply chain including engineers, risk/project managers [RISNET/CROW]
Best Value Approach in Oklahoma

Steve Hagar
Central Purchasing Director
Licensed by ASU
Certified BV Expert
405-522-3369
Steve.Hagar@omes.ok.gov
## State of Oklahoma Central Purchasing Best Value Project Results

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Awarded Projects</td>
<td>19</td>
</tr>
<tr>
<td># of projects given to lowest bidder</td>
<td>12</td>
</tr>
<tr>
<td># of cancelled projects (not awarded)</td>
<td>6</td>
</tr>
<tr>
<td>Estimated $ of BV Projects Procured</td>
<td>$ 137.7/208.7M</td>
</tr>
<tr>
<td>Average $ per project</td>
<td>$ 6.2M</td>
</tr>
<tr>
<td>Estimated $ Cost Avoidance</td>
<td>$ 71.8M</td>
</tr>
<tr>
<td>Average $ cost avoidance per project</td>
<td>$ 3.26M</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>9.0</td>
</tr>
<tr>
<td># of customer satisfaction surveys</td>
<td>9</td>
</tr>
</tbody>
</table>
### University of Alberta

<table>
<thead>
<tr>
<th>Project</th>
<th>Value</th>
<th>Cost Savings</th>
<th>Schedule Impacts</th>
<th>Satisfaction / Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Custodial Services (campus-wide)</td>
<td>$18M</td>
<td>$2M 10%</td>
<td>5.5% performance Improvement</td>
<td>10 (out of 10)</td>
</tr>
<tr>
<td>2. DB Construction (Research Facility)</td>
<td>$30M</td>
<td>$8-12M 25%</td>
<td>14-18 months</td>
<td>9.7 (out of 10)</td>
</tr>
<tr>
<td>3. Design Services (Building Redev)</td>
<td>$4M</td>
<td>$500k 12%</td>
<td>0% Cost &amp; Schedule CO’s</td>
<td>$190k in VA Options</td>
</tr>
</tbody>
</table>
Active or Recent Research Partners

Updated: 12/23/2014
School District 287 Report

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Value ($M)</th>
<th>Percent Complete</th>
<th>Duration (Months)</th>
<th>Schedule Delay %</th>
<th>Change Order</th>
<th>Change Order</th>
<th>Client Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEC – General Construction</td>
<td>$25.9</td>
<td>100%</td>
<td>17</td>
<td>0%</td>
<td>2.8%</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>NEC – Technology Systems</td>
<td>$1.6</td>
<td>100%</td>
<td>7</td>
<td>32.7%</td>
<td>0.9%</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td>NEC – Demountable Walls</td>
<td>$2.0</td>
<td>100%</td>
<td>7</td>
<td>0%</td>
<td>0.4%</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>$29.5</strong></td>
<td><strong>100%</strong></td>
<td><strong>11</strong></td>
<td><strong>11%</strong></td>
<td><strong>1.4%</strong></td>
<td><strong>8.9</strong></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Technology Systems vendor was not selected using BV
2. CM done by owner saving client $2.6M
3. Tom Shultz won the 2011 IFMA FM of the Year award
ADEQ Professional Services

- Identify performing professional services for Environmental Quality Plans and Actions
- Take action to clean up property to make it environmentally safe so land can be developed
## Yuma Operational Difference

<table>
<thead>
<tr>
<th>ADEQ PM Criteria</th>
<th>Pinal County</th>
<th>Yuma (In-progress)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost of Projects</td>
<td>$400K</td>
<td>$138K</td>
</tr>
<tr>
<td>Project Duration (days)</td>
<td>730</td>
<td>352</td>
</tr>
<tr>
<td>% Total Schedule Deviation</td>
<td>150%</td>
<td>23%</td>
</tr>
<tr>
<td>% Schedule Deviation Due to ADEQ</td>
<td>-</td>
<td>23%</td>
</tr>
<tr>
<td>% Schedule Deviation Due to Vendor</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>% Cost deviation</td>
<td>300%</td>
<td>0.5%*</td>
</tr>
<tr>
<td>% of Milestone Deliverables Requiring ADEQ Revisions</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>% of ADEQ Time Required to Support Vendors</td>
<td>50%</td>
<td>TBD</td>
</tr>
</tbody>
</table>
## ADEQ Overall Metrics

