

A Case *of* Effectiveness and Efficiency doing the right things, right first time

**HUDDERSFIELD UNIVERSITY BUSINESS SCHOOL
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Issue 1

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Effectiveness is about 'doing the right things'. Efficiency is about 'doing things right'. It was Peter Drucker who coined the phrase 'doing the right things, right first time', and it is one that should stick in every manager's mind, because it is an absolute first principle in management. As operations managers we must aim to help the organization reach its goals. We should also aim to do this through the efficient use of resources.

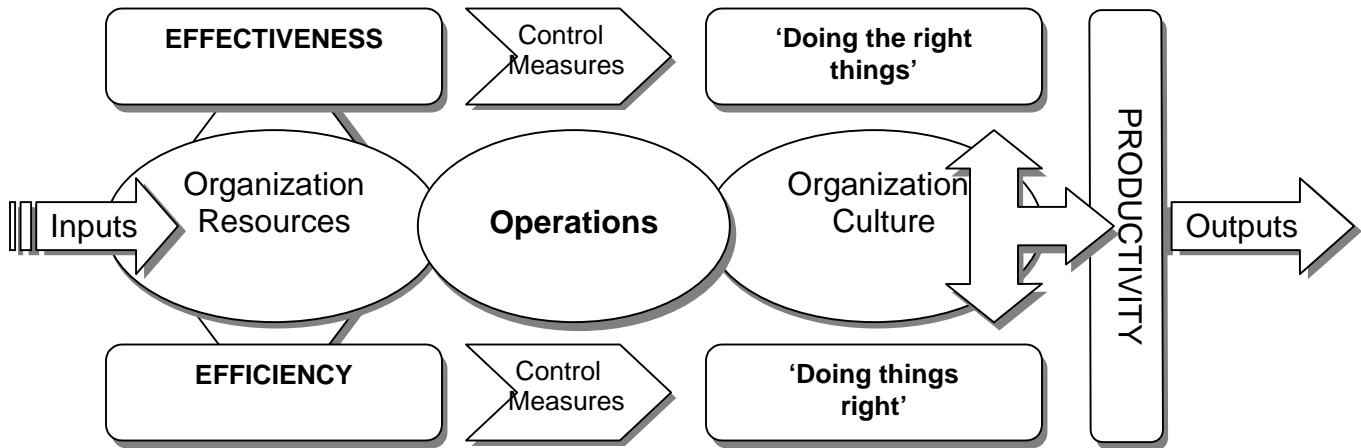


Figure 1 Effectiveness and Efficiency to achieve total productivity

From a marketing perspective, the benefits of efficient operations result in products and services having a low cost per unit and therefore, the potential for offering low prices to gain market share, or charging medium to high prices and achieving high profit margins. Effectiveness – doing the right things implies operating in attractive markets and producing products and services that consumers want to buy (Jobber, 2001). Jobber illustrates effectiveness and efficiency from a marketing perspective through the model reproduced at figure 2.

	Ineffective Organization	Effective Organization
Inefficient Organization	Goes out of business quickly	Survives
Efficient Organization	Dies slowly	Does well Thrives

Figure 2 Effective and Efficient Organization Matrix (Jobber 2001)

