

Procurement and Supply Chain

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MGM 431

Lecture 10



The background features a series of vertical, rounded rectangular panels. The leftmost panel shows a person's hands typing on a laptop. The subsequent panels are semi-transparent and contain various white icons: a graduation cap, a play button, a target with an arrow, an open book, a magnifying glass, and a bar chart. The overall color palette is warm, with shades of orange and yellow.

World-class procurement to enhance business performance and sustainability & Future Trends in World-Class Procurement

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Course Agenda

Chapter

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- 1-Innovation and supplier continuous improvement.
 - 2-The stages of new product development.
 - 3-The key considerations for cyber security.
 - 4-Procurement contributions to new product development.
 - 5-Results and process-orientated supplier development.
 - 6-Procurement ethics.
 - 7-Procurement fraud.
 - 8-Future Trends in World-Class Procurement

Innovation and supplier continuous improvement

- **Procurement** has a significant role to play in influencing strategic suppliers to be innovative and provide continuous improvement.
- It can be argued that procurement has not yet been successful in the quest to achieve these goals. In the author's opinion **there are four dominant reasons for the lack of success:**
 - Procurement specialists lacking technical knowledge to drive change
 - Procurement lacking the commercial imagination to reward suppliers for their innovative developments
 - Procurement lacking credibility with technical colleagues and therefore unable to influence change
 - Buying organizations unwilling to invest in product/service research and development.

- **Innovation** is the process of turning ideas and knowledge into products and services that create a consumer demand within the marketplace.
- **Product innovation** is the process of transforming technical ideas or market needs and opportunities into a new product (or service) that is launched on to the market.
- **Process innovation** is the introduction or development of new methods or technology by means of which products or services can be manufactured or delivered more effectively or efficiently. An example of process innovation is the introduction of robots and other forms of automated equipment.
- **Breakthrough innovation** is completely new or revolutionary products, such as new scientific discoveries in pharmaceuticals. Commonplace products, such as the radio, television and aircraft were once breakthrough innovations.
- **Incremental innovations** are gradual improvements in a product or service.

Innovation

Concurrent engineering

- **Concurrent engineering** is a systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support.
- Typically, concurrent engineering involves the formation of cross-functional teams, which allows engineers and managers of different disciplines to work together simultaneously in developing product and process design.
- This approach is intended to cause the developers from the outset, to consider all elements of the product lifecycle from concept through disposal, including quality, cost, schedule, and user requirements.

Innovation

Concurrent engineering

- Australia's National Institute for Manufacturing Management has published a guide to Introducing concurrent engineering in your organization .
- They pose a question for companies to ascertain whether concurrent engineering is for them:
- **‘Does my company face any of the following problems in product development?’**
- Increasing competitive pressure to develop new products
- Product launch delays
- Higher costs in processing and developing products than is acceptable
- A predominantly internally focused product development process
- Little or no direct knowledge of customer requirements
- No or low involvement by marketing in the early stages of product development

Innovation

Concurrent engineering

- Promoting the logic for the early involvement of suppliers in the design process to ensure the true cost and maintainability of materials and components
- Becoming a key member of the concurrent engineering team, through an effective challenge to specifications
- The effective management of the procurement of samples for test and production prototypes
- Ensuring that emerging contractual detail includes supplier's obligations for replacing faulty materials and components
- Providing training to the concurrent engineering teams on all facets of cost drivers impacting on through life costs
- Assisting in networking with other organizations who have successfully implemented concurrent engineering

Factors in environmentally sensitive design

- Increasing their efficiency and economy in the use of materials, energy and other resources
- Minimizing pollution from chosen materials
- Reducing any long-term harm to the environment caused by using the product
- Ensuring that the planned life of the product is the most appropriate in environmental terms and that the product functions efficiently for its full life
- Ensuring that full account is taken of the end-disposal of the product
- Specifying packaging that can be recycled easily
- Minimizing nuisances, such as noise or odour
- Analyzing and minimizing safety hazards.

Use of environmentally preferred materials

Industrial ecology aims to manage human activity on a sustainable basis by:

- Minimizing energy and materials usage
- Ensuring acceptable quality of life for human beings
- Conserving energy and natural resources, such as minerals and forests.

Industrial ecology advocates the application of the following principles when selecting materials for product design:

- Choose abundant, non-toxic materials whenever possible
- Choose materials familiar to nature – for example, cellulose, rather than synthetic materials, such as chlorinated aromatics

Supplier development has been defined as:

Any activity that a buyer undertakes to improve a supplier's performance and/or capabilities to meet the buyer's short-term or long-term supply needs.

Supplier development programmes can be either results-orientated or process-orientated.

Results-orientated programmes focus on solving specific problems for suppliers and normally involve step-by-step changes relating to supplier's costs, quality and delivery.

