



Quality in the Procurement Process

Prof Dr Steve Muylle

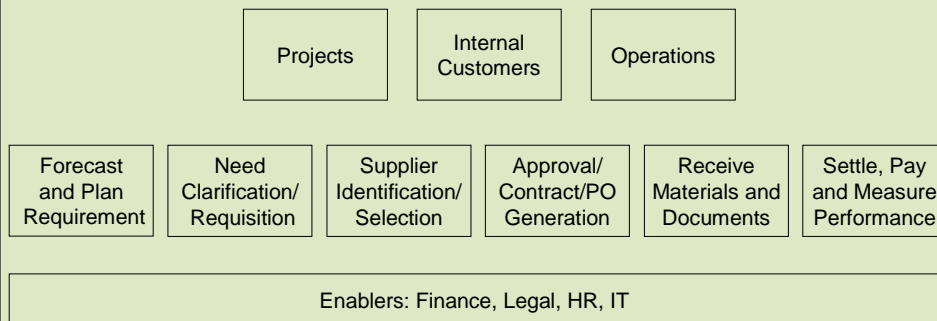
- **Semantics**
- **Buyer quality**
- **Supplier quality**
- **Performance dynamics**
- **Recap**

Procurement is a functional group as well as a functional activity.

It commits to doing “the five rights”:

- Getting the right quality;
- In the right quantity;
- At the right time;
- For the right price;
- From the right source.

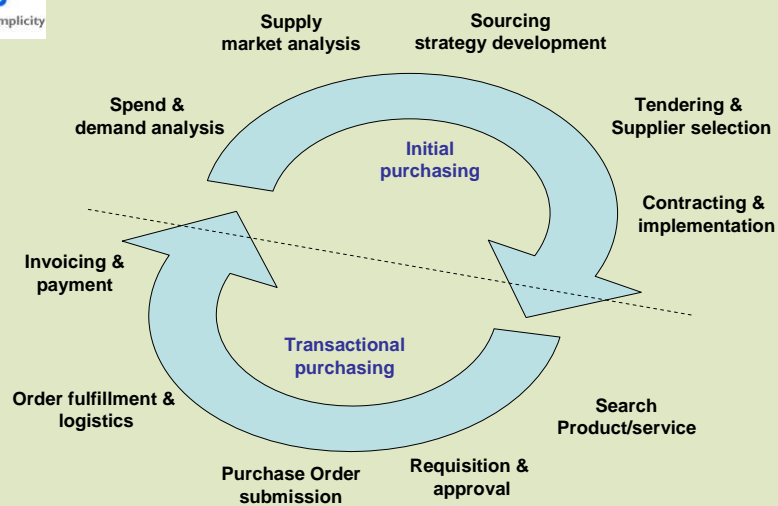
Procure to Pay



Integrated (e) Supply Management is

- the management of all processes
- that interconnect with suppliers
- to sustain competitive advantage

- (through the use of Internet-based computer networks)



Fitness for use.

Joseph Juran

Conformance to requirements.

Philip Crosby

The total composite of product and service characteristics of marketing, engineering, manufacturing and maintenance through which the product or service in use will meet or exceed the expectations of the customer.

Armand Feigenbaum

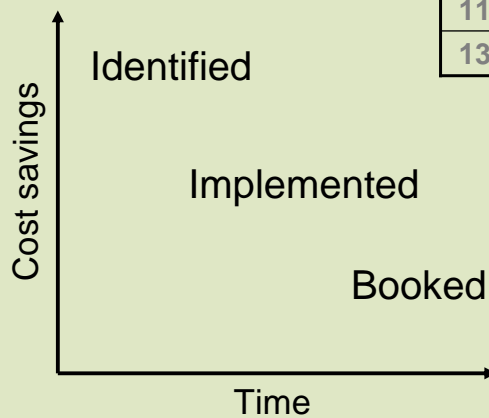
- Semantics
- Buyer quality
- Supplier quality
- Performance dynamics
- Recap

“At least half or even more of the quality problems between customer and supplier are caused by poor specifications, for which the customer company is largely responsible. Most specifications are vague or arbitrary. They are generally determined unilaterally by engineering, which lifts them from some boiler-plate document and embellishes them with factors of safety to protect its hide. When bids go out to suppliers, the latter are seldom consulted on specifications, and most suppliers are afraid to challenge specifications for fear of losing the bid.”

(Keki Bhote)

Cost and Compliance, Cycle time

Id%	B%	Δ%
11.9	3.2	73
11.2	8.5	32
13.7	11.8	16



- Appraisal costs
- Failure costs
- Prevention costs

σ	CoQ (%Rev)
3 - 4	25 - 40
6	< 5

“Six Sigma focuses on improving quality (i.e., reduce waste) by helping organizations produce products and services better, faster and cheaper. In more traditional terms, Six Sigma focuses on defect prevention, cycle time reduction and cost savings. Unlike mindless cost-cutting programs which reduce value and quality, Six Sigma identifies and eliminates costs which provide no value to customers, waste costs.”

