



**Calhoun: The NPS Institutional Archive**  
**DSpace Repository**

---

Acquisition Research Program

Acquisition Research Symposium

---

2012-05-01

**Services Supply Chain in the Department of  
Defense: Drivers of Acquisition Management  
Practices in the Army**

Rendon, Rene; Apte, Uday; Apte, Aruna

Monterey, California. Naval Postgraduate School

---

<http://hdl.handle.net/10945/54390>

*Downloaded from NPS Archive: Calhoun*



Calhoun is a project of the Dudley Knox Library at NPS, furthering the precepts and goals of open government and government transparency. All information contained herein has been approved for release by the NPS Public Affairs Officer.

**Dudley Knox Library / Naval Postgraduate School**  
**411 Dyer Road / 1 University Circle**  
**Monterey, California USA 93943**

<http://www.nps.edu/library>



Acquisition Research Program:  
Creating Synergy for Informed Change

# Services Supply Chain in the Department of Defense: Drivers of Acquisition Management Practices in the Army

Aruna Apte, Uday Apte, and Rene Rendon

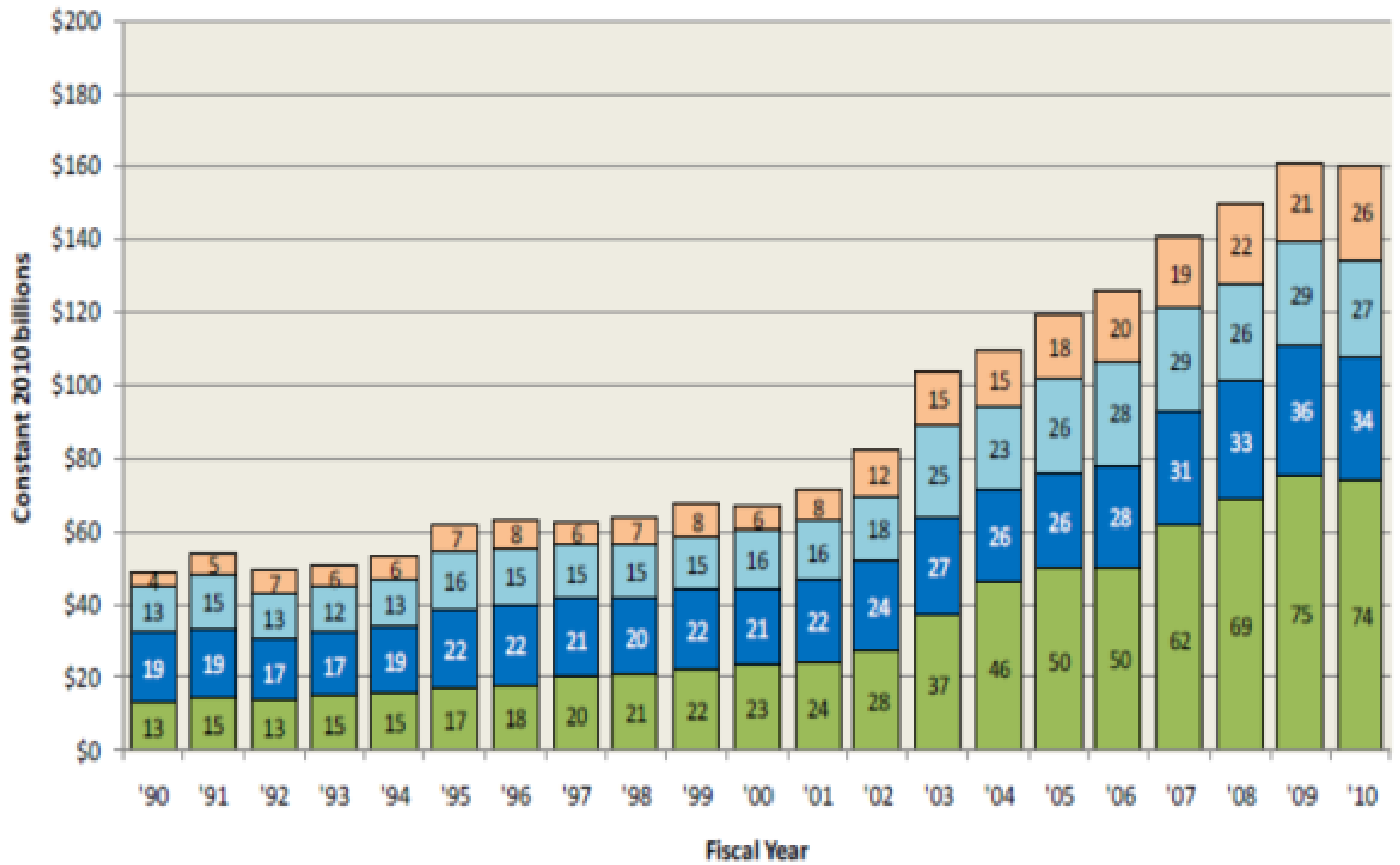
Naval Postgraduate School

May 2012

# Overview

- Background
- The Empirical Study
- Analysis and Comparison of Data
- Conclusions
- Recommendations