Hartley and Jones identify three characteristics of results-orientated supplier development:

- The process is standardized and buyer-driven
- The changes made are primarily technical
- The process is of short duration and requires limited follow-up.

Supplier development

With this approach, the supplier improves while the buyer's supplier development team is on site, and the achieved level of performance can be maintained after the team has left. The results approach is basically an attempt to transfer an organization's in-house capabilities across boundaries.

Process-orientated programmes focus on increasing the supplier's ability to make production improvements without hands-on assistance from the buyer. This requires the supplier to learn the problem-solving techniques required for continuous improvements.

Such learning is complicated, may require the 'unlearning' of old practices and the encoding of new knowledge in organizational routines.

The steps of supplier development

The actual process may differ according to the organization and as stated above, whether the development is primarily results-orientated or process-orientated. There are nine steps in a typical supplier development programme.

These are briefly explained as follows:

- 1- **Identify critical products** – this is done using a portfolio approach, such as that of Kraljic. These will be mainly strategic and bottleneck products.
- 2- **Identify critical suppliers** – this involves consideration of such questions as the following.

The steps of supplier development

- What is the capability of the suppliers? Sako identifies three levels of capability:
- **Maintenance capability** – the ability to maintain a particular level of performance consistently
- **Improvement capability** – that which affects the pace of performance improvements –
- **Evolutionary capability** – the capacity for capability building, which is different from dynamic capabilities in that the emphasis is less on ‘adapting, integrating and reconfiguring internal resources in response to changing environments and more on the sustained accumulation of the other two capabilities.

The steps of supplier development

- **Form cross-functional supplier development team** – this team will be responsible for appraising present and potential suppliers, identifying gaps and negotiating with suppliers to try to devise mutually acceptable resolution of problems.
- **Meet with supplier's top management team** – meeting with the top management team of the supplier provides an insight into the extent to which a collaborative relationship with the purchaser is required. It also provides an opportunity for both sides to know each other as individuals, discuss areas of cooperation not previously identified, exchange views frankly and build trust. Negotiated improvements can also be minuted and thereby provide an agreed record of decisions made.

The steps of supplier development

Agree how the perceived gaps can be bridged – approaches may include:

- Seconding Purchaser's Staff To The Supplier
- Seconding Supplier's Staff To The Purchaser
- Purchaser On Site Audits At The Supplier's Premises
- Third-party Assessment, As Is Required For ISO 9000 Registration
- Loan Of Machinery And IT Hardware
- Granting Access To IT Systems, Such As CAD
- Negotiating Improved Transportation Contracts
- Joint Value Analysis Exercises
- Improved Costing Approaches

The steps of supplier development

Set deadlines for achieving improvements – these should be reasonable, agreed by both parties and strictly enforced. The supplier should understand that failure to effect improvements by the agreed date may lead to loss of business. The emphasis, however, should be on constructive help rather than punitive measures.

Monitor improvements – even after achievement of the required standards, the performance of suppliers should be carefully monitored. Handfield *et al* ., state that the pitfalls of supplier development fall into three categories: supplier-specific, buyer-specific and buyer–supplier interface.

These may be grouped under four main headings:

□ Accounting approaches, namely:

- Profit centres
- Activity-based costing
- Standard costing and budgetary control.

□ The procurement management audit approach

□ Comparative approaches

- Benchmarking and ratio
- Integrated benchmarking, such as EFQM and balanced scorecards

□ Miscellaneous approaches, such as Six Sigma

Definitions

Procurement ethics is a subdivision of business ethics, which in turn is the application of general ethical principles in a commercial or industrial context.

Procurement ethics are also related to professional ethics.

Ethics as a general field of study may be defined as:

- The principles of conduct governing an individual or group; concern for what is right or wrong, good or bad.
- Business ethics is just the application of the above definition to the workplace and business relationships specifically.
- Professional ethics are guidelines or best practice that embody ideals and responsibilities that inform practitioners as to the principles and conduct they should adopt in certain situations.

Principles

The main principles of professional ethics are:

- Impartiality or objectivity
- Openness and full disclosure
- Confidentiality
- Due diligence, competency and a duty of care
- Fidelity to professional responsibilities
- Avoiding potential or apparent conflicts of interest.

Provision of practical help and advice

This can take such forms as:

- Helping suppliers to procure their own supplies more effectively and economically
- Assistance in finding alternative customers to prevent too great a reliance on a single source
- Provision of feedback on unsuccessful tenders
- Collaboration on design and production
- Supplier development
- Placing a proportion of orders with local suppliers, thus assisting the prosperity of the community in which the procurement organization is located.

What is fraud?