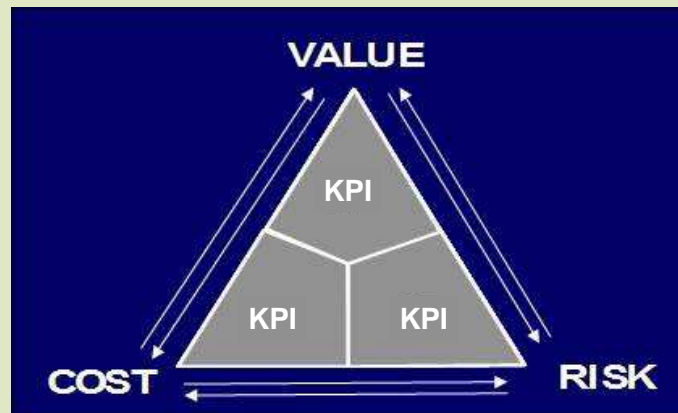
(Thomas Pyznek)

- Semantics
- Buyer quality
- **Supplier quality**
- Performance dynamics
- Recap

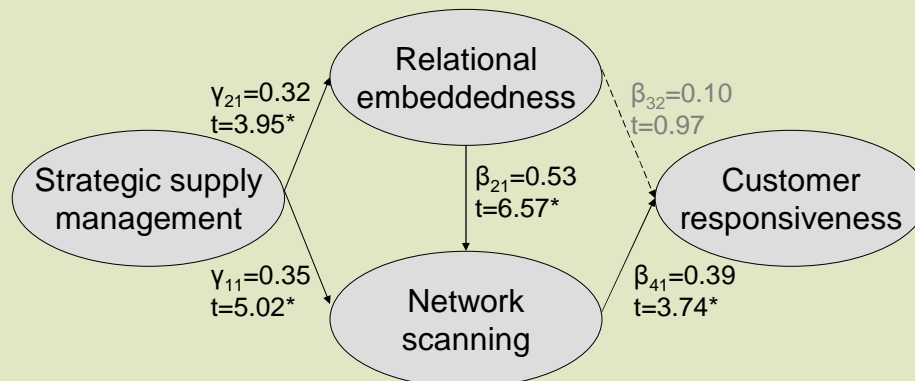
“Suppliers are responsible for 50%
of the firm’s product-related quality problems.”

(Philip Crosby)

1. Define quality in terms of customers and their requirements.
2. Pursue quality at the source.
3. Stress objective rather than subjective analysis.
4. Emphasize prevention rather than detection of defects.
5. Focus on process rather than output.
6. Strive for zero defects.
7. Establish continuous improvement.
8. Make quality everyone's responsibility.



- Supplier Certification Programs
- ISO 9000:2000
- ISO 14000
- Malcolm Baldrige National Quality Award



1. Award longer-term purchase contracts.
2. Offer a greater share of total volume to superior performers.
3. Publicly recognize superior suppliers.
4. Share the cost savings.
5. Provide suppliers with access to new technologies.
6. Provide early insight into new business opportunities and product development plans.
7. Invite suppliers to participate early in NPD projects.
8. Allow suppliers to use supply agreements to obtain favorable pricing.
9. Invite suppliers to participate in executive buyer-supplier councils.
10. Create a PSL that are offered first opportunity for new business.

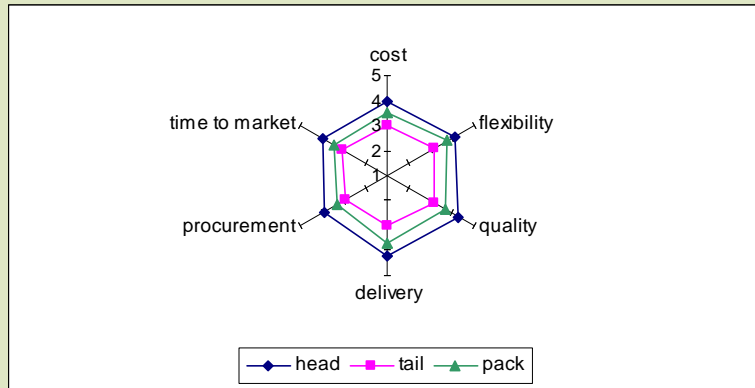
- Semantics
- Buyer quality
- Supplier quality
- Performance dynamics
- Recap



- **Cost control**
- **An emphasis on value**
- **Collaboration as strategy**
- **Supplier management**

“P&G Purchases is much more than a cost-management leader.”
“They are a true source of advantage.”