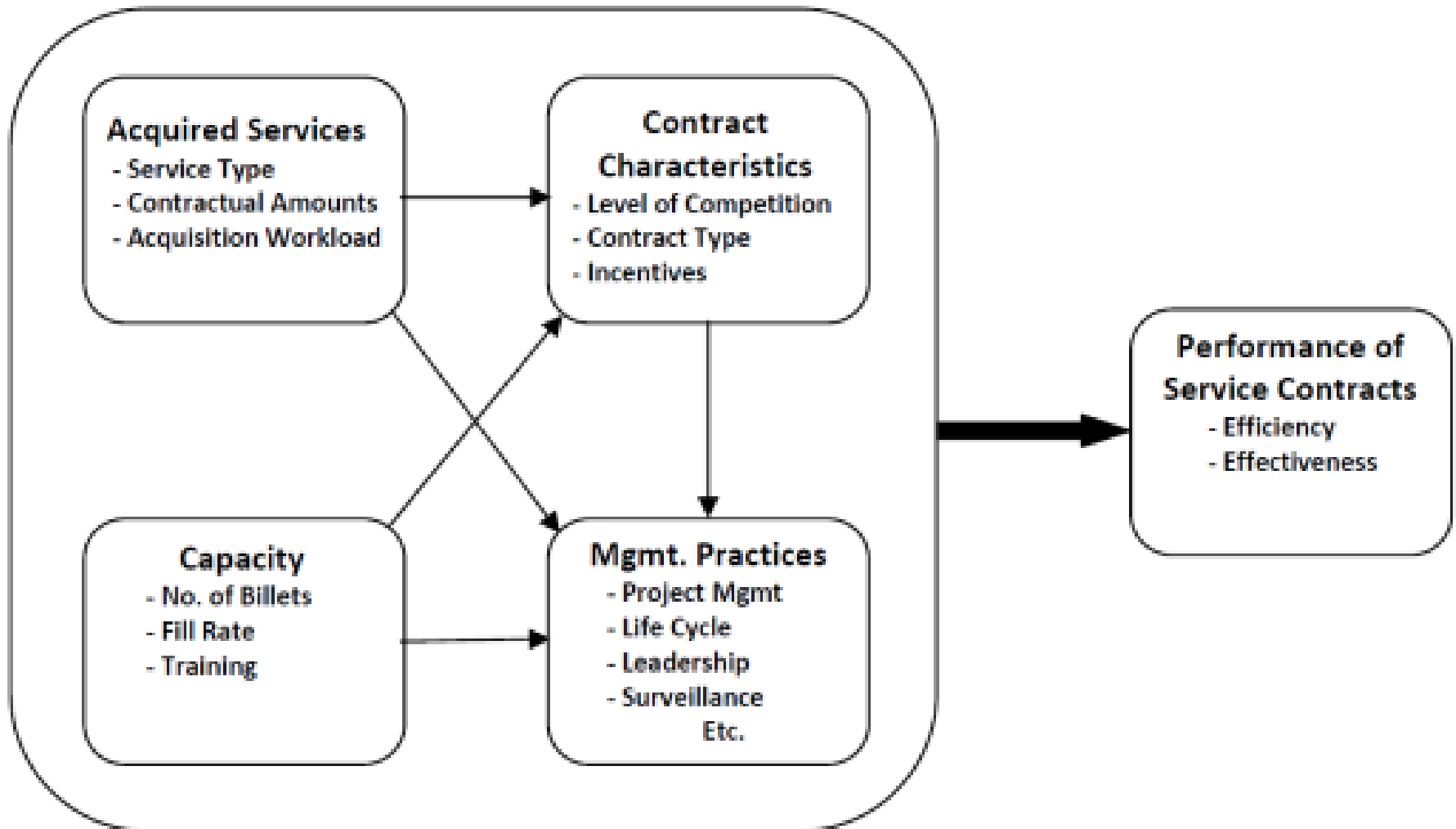
- Army Services (9.1% 21-year CAGR)
- Navy Services (2.8% 21-year CAGR)
- Air Force Services (3.8% 21-year CAGR)
- Other DOD Services (9.5% 21-year CAGR)