<table>
<thead>
<tr>
<th>Criteria</th>
<th>% Diff</th>
<th>Traditional</th>
<th>Best Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required time to evaluate proposals</strong></td>
<td>-95%</td>
<td>286 hrs</td>
<td>13 hrs</td>
</tr>
<tr>
<td><strong>Protests</strong></td>
<td>0%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Avg. Customer Satisfaction of process (1-10)</strong></td>
<td>63%</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td><strong>ADEQ Administration Cost</strong></td>
<td>-96%</td>
<td>$98,520.00</td>
<td>$3,840.00</td>
</tr>
<tr>
<td><strong>ADEQ Admin. Cost Savings</strong></td>
<td></td>
<td>$94,680.00</td>
<td></td>
</tr>
</tbody>
</table>
Case Study BV Performance at ASU
### CL Business Outcomes: Costs

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MSA Baseline</td>
<td>$12.29M</td>
<td>$10.81M</td>
<td>$11.96M</td>
</tr>
<tr>
<td>Growth – Out of Scope</td>
<td>N/A</td>
<td>N/A</td>
<td>$1.15M</td>
</tr>
<tr>
<td>Value Add</td>
<td>N/A</td>
<td>$0.43M/yr</td>
<td>$0.98M/yr</td>
</tr>
<tr>
<td>Net MSA</td>
<td>$12.29M</td>
<td>$10.38M</td>
<td>$9.83M</td>
</tr>
</tbody>
</table>

*see appendix for details*
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td># of Major Outages</td>
<td>N/K</td>
<td>37</td>
<td>11</td>
</tr>
<tr>
<td>% Uptime</td>
<td>99.802</td>
<td>99.989</td>
<td>99.998</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>3.6</td>
<td>3.71</td>
<td>3.81</td>
</tr>
<tr>
<td>(max 4.0)</td>
<td></td>
<td>(max 4.0)</td>
<td></td>
</tr>
<tr>
<td>% of Tickets within SLA</td>
<td>94%</td>
<td>97%</td>
<td>97%</td>
</tr>
</tbody>
</table>
## Business Outcomes: Technology

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Network supported</td>
<td>89%</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>(Not at end-of-maintenance)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% 1Gb- Wired Connections</td>
<td>57.0%</td>
<td>71.5%</td>
<td>96.0%</td>
</tr>
<tr>
<td>% Wireless(n)</td>
<td>9.0%</td>
<td>8.7%</td>
<td>92.6%</td>
</tr>
<tr>
<td>IT Spending Ratio</td>
<td>6/94 (New vs. Maintenance)</td>
<td>26/74 (New vs. Maintenance)</td>
<td>56/44 (New vs. Maintenance) Includes New Growth Includes Wireless-n</td>
</tr>
</tbody>
</table>
Case Study
City Of Rochester
Mayo Civic Center

March 2015
Background

• **Budget:** $67M  |  188,000 SF

• **Two-story convention facility addition**
  – 40,000 SF Ballroom
  – Meeting rooms
  – Hold two 1,000 person conventions - simultaneously
  – Why? In 2008, Rochester lost out on over 70 conventions ($74M revenue)

• **Schedule**
  – RFP Released on 11/21/2014
  – 61 calendar days to submit proposals
  – 12 calendar days to evaluate
  – 29 calendar days for clarification and award
# Evaluation Criteria