- ☐ Dishonestly obtaining an advantage, avoiding an obligation or causing loss to another party.
- ☐ The term 'fraud' commonly includes activities such as theft, corruption, conspiracy, embezzlement, deception, bribery and extortion.

The World Bank has identified the following violations that should be referred to their Department of Institutional Integrity:

- Contract irregularities and violations of the bank's procurement guidelines
- Bid rigging
- Collusion by bidders
- Fraudulent bids
- Fraud in contract performance
- Fraud in an audit enquiry
- Product substitution

Procurement and fraud (Continued)

- Defective pricing and parts
- Cost/labor mischarging
- Bribery and acceptance of gratuities
- Solicitation and/or receipt of kickbacks
- Misuse of bank funds or positions
- Travel fraud
- Theft and embezzlement
- Gross waste of bank funds.

Phase of procurement process

1- Establishing need for goods or services

Possible fraudulent activity

- Maintaining excessive stock levels to justify purchases
- Declaring serviceable items as excess or selling them as surplus while continuing to purchase
- Buying in response to aggressive sales activities
- Estimates prepared after RFQs requested
- Failure to develop alternative sources

Phase of procurement process

2-Development of specifications

Possible fraudulent activity

- Defining specifications to fit capabilities of a single contractor
- Defining specifications to fit a specific product
- Advanced release of information to favored contractors
- Selective release of information to favored contractors
- Breaking up of requirements to allow rotation of bids
- Vague specifications that make comparisons of estimates complicated

Phase of procurement process

3- Pre-solicitation

Possible fraudulent activity

- Unwarranted sole source justifications
- Erroneous statements to justify sole source
- Justification of sole source signed by managers with no authority
- Technical personnel providing advance information to carefully selected suppliers
- Invalid restrictions in RFQ documents to limit competition

Phase of procurement process

4- Solicitation

Possible fraudulent activity

- Restriction on procurement to prevent/obstruct qualified suppliers
- Limiting time for submission of tenders so that only those with advance information can respond
- Improper social contact with supplier representatives
- Conducting bid conferences in such a way that bid rigging or price fixing is facilitated
- Discussions with personnel about likely employment with a supplier or sub-contractor
- Rendering special assistance to a supplier in preparing their bid

Phase of procurement process

5- Bid acceptance

Possible fraudulent activity

- Improper acceptance of a late bid
- Falsification of documents or receipts to get a late bid accepted
- Change in the bid after other bidders' prices are known
- Falsification in supplier's qualifications, financial capability, successful completion of previous jobs and so on
- Submission of the bids by one bidder in a different party's name
- False certificates, such as insurance
- Rejection of bids without any valid reason
- Deliberate loss of bids

Phase of procurement process

6- Post contract award

Possible fraudulent activity

- Certifying goods without conducting inspections
- Action not taken for the non-compliance with contract terms and conditions
- Double payments for same items/services
- Contract files are incomplete
- Substitution of specified goods with used or inferior products
- Time sheets signed for hours not expended
- Expenses paid when not incurred
- Essential spares not delivered but invoiced
- Invoices settled earlier than contract requires

Distinction between fraud and error

- The basic distinction between fraud and error is that of the intention.
- Any error is unintentional – that is, the person committing the error does not do so knowingly.
- Errors are accidental and may arise due to negligence, genuine misunderstanding or incompetence.
- With fraud, however, it is intentional. The person committing fraud does so knowingly, wilfully and with the motive of gaining advantage or benefit by cheating or causing loss or injury to others, acting alone or in collusion with one another.

Indicators of procurement fraud

There are many indicators of potential procurement fraud. They include:

- Excessive Supplier Hospitality To Selected Staff
- New Suppliers Continually Facing Entry ‘Obstacles’
- Budget Holders Pressurising Buyers To Place Work With Named Suppliers
- A Buyer’s Lifestyle Changing Dramatically
- Pricing Schedules Being Completed In Pencil
- Suppliers And Contractors Being Very Familiar With Senior Staff
- Specifications favouring a particular supplier
- The absence of supplier approval data
- No supplier visits or audits.

E-procurement and fraud

E-procurement clearly provides many opportunities for both input and output fraud.

Input fraud can take such forms as the opening of accounts for non-existent suppliers who are paid electronically, the payments going into an account designated by the fraudster, over-stating or understating inventory amounts, deleting inventory records, copying of credit card numbers and so on.

Output fraud tends to be comparatively rare. One example is that of sending unauthorized e-mails with intentionally false information.

Security roles and responsibilities

Security Risks

Failure to clearly and/or correctly establish key roles and responsibilities regarding security risks management

between the provider and the vendor **leading to:**

- Confusion and misunderstanding between parties in case of threat or incident;
- Incorrect implementation of security requirements;
- Lack of accountability in case of security breaches not recognized within the vendor's organization.