# Services Supply Chain the DoD Ongoing Research Program

- FY 2006** Exploratory Research: Opportunities and Challenges
- FY 2007** Implications for a Program Management Approach
- FY 2008** Empirical Study of Current Management Practices in the Air Force and Navy
- FY 2009** Empirical Study of Current Management Practices in the Army
- FY 2010** Comparison of Acquisition Management Practices in Army, Navy, and Air Force
- FY 2011** Drivers of Acquisition Management Practices in the Army



# Conceptual Framework



# Literature Survey: Theory and Practice

- Practice
  - 16 GAO Reports issued between 2001 to 2009
  - 142 DoD IG reports issued between 2002 to 2008
- Theory
  - Agency Theory and Principal-Agent Problem
  - Transaction Cost Economics
  - Service Operations Management
  - Contractual Theory: How contracts are planned, structured, awarded and administered



# The Empirical Study

- Do contract characteristics differ for different types of services?
- Do the types of services being acquired affect the management practices used?
- Does the capacity for carrying out acquisition-related work affect the management practices being used?





# The Empirical Study

- Review of contract file data
- Eight (8) U.S. Army MICC organizations
- 154 contracts
- Services studied include
  - Professional, Administrative, and Management Support (R)
  - Maintenance and Repair of Equipment (J)
  - Automated Data Processing and Telecommunications (D)
  - Utilities and Housekeeping (S)



# Contract Characteristics

- Level of Competition
- Contract Type
- Award/Incentive Fee
- Contract Cost;
- Number of Modifications
- Award Basis