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>WEIGHT</th>
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<tbody>
<tr>
<td>Cost</td>
<td>250 Points</td>
</tr>
<tr>
<td>Interview</td>
<td>350 Points</td>
</tr>
<tr>
<td><strong>Risk Assessment Plan</strong></td>
<td></td>
</tr>
<tr>
<td>General Contractor (105 Points)</td>
<td></td>
</tr>
<tr>
<td>Mechanical (HVAC) Subcontractor (30 Points)</td>
<td></td>
</tr>
<tr>
<td>Mechanical (Plumbing) Subcontractor (30 Points)</td>
<td></td>
</tr>
<tr>
<td>Electrical Subcontractor (30 Points)</td>
<td></td>
</tr>
<tr>
<td>Low Voltage Subcontractor(s) (30 Points)</td>
<td>225 Points</td>
</tr>
<tr>
<td><strong>Value Assessment Plan</strong></td>
<td></td>
</tr>
<tr>
<td>General Contractor (75 Points)</td>
<td></td>
</tr>
<tr>
<td>Mechanical (HVAC) Subcontractor (25 Points)</td>
<td></td>
</tr>
<tr>
<td>Mechanical (Plumbing) Subcontractor (25 Points)</td>
<td></td>
</tr>
<tr>
<td>Electrical Subcontractor (25 Points)</td>
<td></td>
</tr>
<tr>
<td>Low Voltage Subcontractor(s) (25 Points)</td>
<td>175 Points</td>
</tr>
<tr>
<td><strong>Advance Identification and Retention of Critical Subcontractors</strong></td>
<td></td>
</tr>
<tr>
<td>Mechanical HVAC Subcontractor (5 Points)</td>
<td></td>
</tr>
<tr>
<td>Mechanical Plumbing Subcontractor (5 Points)</td>
<td></td>
</tr>
<tr>
<td>Electrical Subcontractor (5 Points)</td>
<td>15 Points (Bonus)</td>
</tr>
</tbody>
</table>
# Prioritization Comparison
(Top 2 Ranking Vendors)

<table>
<thead>
<tr>
<th>CRITERIA &amp; WEIGHTS</th>
<th>RAW DATA</th>
<th>PRIORITIZED DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NO</strong></td>
<td><strong>CRITERIA</strong></td>
<td><strong>WEIGHTS</strong></td>
</tr>
<tr>
<td>1</td>
<td>Cost</td>
<td>250</td>
</tr>
<tr>
<td>2</td>
<td>Risk Assessment</td>
<td>225</td>
</tr>
<tr>
<td>3</td>
<td>Value Assessment</td>
<td>175</td>
</tr>
<tr>
<td>4</td>
<td>Interviews</td>
<td>350</td>
</tr>
</tbody>
</table>

1,000

Price Points (250): 23% 25%
Performance Points (750): 73% 70%

**TOTAL POINTS (1,000):** 96% 95%
Justification of Cost Deviation

• In last 2 City projects that we won, we were about 5% below the average.
• Due to experience of BV, we included no contractor contingency ($1 Million)
• Preferred numbers from subcontractors working with our team ($700K)
• Self-perform demolition, concrete, and carpentry with no mark-ups ($500K)
• All of our personnel are from the Rochester area ($300K)
• We did not include a tower crane for this project ($400K)
• Contracted with multiple mechanical and electrical subs to minimize mark-ups ($320K)
• Did not use excavator / driven pile contractor which all other contractors used ($300K)
• We did not assume a full staff for the entire 2.5 years. During certain phases of the project a full staff will be dedicated to this project. However, during smaller phases our staffing will be adjusted to fit the scope ($250K)
PROBLEM

• 6 years previous, utilized engineering firm, contractor, to replace the roofing system

• Project cost $600K

• Project is inspected and approved by City officials
Problem: 6 years later

- Cold storage facility
- -13 degree F inside temperature
- 100 degrees F 80% humidity outside environment
Future FM

- Make organization leaders think less
- Align and utilize expertise
- Understand issues clearly
- Be astute in minimizing bureaucracy and transactions
- Increase capability, cut cost, and increase quality [efficiency and effective]
- Remove all silo thinking
IMPACT OF NEW FM MODEL

- 20 years of testing with dominant results
- Help non-experts be experts
- Cut costs dramatically with higher value
- Allow FM to be an expert in many areas increasing value to organization
Last Frontier For FM Professional

- Leadership
- System of transparency
- Utilize expertise to minimize cost and improve value
- High performance vendors
- Show dominant performance
Request

• High performance vendors to create the new model
• Visionary FMs
• Anyone who sees the problem
Questions and Answers

Linked in
Dean.kashiwagi@asu.edu
YouTube
Pbsrg.com
ksmleadership.com

Jan 18-21, 2016
Tempe, AZ
2015 Best Value
Education and Training

• Paper of BV model
• Manuals
• Further education
Thank You!