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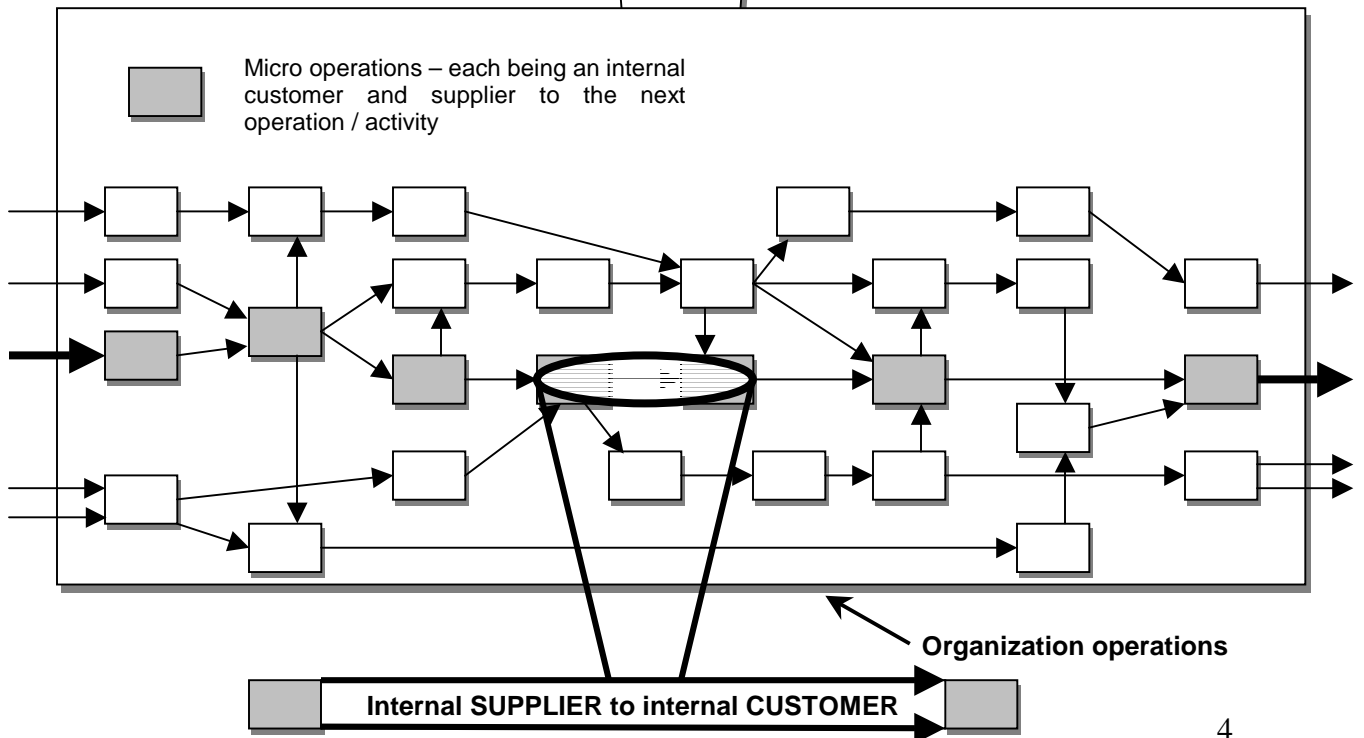
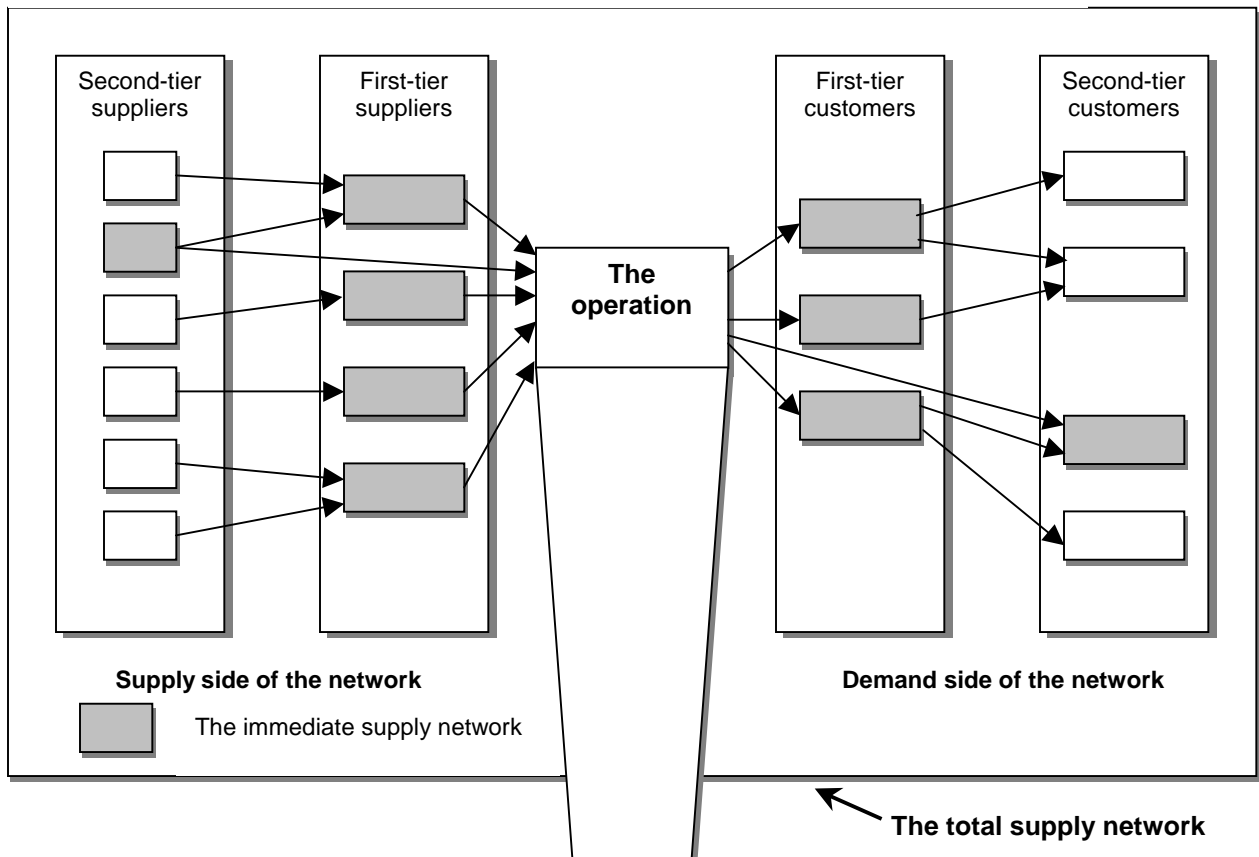
Effectiveness is therefore to do with making the right strategic choice and efficiency the utilization of the organization resources in a productive manner. Robbins and Coulter (2002) state operations management“encompasses both services and manufacturing, it’s important in effectively and efficiently managing productivity, and it plays a strategic role in an organization’s competitive success”.