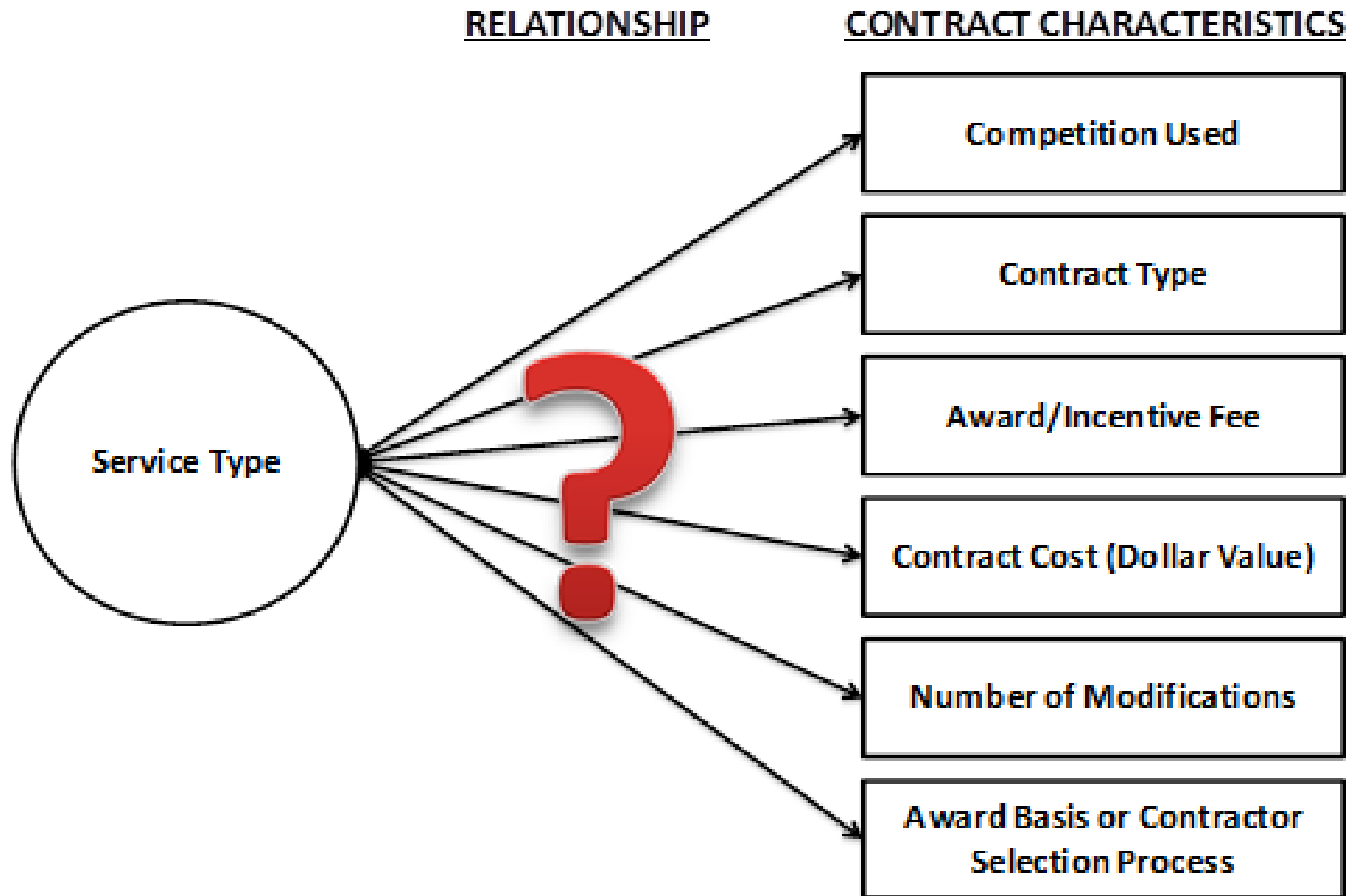


# Management Practices

- Use of Independent Government Estimate (IGE)
- Number of Personnel Assigned
- Use of a Team Approach
- Acquisition Leadership
- Contract Award Time; Acquisition Plan
- PWS/SOW
- Price Analysis
- Price Negotiation Memorandum
- Quality Assurance Plan
- Closeout Letter



# Relationship Between Service Type and Contract Characteristics



**Table 1. Results of Chi-Square Test Between Service Type and Contract Characteristics**

<b>Factor 1</b>	<b>Factor 2</b>	<b><i>p</i> value</b>	<b>Significance</b>	<b>Reject Null Hypothesis?</b>
Service Type	Level of Competition Used	0.8958	> 0.05	No
Service Type	Contract Type	Not Applicable	Not Applicable	No
Service Type	Award/Incentive Fee	Not Applicable	Not Applicable	No
Service Type	Contract Cost (Dollar Value)	0.0022	< 0.05	Yes
Service Type	Number of Modifications	0.0442	< 0.05	Yes
Service Type	Award Basis or Contractor Selection Process	0.0268	< 0.05	Yes

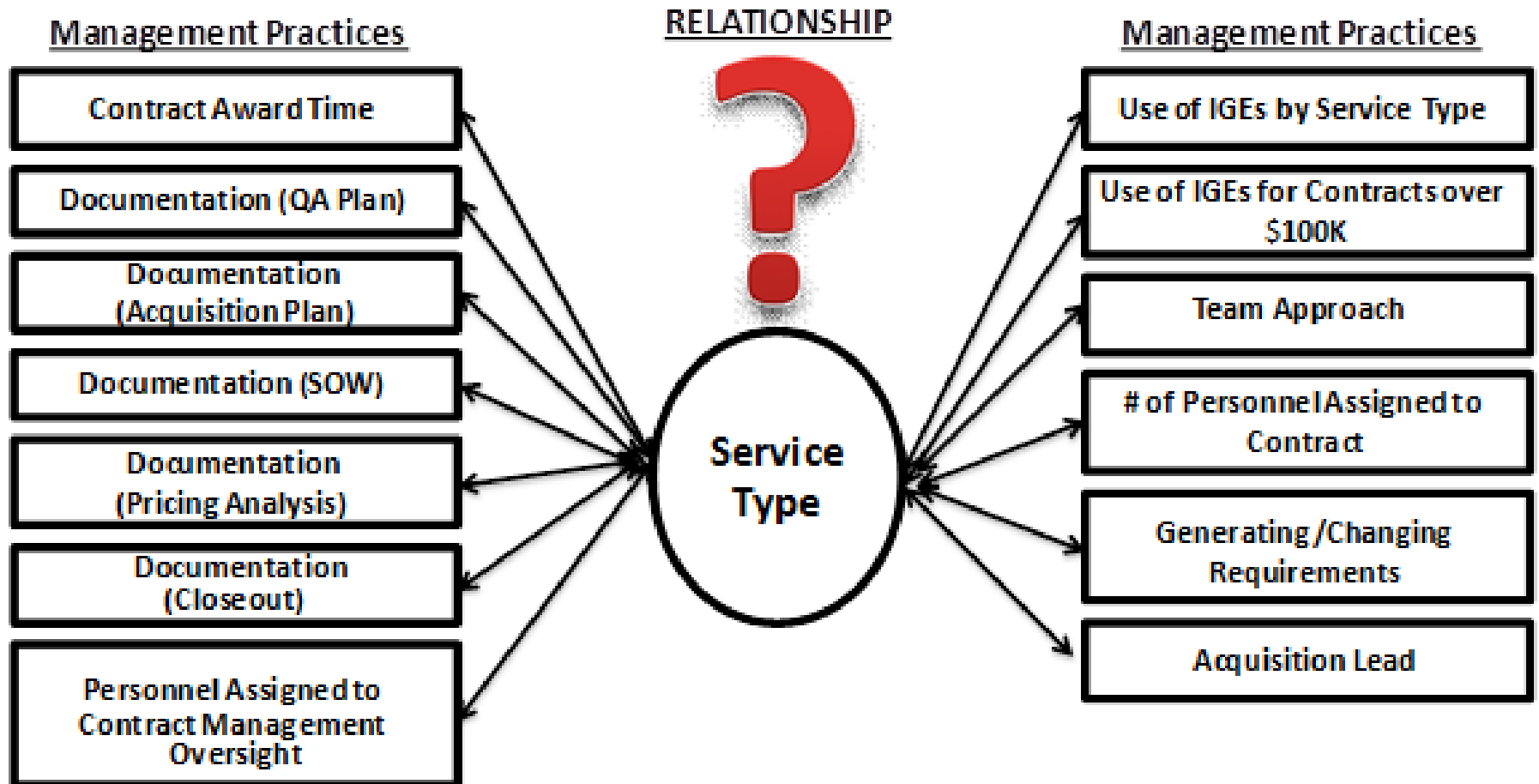
**Table 2: Survey Data on Service Type and Contract Characteristics**

