

School of Engineering

Purchasing

Mark Sandford

Purchasing

- ❑ As an engineer you will be purchasing goods and services and people will be purchasing goods and services from you or your team
 - ❑ So you need to know how the purchase process and how purchase decisions are made.
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Project Purchase

- ☐ You are doing group projects
 - ☐ Did you need to buy / purchase /Procure products or services ?
 - ☐ How was it for you ?
 - ☐ Dictionary definitions of
 - Buy
 - Purchase
 - Procure
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Purchasing

- ❑ Purchasing as a **profession** includes a number of activities and roles that differ from organisation to organisation.
 - ❑ All purchasing has common elements
 - Sourcing (what is sourcing?)
 - Negotiating (negotiate what?)
 - Supplier management (quality/delivery/Price)
 - (define quality? Performance, reliability, does what it says on the tin)
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Purchasing

- There are special considerations such as
 - Amount to spend
 - Contribution to profit
 - Strategic importance
 - Responsibility
 - Audit trail (accountancy rules)
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Purchasing - Definition

- To obtain material
 - Of the right quality
 - From the right source
 - At the right price
 - Delivered to the right place

■ (Lysons and Gillingham 2003)

Purchasing definition

- ❑ Obtaining from external services all goods and services, which are necessary for running, maintaining and managing the company's primary and support activities.

Purchasing Definition

- ❑ The process undertaken by the organisational unit, either as a function or as part of an integrated supply chain, is responsible both for procuring supplies of the right quality, right quantity, time and price and the management of the suppliers, thereby contributing to the competitive advantages of the enterprise and the achievements of corporate strategy.
 - ❑ (CIPS) ?
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Purchasing Definition Debate

Purchasing - Definition

□ To obtain material **or services**

- Of the right quality
- From the right source (what is right?)
- At the right price
- Delivered to the right place

■ (Lysons and Gillingham 2003)

So is purchasing important?

The Supply Chain

- ❑ Encompasses all organisations and activities associated with the flow and transformation of goods from the raw material stage, through to the end user, as well as the associated information flows.
 - ❑ Materials and information flows up and down the supply chain
 - ❑ Handfield and Nichols (2002)
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Supply Chain Management

- Is the integration and management of supply chain organisations and activities through cooperative organisational relationships, effective business processes, and high levels of information sharing to create high performing value systems that provide member organisations a **sustainable competitive advantage**.
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Purchasing Strategy

- ❑ The purchasing function must support the corporate strategy, by providing added value, which is the process of improving business performance.
 - ❑ Purchasing staff should contribute to corporate strategy by provision of intelligence on the basis which a decision can be made through competitive advantage.
 - ❑ (what does this mean?) (who are purchasing staff?)
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Purchasing Strategy

- ❑ Review of purchasing procedures
 - ❑ Standardisation
 - ❑ Reduction in the number of suppliers
 - ❑ Strategy for different products/services
 - ❑ Supplier development programmes
 - ❑ (how ,quality, process, R&D?)
 - ❑ Combined IT systems (CAE. etc)
 - ❑ Code of ethics
 - ❑ Supplier audits (commercial, quality, continuous improvement)
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Total Acquisition Cost

- Simply more than purchase price
 - Consider wider role of total cost
 - Include:
 - Tooling
 - Import duty
 - Inspection
 - Costs of non compliance (& consequences)
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Total Acquisition costs

□ Triangle

- Price

- Delivery / support / defects /
consumables (printers) / training /
handling / inspection etc

Life Cycle Costing (LCC)

- ☐ Whole life costing or life cycle management.
 - ☐ Question students
 - ☐ Addresses all the elements of the cost over the anticipated life cycle.
 - ☐ i.e Delivery van purchase
 - ☐ Racing motorcycle purchase
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Life Cycle Costing (LCC)

- The practice of obtaining over their lifetime the best use of the physical assets at the lowest cost to the organisation. This is achieved through a combination of management, financial, engineering and other disciplines.

Life Cycle Costing (LCC)

Life Cycle Costing (LCC)

- LCC gives two main costs
 - Acquisition costs
 - Running costs
 - Operation,
 - Maintenance,
 - Disposal – residual value or costs
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Life Cycle Costing (LCC)

- ☐ Acquisition costs
 - ☐ Initial cost
 - ☐ Transports costs (i.e. ex works)
 - ☐ Installation / commissioning costs
 - ☐ Spares package
 - ☐ Training costs
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Life Cycle Costing (LCC)

- Operation maintenance, disposal
 - Maintenance materials (bike hub)
 - Depreciation costs
 - Disposal costs
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Life Cycle Costing (LCC)

- Operation maintenance, disposal
 - Supervision
 - Operator wages
 - Energy costs
 - Material/consumable cost (printer)
 - Insurance
 - Servicing
 - Spares (purchase and storage)
-

Life Cycle Costing (LCC)

□ Why consider LCC?

- Especially important when the rate of technological change is increasing.
 - Some products may be obsolete very quickly.
 - LCC ensures that the discision of initial purchase price as the sole criterion is inappropriate.
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Benefits of Life Cycle Costing (LCC)

- ❑ Accurate comparison of competing options (broad options buy v lease days)
 - ❑ Good awareness of total costs (ref last week, total cost of project)
 - ❑ Accurate forecasting of cost patterns (cash flow esp, running costs)
 - ❑ Allows assessment of performance trade off against cost
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Disadvantages of Life Cycle Costing (LCC)

☐ Are there any ?

Disadvantages of Life Cycle Costing (LCC)

- What will happen in the future ?
 - Cost of power ? (running costs)
 - Cost of borrowing ?
 - Expected duration before redundancy ?
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Purchase of Capital Equipment

- Toys for engineers to play with therefore really important.
 - Characteristics
 - One off transaction
 - High initial cost
 - Lengthy/difficult negotiation
 - Supplier choice critical (why? Repeat business, warranty, support etc)
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Purchase of Capital Equipment

- High level of technical input
 - Engineers and purchase department
 - Complex contractual documentation
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Specification Generation

- ❑ Data logging systems
- ❑ String potentiometer



How to buy kit

- ☐ Equipment evaluation
 - ☐ Supplier appraisal
 - ☐ Tendering and analysis
 - ☐ Life cycle analysis
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- ☐ FIND OUT WHO SELLS THE STUFF
 - Magazines/tech journals, trade shows, buyer guides, networking.
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How to buy kit

- Equipment evaluation
 - Demonstrations
 - Loans of equipments (time and capability to assess)
 - Analysis of end user preferences
 - Durability
 - Ease of use / ergonomics
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How to buy kit

- Supplier appraisal
 - Site visits
 - References (check reliability)
 - Commercial position (accounts)
 - Quality standards
 - Assess consequences of failure
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How to buy kit

- ❑ Tendering and analysis
 - Specification (draft?)
 - ❑ Ensure comparable quotations
 - Level of purchaser support required
 - ❑ Esp technical input from engineers
 - What (soft?) benefits effect the purchase decision
 - ❑ (labels, fashion)
 - ❑ (green issues)
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