An organization that has ‘effectiveness and efficiency’ embedded in its culture (figure 1), will not be wasting unnecessary time and effort on activities that do not add value to the final product or service. The operations manager must strive to utilise the efficient use of all resources. This includes, materials, time, and all inputs and resources. It is important to establish control systems and methods of monitoring effectiveness and efficiency, for without such measures the function would only be guessing as to how productive it is. Without measure, the decision making process becomes unreliable. The effective and efficient utilization of all organization resources is a fundamental objective of the operations manager.

There are a number of macro decisions that must be taken with regard to the supply chain in which the organization operates. The supply chain or value chain is part of a network of suppliers and customers. The inefficiency of anyone in the supply chain is likely to affect the performance efficiencies of other organizations that form part of this network. Figure 3 illustrates the network principle. It also illustrates the concept of the internal customer and supplier principle.

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Figure 3 Relationship of internal and external supplier and customer network.



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We have established that the operations function consists of a number of activities each having its own set of suppliers and in turn its own set of customers. The operations function, together with other functions such as marketing and design etc. form the organization that is itself part of a network of suppliers and customers. Supply chain management is beyond the scope of this topic but is an important topic that students should study. In the global economy, many transnational organizations are actively engaged in outsourcing operations. Take the United Kingdom bank, Lloyds / TSB. All customer service operations have been outsourced to India. The Ford motor company has publicly stated that it does not see itself being a manufacturer in the long term, but a marketing organization, with all manufacturing outsourced. Globalization and the role of transnational organizations is not something we will discuss other than to say there is a trend towards outsourcing internal operations. This is indeed an opportunity for the organization and also a challenge for the operations manager.