Contract Characteristic	Service Type				Total
	D	J	R	S	
Level of Competition					
Full/Open Competition	18	18	27	23	86
Sole Source	16	11	22	19	68
Total	34	29	49	42	154
Sole Source Justification					
Only Provider	5	3	17	1	26
Unusual/Compelling Urgency	3	3	1	4	11
Set Aside	8	4	4	3	19
Ability One		1		5	6
Utilities				6	6
Subtotal Sole Source	16	11	22	19	68
Contract Type					
Firm-Fixed Price	34	29	49	42	154
Cost Reimbursable	0	0	0	0	0
Total	34	29	49	42	154
Award/Incentive Fee					
Yes	0	0	0	1	1
No	34	29	49	41	153
Total	34	29	49	42	154

## Table 2 Continued)

Contract Characteristic	Service Type				Total
	D	J	R	S	
Contract Cost (\$)					
Cost > \$100K	12	6	23	27	68
Cost ≤ \$100K	22	23	26	15	86
Total	34	29	49	42	154
Type of Modifications					
Option	16	20	30	27	93
Funding	21	40	113	108	282
Admin	19	21	70	39	149
Termination	0	0	1	0	1
Novation	1	0	2	0	3
Supplemental	0	0	2	0	2
Total	57	81	218	174	530
Award Basis or Contractor Selection Process					
LPTA	17	16	18	18	69
Direct Award	8	4	13	7	32
Ability One	0	1	0	7	8
Bast Value	1	2	9	4	16
Urgent/Compelling	2	2	3	4	11
Only Provider	6	4	6	2	18
Total	34	29	49	42	154

# Relationship Between Service Type and Management Practices





**Table 3. Chi-Square Hypothesis Testing Results Between Service Type and Management Practices**

<b>Factor 1</b>	<b>Factor 2</b>	<b><math>p</math> value</b>	<b>Significance</b>	<b>Reject Null Hypothesis?</b>
Service Type	Use of IGEs by Service Type	0.0068	< 0.05	Yes
IGE	Use of IGEs for Contracts over \$100K	0.0002	< 0.05	Yes
Service Type	No. of Personnel Assigned to Contract	0.0449	< 0.05	Yes
Service Type	No. of Personnel Generating/Changing Requirements	0.0822	> 0.05	No
Service Type	No. of Personnel Assigned to Contract Management Oversight	0.1695	> 0.05	No
Service Type	Team Approach	0.3142	> 0.05	No
Service Type	Acquisition Lead	0.0076	< 0.05	Yes
Service Type	Contract Award Time	0.1127	> 0.05	No
Service Type	Documentation (Acquisition Plan)	0.5665	> 0.05	No
Service Type	Documentation (PWS/SOW)	0.6909	> 0.05	No
Service Type	Documentation (Pricing Analysis)	0.5391	> 0.05	No
Service Type	Documentation (PNM)	0.0871	> 0.05	No
Service Type	Documentation (QASP Plan)	0.0115	< 0.05	Yes
Service Type	Documentation (Closeout Letter)	0.4676	> 0.05	No

**Table 4: Survey Data on Service Type and Management Practices**

Management Practice	Service Type				Total
	D	J	R	S	
Use of IGEs by Service Type					
No	27	16	20	23	86
Yes	7	13	29	19	68
Total	34	29	49	42	154
Team Approach					
No	18	10	19	14	61
Yes	16	19	30	28	93
Total	34	29	49	42	154
No. of Personnel Assigned to Contract					
1	2	2	0	0	4
2	10	2	9	13	34
3	14	20	25	14	73
4	2		8	4	14
5	6	5	5	9	25
6	0	0	1	0	1
8	0	0	1	2	3
Total	34	29	49	42	154