(A.G. Lafley, CEO P&G)



(Vereecke & Muylle 2006; Recipient Chris Voss Best Paper Award Euroma Conference INSEAD;n=374)

© Prof Dr Steve Muylle

23

Collaboration	Head (1)	Pack (2)	Tail (3)	Sig.
Supplier structural coordination	2.35 ^(2,3)	2.02 ⁽¹⁾	1.94 ⁽¹⁾	0.033
Supplier information exchange	4.03 ^(2,3)	3.25 ⁽¹⁾	3.00 ⁽¹⁾	0.000
Customer structural coordination	2.46 ^(2,3)	1.91 ⁽¹⁾	1.73 ⁽¹⁾	0.000
Customer information exchange	3.77 ^(2,3)	3.08 ⁽¹⁾	2.70 ⁽¹⁾	0.000

Notes: Scale: 1 (no adoption) to 5 (high level of adoption); (1,2,3): Scheffé pairwise tests $\alpha=0.05$.

(Vereecke & Muylle 2006; Recipient Chris Voss Best Paper Award Euroma Conference INSEAD;n=374)

© Prof Dr Steve Muylle

24

Hypothesis 1. For a project with both initial and ongoing quality dimensions, initial performance is lower for higher levels of vertical integration.

Hypothesis 2. For a project with both initial and ongoing quality dimensions, performance improvement is higher for higher levels of vertical integration.

(Novak and Stern 2008)

Hypothesis 3A. The impact of vertical integration on initial performance will be muted for firms with a higher level of ex ante experience or knowledge, or both.

Hypothesis 3B. The impact of outsourcing on initial performance will be muted in the absence of a globally innovative external contractor.

Hypothesis 3C. The impact of vertical integration on performance improvement will be higher in environments where opportunities for learning are higher.

(Novak and Stern 2008)

Choices:

Positioning and Performance

Technologies

Systems, sub-systems, components

Contracting

(Novak and Stern 2008)

27

Novak and Stern: *How Does Outsourcing Affect Performance Dynamics? Evidence from the Automobile Industry*
Management Science 54(12), pp. 1963-1979, ©2008 INFORMS 1971

Table 1 Variables and Definitions

Variable	Definition	Mean	Std. dev.
Performance measures			
<i>Performance Rating</i>	<i>Consumer Reports'</i> rating (from 1 to 5, with 5 as the highest rating) for system <i>i</i> on model <i>j</i> in year <i>t</i> after a major model change. The rating for a given model-year is the first <i>Consumer Reports'</i> rating available for that model-year.	3.541	0.970
<i>Short-Term Performance</i>	Average of <i>Performance Rating</i> _{<i>it</i>} and <i>Performance Rating</i> _{<i>it+1</i>} , as available (when only one rating is available, only one is used).	3.420	0.965
<i>Long-Term Performance</i>	Average of <i>Performance Rating</i> _{<i>it</i>} and <i>Performance Rating</i> _{<i>it+2</i>} , as available (when only one rating is available, only one is used).	3.705	0.967
<i>Performance Change</i>	<i>Long-Term Performance</i> – <i>Short-Term Performance</i> .	0.286	0.832
<i>Overall Performance</i>	Average of <i>Short-Term Performance</i> and <i>Long-Term Performance</i> .	3.563	0.871
Contracting measures			
<i>Vertical Integration</i>	Percentage of the system produced in house between 0 and 1 (1 indicates all in-house production).	0.513	0.318
System-specific contracting and performance drivers			
<i>Sunk Cost</i>	Dummy = 1 if preexisting in-house sunk costs or plant investment for system <i>i</i> .	0.143	0.351
<i>Low Capacity</i>	Dummy = 1 if plant has insufficient capacity to manufacture system design in house.	0.170	0.377
<i>Platform</i>	Dummy = 1 if the component was designed to be used for more than one vehicle model.	0.527	0.502
<i>Complexity</i>	Degree of system complexity, ranging from 0 to 1.	0.392	0.275
<i>Design Goal</i>	Measure for desired performance goals at the system level, ranging from 0 (low) to 1 (high).	0.457	0.311
Model-year measures			
<i>Japan OEM</i>	Dummy = 1 if company headquarters are located in Japan.	0.366	0.484
<i>Year</i>	Year of product introduction for major model change.	1,990.080	5.309
System groupings			
<i>Innovative Supplier System</i>	Dummy = 1 if system is transmission, electrical, or brakes. Based on availability (during the sample period) of globally available innovative suppliers.	0.447	0.499