How is effectiveness and efficiency measured? For the operations manager, effectiveness measures are linked to operations strategies, which in turn are linked to corporate strategies. We have already discussed the different approaches to formulating strategy – top-down, bottom-up, marketing perspective and operations perspective. Which ever of these or combination is chosen, the result should be congruence, a match between the external environment, organization resources and its values. To measure whether we are doing the right things at the macro level will enable the organization to implement effective strategies at the operations level – the micro level.

The strategic gap gives the organization a measure of whether there is congruence between what the market 'wants' and what the organization is able to do. Closing the gap at the macro level may involve diversification through vertical and horizontal integration. The trend these days is to 'stick to the knitting'. In other words, concentrate on creating synergies within a 'heartland' of activities that focus on businesses and operations in which the organization has competencies and strategic capabilities. The days of the conglomerate, at least for the time being, have passed. Effectiveness at the macro level for many organizations will be to create an organization architecture that fully utilizes the strengths of its combined resources.

Operations effectiveness is therefore linked to the needs of the external environment and the markets in which the organization operates. We have already discussed the importance of integrative design, in which products, processes and people are considered as a whole, rather than separate entities. Integrative design therefore enables the organization to make the right decisions, because it involves all functions, in particular the operations and marketing function, having input to the decision making process. In this way the organization has far greater opportunity for setting objectives that result in resources being utilized effectively and creating synergies between business divisions, between products, between functions and ultimately between individual micro operations. There are a number of techniques available to measure the effectiveness of strategic formulation and implementation at the macro level. These include SWOT analysis, PEST analysis,

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Porters 5 Forces analysis, Value Chain analysis, internal / external environmental audits, E-V-R congruence analysis and polar analysis to name but a few. These techniques are used to aid the decision making process, which if systematically conducted with all relevant parties, will result in effective strategies and objectives. In other words, effective decision making is the result of careful evaluation of the current situation; review of all internal and external factors that may influence the outcome; analysis; evaluation and selection of best alternatives; implementation; evaluation and control (see topic 3a). Ensuring that all relevant functions are represented during the decision process is a pre-requisite to effective decision-making.

At the macro level, some of the decisions that need to be taken include:

- **The architecture of the network.** Which suppliers, collaborative partners and customers do we want to conduct business with. What are their respective strengths and weaknesses and how will these affect the efficiency of our own organization?
- **How should the network be organized** in order to give the organization maximum efficiency?
- **What degree of vertical and horizontal integration** does the organization require? The degree of integration with other organizations will effect the five performance levels of quality, speed, dependability, flexibility and costs.
- **The importance of location of capacity.** The two main criteria in the effectiveness of decision making are changes in *demand* for goods and services and changes in *supply* of inputs to the operation. In other words what are the logistical problems in receiving inputs and how close to the customer(s) and in what specific location should we be operating.
- **Long-term capacity management.** Decisions need to be made as to the likely demand for capacity in each part of the network will be in the future.

All the above issues are discussed by Slack (2001) in chapter 6.

Jobber (2001) states ... *"Sensible marketing mix decisions can be made only when the target customer is understood. Once the decision about the target market(s) is taken, marketing management needs to understand how customers choose between rival offerings. They need to look at the product through customers' eyes and understand, among other factors, the choice criteria they use"*. Creating an effective marketing mix is illustrated in at figure 4.