**Table 4 (Continued)**

Management Practice	Service Type				Total
	D	J	R	S	
Acquisition Lead					
Contract Specialist	2	5	0	1	8
Contract Lead	32	24	49	41	146
Total	34	29	49	42	154
No. of Personnel Generating/Changing Requirements					
1	7	6	4	3	20
2	26	16	40	32	114
3	1	7	5	6	19
8	0	0	0	1	1
Total	34	29	49	42	154
No. of Personnel Assigned to Contractor Oversight					
1	3	4	0	1	8
2	15	7	17	17	56
3	15	15	24	19	73
4	1	3	8	2	14
5	0	0	0	1	1
6	0	0	0	1	1
8	0	0	0	1	1
Total	34	29	49	42	154
Contract Award Time (meets PALT?)					
No	11	15	26	25	77
Yes	23	14	23	17	77
Total	34	29	49	42	154

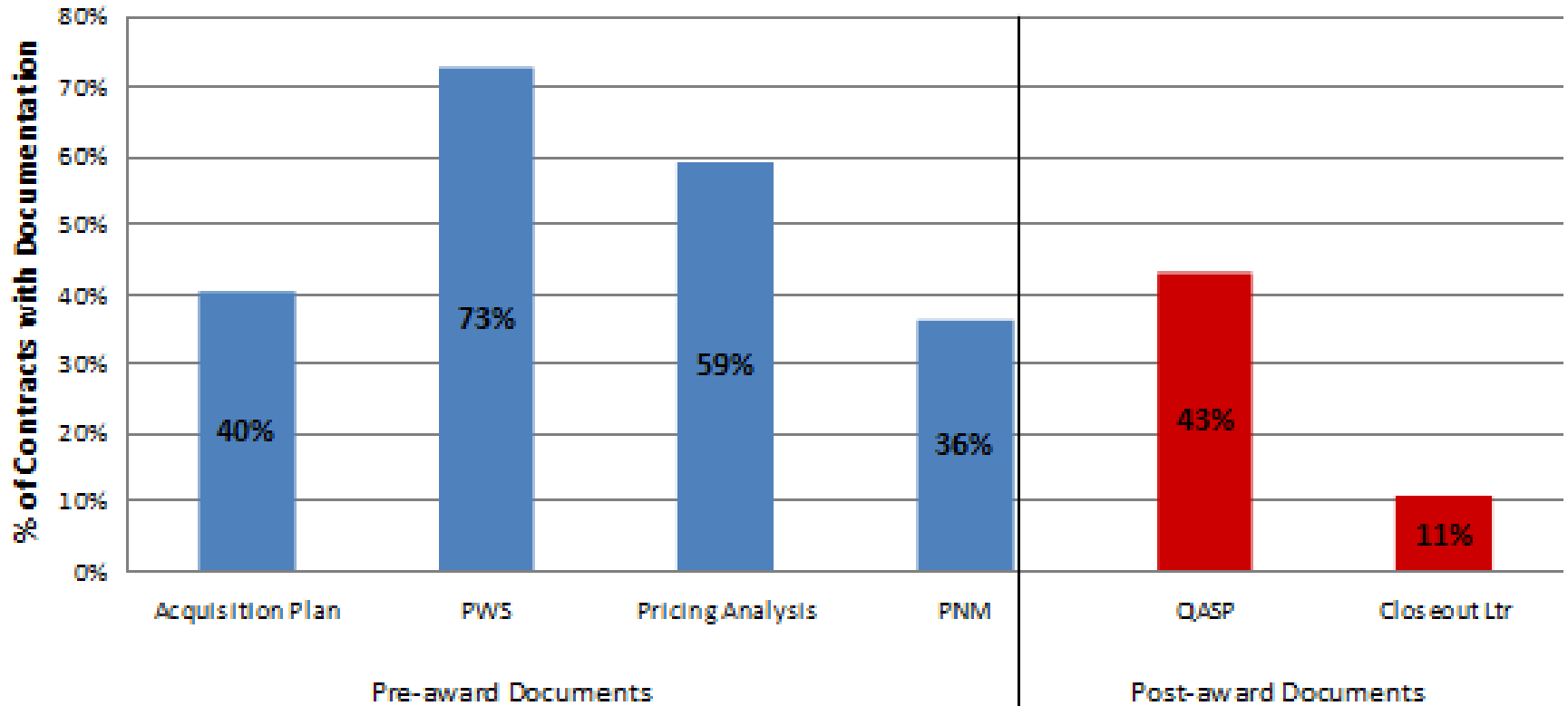
### Table 4 (Continued)