28

1974 Novak and Stern: *How Does Outsourcing Affect Performance Dynamics? Evidence from the Automobile Industry*
Management Science 54(12), pp. 1963–1979, ©2008 INFORMS

Table 3 Short-Term Performance

	Dependent variable: Short-Term Performance (N = 112)									
	Ordinary least squares						Instrumental variables			
	(3-1)	(3-2)	(3-3)				(3-4)			
Vertical integration	-0.794** (0.279)	-0.679** (0.249)	-0.681** (0.274)				-0.907** (0.245)			
Sunk Cost				-0.373 (0.422)				-0.346 (0.420)		
Low Capacity				0.043 (0.375)				-0.028 (0.365)		
Platform				-0.023 (0.119)				-0.038 (0.123)		
Complexity				0.311 (0.357)				0.310 (0.342)		
Design Goal				-0.445 (0.523)				-0.508 (0.507)		
Japan OEM				0.074 (0.207)				0.081 (0.203)		
Year				0.090 (0.024)				0.078** (0.029)		
Constant	3.827 (0.168)	3.949 (0.268)	4.031 (0.350)				4.235 (0.328)			
Parametric restrictions	No. of restrictions		F-stat.	p-value	No. of restrictions		F-stat.	p-value	No. of restrictions	
System dummies	6		4.84	0.037	6		3.52	0.075	6	
R-squared	0.068		0.407		0.424		0.424		5.28	
									0.031	

© Prof Dr Steve Muylle

29

Novak and Stern: *How Does Outsourcing Affect Performance Dynamics? Evidence from the Automobile Industry*
Management Science 54(12), pp. 1963–1979, ©2008 INFORMS

1975

Table 4 Performance Change

	Dependent variable: Performance Change (N = 112)									
	Ordinary least squares						Instrumental variables			
	(4-1)	(4-2)	(4-3)				(4-4)			
Vertical integration	0.611** (0.243)	0.845** (0.392)	0.456** (0.209)				0.648** (0.362)			
Sunk Cost				0.502** (0.137)				0.419** (0.209)		
Low Capacity				-0.212** (0.075)				-0.154 (0.169)		
Platform				-0.137 (0.105)				-0.096 (0.090)		
Complexity				0.180 (0.321)				0.132 (0.279)		
Design Goal				0.112 (0.419)				0.104 (0.272)		
Japan OEM				0.795** (0.152)				0.670** (0.148)		
Year				0.036* (0.020)				0.047** (0.034)		
Short-Term Performance (low rating)				1.699** (0.309)						
Short-Term Performance (medium rating)				0.675** (0.292)						
Short-Term Performance								-0.364 (0.308)		
Constant	-0.028 (0.146)	-0.217 (0.282)	-0.877 (0.290)				0.915 (1.160)			
Parametric restrictions	No. of restrictions		F-stat.	p-value	No. of restrictions		F-stat.	p-value	No. of restrictions	
System dummies	6		444.18	0.000	6		70.84	0.000	6	
R-squared	0.055		0.126		0.520		0.520		701.94	
									0.000	

© Prof Dr Steve Muylle

30

- **Contract directly on a measure of post-launch product performance**
- **Aggregate individual contracting decisions**

(Novak and Stern 2008)

1. **Continuous outsourcing determination and globalization of supply with greater focus on risk management with key suppliers.**
2. **Enhanced supply chain integration and collaboration with strategic suppliers.**
3. **Increased information sharing and transparency internally and with suppliers.**
4. **Sourcing becoming more integrated with other functions, process, and customers including external customer-facing activities.**
5. **Enhancing the quality, number, and execution of written purchase family/supplier category strategies with a focus on value, including the total supply network.**
6. **Selectivity ensuring the adequacy of sourcing and supply strategies as a means to accelerate and obtain innovation from suppliers.**

7. Requiring suppliers to take a greater cost management role by providing value-adding services in R&D, manufacturing/operations, customer order fulfilment and system integration.
8. Providing common customer-focused measurements and metrics across the supply chain.
9. Developing an e-sourcing and supply applications portfolio.
10. Taking a leading role in sustainability with suppliers.
11. Organize activities primarily center-led, with appropriate activities being located at sites worldwide, and with decentralized executives on a global basis.
12. HR strategies and dedicated personnel focusing on identifying, hiring, and developing highly talented, flexible, and globally oriented professionals, who can immediately contribute.

- Semantics
- Buyer quality
- Supplier quality
- Performance dynamics
- Recap

Quality in the Procurement Process

- **Strategic role of procurement process**
- **Quality as translating customer expectations upstream**
- **Pursue a world-class supply base**
- **Optimize performance dynamics**

35



Prof Dr Steve Muylle

- **Supply Management**
- **B2B Marketing**
- **E-Business**

steve.muylle@vlerick.be

36