Security requirements

- ❑ Clearly define and state responsibilities and roles within the contract to avoid confusion, misunderstanding or abuses.
- ❑ One person within the vendor's organization should be accountable during the whole contract lifecycle **to ensure that:**
 - Security risks and requirements are fully understood:
 - Appropriate processes are in place, and a minimum acceptable level of residual risk is agreed with the provider and duly accepted by each party;

Procurement – Security Guide (Continued)

- Security risks are managed, and appropriate processes are in place and communicated to the provider;
 - Appropriate support is provided to the provider through relevant helpdesk or other as defined by the contract;
 - Contractual clauses are respected.
-
- ☐ Force Majeure which releases the vendor from its responsibility should be clearly defined to avoid any abuses by the vendor.

Cyber resilience – mitigation strategies

- ❑ The Australian Cyber Security Centre has compiled a list of mitigation strategies that organizations can use as a starting point to improve their cyber resilience and the technical details of these strategies.
- ❑ They have identified eight essential strategies which should be implemented as a baseline where practicable.
- ❑ **Application whitelisting** of approved /trusted
 - ❑ programs to prevent execution of unapproved/
 - ❑ malicious programs including .exe, DLL, scripts (e.g., Windows Script Host, PowerShell and HTA) and installers.
 - ❑ **Why:** All non-approved applications (including malicious code) are prevented from executing.

Configure Microsoft Office macro settings to

block macros from the Internet, and only allow vetted macros either in ‘trusted locations’ with limited write access or digitally signed with a trusted certificate.

Why: Microsoft Office macros can be used to deliver and execute malicious code on systems.

Patch applications e.g., Flash, web browsers, Microsoft Office, Java and PDF viewers. Patch/mitigate computer with ‘extreme risk’ vulnerabilities within 48hours. Use the latest version of applications.

Why: Security vulnerabilities in applications can be used to execute malicious code on systems.

1. AI-Powered Procurement Becomes Standard

- ❑ AI for autonomous sourcing, supplier selection, and negotiation support
- ❑ AI-driven spend analytics, fraud detection, and risk prediction

❑ **Generative AI used to:**

1. write RFPs
2. analyze contracts
3. benchmark suppliers

- ❑ **Outcome:** Faster, smarter, data-driven decisions.

2. From Cost Savings → Value Creation & Innovation

- Procurement shifts from “buying” to strategic value creation
- Joint innovation with suppliers becomes a competitive advantage

• Focus on:

- product innovation
- process improvements
- sustainability innovations

Outcome: Procurement becomes a business growth engine.

3. Hyper-Automation of Procurement Processes

- End-to-end automation of P2P, sourcing, approvals, and contract workflows
- RPA + AI + workflow orchestration
- Touchless PO processing, self-service requisitions, and automated invoice matching

Outcome: Reduced cycle time, fewer errors, lower operational cost.

4. Procurement as a Key Driver of Sustainability (ESG)

- Suppliers required to meet **carbon reduction** and eco-certification standards
- Scope 3 emissions measurement becomes mandatory
- **Increased focus on:**
 - ethical sourcing
 - circular economy
 - supplier sustainability ratings

Outcome: Procurement is central to ESG strategy.

5. Supplier Risk Intelligence & Supply Chain Resilience

- **Real-time monitoring of supplier:**
 - financial stability
 - geopolitical exposure
 - cybersecurity readiness
 - sustainability compliance
- Multi-sourcing and nearshoring become more common
- Digital twin simulation of supply chain risk

Outcome: Stronger continuity and resilience.

6. Procurement Analytics Matures into Predictive & Prescriptive

- **Use of predictive analytics for:**
 - demand forecasting
 - price prediction
 - commodity trends
- Prescriptive analytics recommending actions instead of just insights

Outcome: Higher accuracy and proactive decision-making.

7. Ethical, Secure, and Responsible Procurement

- Cybersecurity becomes a top priority
- Increased focus on data privacy and ethical AI
- Stronger supplier audits regarding labor standards and anti-corruption

Outcome: Trustworthy and transparent sourcing networks.

8. Blockchain & Smart Contracts (Emerging but Growing)

•Blockchain for:

- supply chain traceability
 - verifying product origin
 - anti-counterfeiting
- Smart contracts automate contract enforcement and payment triggers

Outcome: Higher trust, automation, and transparency.

Summary of Learning Objectives



- 1-Innovation and supplier continuous improvement.
- 2-The stages of new product development.
- 3-The key considerations for cyber security.
- 4-Procurement contributions to new product development.
- 5-Results and process-orientated supplier development.
- 6-Procurement ethics.
- 7-Procurement fraud.
- 8-Future Trends in World-Class Procurement

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Thank You