Management Practice	Service Type				Total
	D	J	R	S	
Documentation (Acquisition Plan) Exists					
No	20	20	30	22	92
Yes	14	9	19	20	62
Total	34	29	49	42	154
Documentation (PW5) Exists					
No					
Yes	12	7	12	11	42
Total	22	22	37	31	112
Documentation (Pricing Analysis) Exists					
No	16	13	16	18	63
Yes	18	16	33	24	91
Total	34	29	49	42	154
Documentation (QA Plan) Exists					
No	27	18	22	21	88
Yes	7	11	27	21	66
Total	34	29	49	42	154
Documentation (Closeout Letter) Exists					
No	15	16	20	17	68
Yes	3	2	1	1	7
N/A	16	11	28	24	79
Total	34	29	49	42	154
Documentation (PNM) Exists					
No	19	22	26	18	85
Yes	8	4	18	14	44
N/A	7	3	5	10	25
Total	34	29	49	42	154

**Table 5. Chi-Square Hypothesis Testing Results Between Use of IGE and Contracts Cost**

<b>Management Practice</b>	Test <i>p</i> value	IGE Used?		
		No	Yes	Total
Use of IGEs and Contract's Cost	0.0002			
Under \$100K		62	29	91
Over \$100K		24	39	63
Total		86	68	154

## Contracts With Documentation in Contract Files (n=154)



**Table 6. FY2010 Service Contracts Awarded**

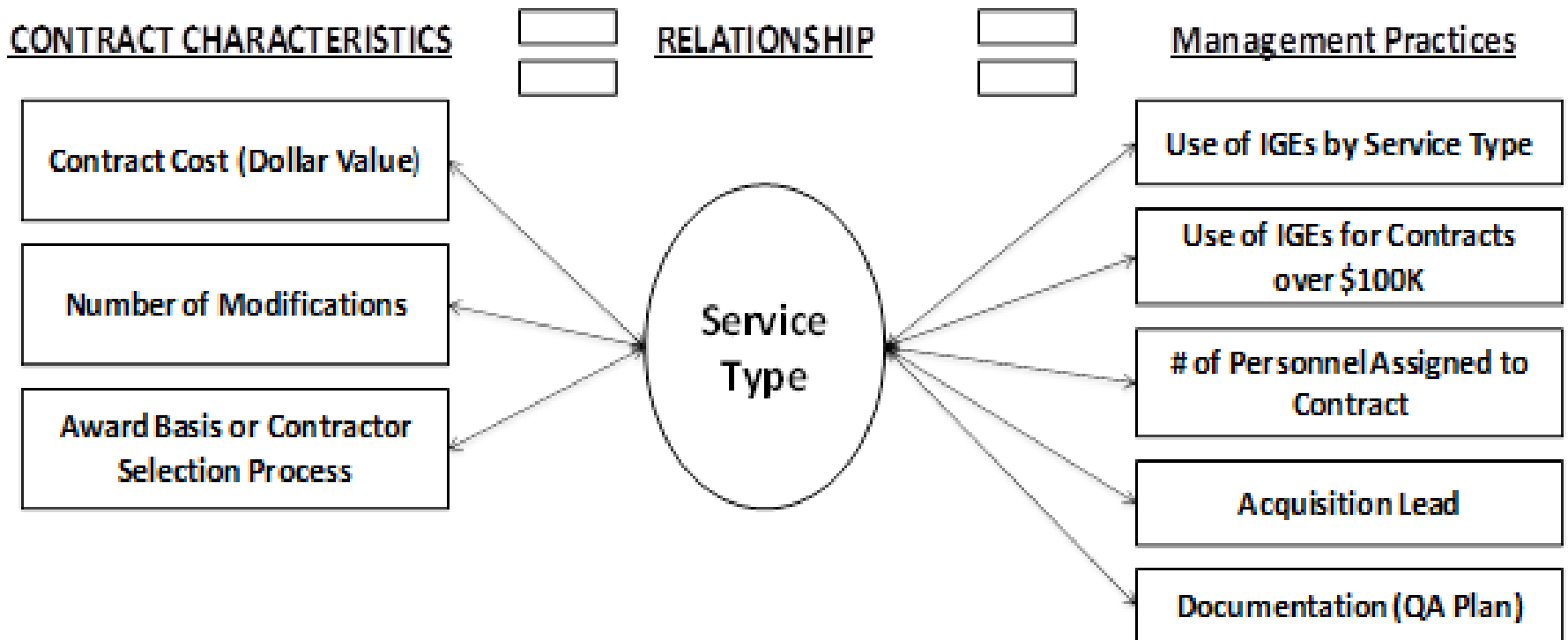
	MICC Office A	MICC Office C	MICC Office D	MICC Office E	MICC Office F	MICC Office G	MIC Office
<b>Total Dollar Value of Service Contracts Awarded (R, D, S, &amp; J)</b>	\$17,435,363	\$38,361,394	\$931,231,325	\$316,000,000	Data Not Available	\$293,000,000	\$301,000
<b>Total Number of Service Contracts Awarded (R, D, S, &amp; J)</b>	76	766	542	226		350	804
<b>Average Dollar Value per Service Contract</b>	\$229,413	\$50,080	\$1,718,138	\$1,398,230		\$838,000	\$374,0