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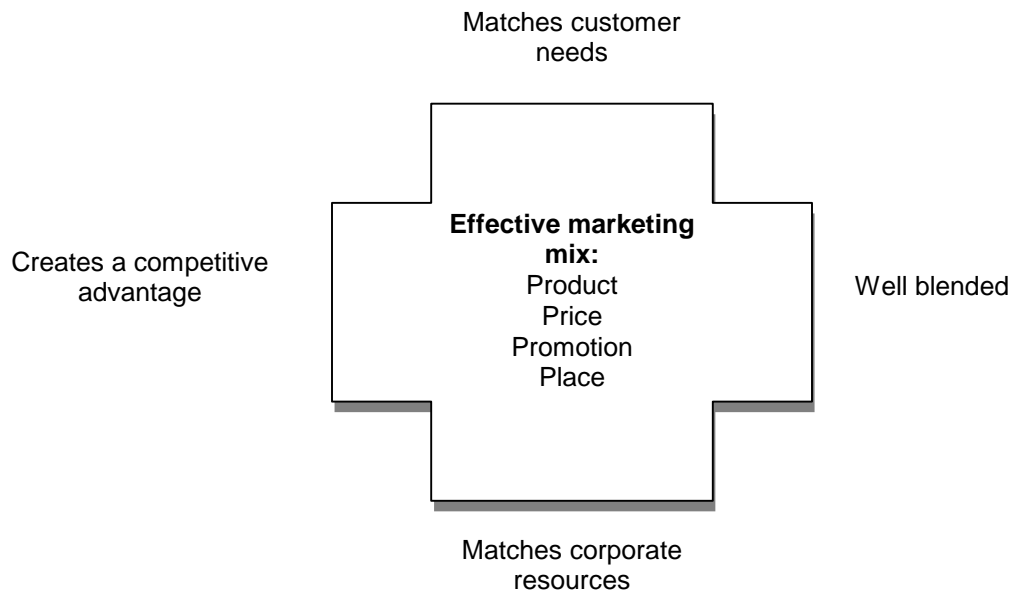


Figure 4: Hallmarks of an effective marketing mix Jobber (2001)