**Table 7. Office Capacity of MICC Offices Observed**

<b>Capacity Category</b>	<b>Capacity Subcategories</b>	<b>MICC Office A</b>	<b>MICC Office C</b>	<b>MICC Office D</b>	<b>MICC Office E</b>	<b>MICC Office F</b>	<b>MICC Office G</b>	<b>MICC Office H</b>
Billets	Warranted	100%	88%	83%	58%	100%	100%	100%
	Non-warranted	0%	84%	106%	47%	117%	86%	86%
Certification	DAWIA I	23%	13%	23%	8%	0%	2%	0%
	DAWIA II	162%	24%	16%	54%	66%	66%	68%
	DAWIA III	100%	27%	33%	118%	0%	32%	32%
Experience	< 1 year	18%	14%	7%	0%	14%	10%	4%
	1 - 2 years	18%	43%	12%	1%	23%	3%	2%
	2 - 3 years	10%	16%	7%	9%	34%	19%	21%
	> 3 years	55%	17%	74%	90%	29%	68%	73%



# Summary of Findings From Data Analysis



# Conclusions

- **Do the Contract Characteristics Differ for Different Types of Services?**
  - The average annual contract cost for service type S was significantly higher than for the other three service types evaluated.
  - The number of modifications applied to service types R and S were considerably larger than for service types D and J.
  - Service types D and J used LPTA contract award strategies approximately 50% of the time, while service types R and S awarded contracts more frequently based on a best value trade-off.
  - We also observed that every contract was awarded as FFP, only one contract utilized an incentive or award fee, and the use of competition in the solicitation process was not related to service type.



# Conclusions

- **Do the Types of Services Being Acquired Affect the Management Practices Being Used?**
  - In the use of IGEs in contracts for the specific services, we found that over half of the contracts for all service types did not have an IGE. In addition, for the use of an IGE for contracts over the simplified acquisition threshold, only 32% of the contracts did have an IGE.
  - The average number of personnel assigned to a contract does have a relationship with service type; specifically, the average number of personnel was high for service types R and S.



# Conclusions

- **Do the Types of Services Being Acquired Affect the Management Practices Being Used?**
  - We clearly identified the contracting officer as the acquisition lead for 146 of the 154 contracts we evaluated and the contract specialist as the acquisition lead for the remaining eight contracts.
  - The quality assurance surveillance plan (QASP) was the only acquisition document that had a relationship with service type. Only 43% of contracts we evaluated had a QASP in the contract file.



# Conclusions

- **Does the Capacity for Carrying out Acquisition-Related Work Affect the Management Practices Being Used?**
  - Relationship exists between capacity and management practices.
  - Offices lacked the requisite number of authorized personnel to perform acquisition functions, and a majority of the personnel on hand lacked proper training certifications.
  - Although standard practices for managing service contracts were common at all the MICC offices, most offices did not incorporate a standard contract filing system.



# Recommendations

- Further scrutinize the use of sole-source contracts to ensure that competition requirements are being met, and that fair and reasonable prices are being negotiated.
- Evaluate the process of using independent government estimates (IGE) as a tool for ensuring fair and reasonable prices.
- Explore using contract options or award term incentives in the procurement of recurring services to help streamline the contracting process and reduce the time required to award contracts.
- Explore the acquisition planning and requirements management processes to identify the cause for the higher level of contract modifications for R and S type services.



# Recommendations

- Insist on complete and accurate contract file documentation in the acquisition of services. FAR provides policy and regulations for contract file documentation that should be used to ensure government records are maintained appropriately.
- Adopt a project management approach to the acquisition of services. This approach includes establishing project teams consisting of cross-functional representatives involved in services acquisition. This approach also includes a dedicated project manager to lead the acquisition effort, as well as established roles and responsibilities for each of the project team members.
- In addition to having filled acquisition billets, emphasis should also be placed on ensuring that acquisition personnel are properly trained, educated, and experienced in their functional specialty areas, such as project management, contracting, and COR.



# Questions?