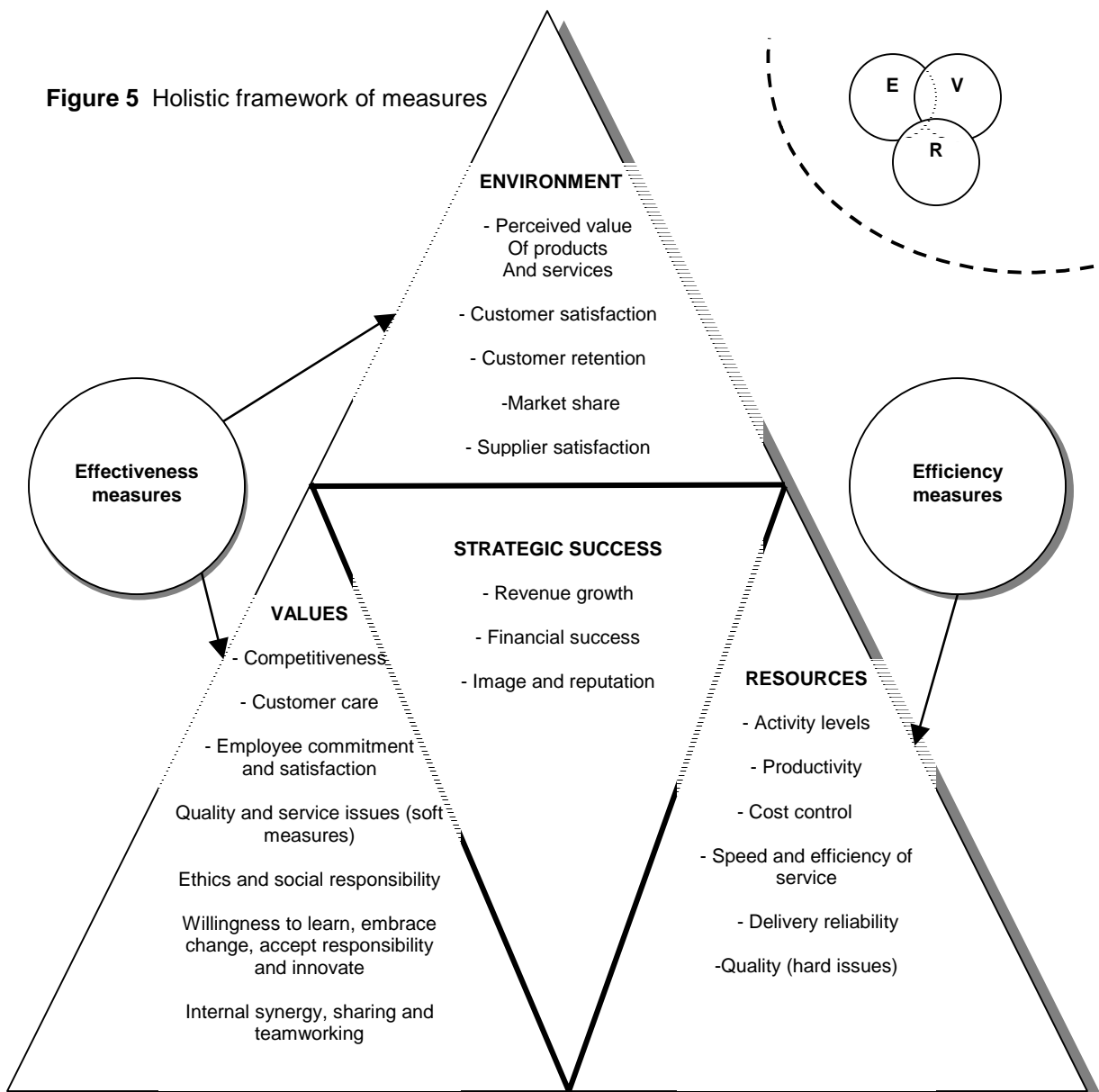
Clearly, by working together, the marketing and operations functions will be able to create a strategic fit between products / services - the outcome of the use of the organizations resources - and market needs. Developing core competencies (the distinctive skills which yield competitive advantage) and strategic capabilities (processes that enable the organization to be an effective competitor) are areas in which the operations manager should play an active role

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MEASURES OF EFFECTIVENESS AND EFFICIENCY at the macro and micro levels.

There are a number of ways of measuring the effectiveness and efficiency, which are outlined below. For a full explanation of these measures please refer to the recommended texts for this module which are included at the end of this paper.

Thompson (2001) identifies the following in his holistic framework of measures Figure 5



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Robbins and Coulter (2002) identify the following organizational performance measures:

- Asset management – the process of acquiring, managing, renewing, and disposing of assets as needed, and of designing business models to take advantage of the value from these assets.
- Industry rankings – published rankings prepared by analysts (e.g. www.businessweek.com ; www.forbes.com ; www.industryweek.com)
- Financial Ratios – including liquidity, leverage, activity and profitability.
- Balanced Scorecard – looks at financial, customer, internal processes and people/innovation/growth assets that contribute to an organizations performance.
- Benchmarking – the search for best practice among competitors and non-competitors that leads to superior performance

Productivity

Waters (1996) states that there are four ways of improving productivity.

1. **improve effectiveness** with better decisions;
2. **improve efficiency** using fewer inputs to achieve the same outputs;
3. **improve performance** in some other way such as higher quality, fewer accidents, less disruption;
4. **improve moral** to give more co-operation and incentives

The traditional method of measuring productivity is:

Productivity = $\frac{\text{output}}{\text{input}}$ - all the goods and services produced
 - the resources needed to produce the goods and services

Productivity measures are a means of controlling and identifying opportunities for improvement within the organization. National productivity figures are available by sector and are often used as benchmarks for improving industry and national strategies.

Waters argues that the above measure has a number of drawbacks.

- input and output must be in consistent units;
- finding all the inputs and outputs.

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To overcome these drawbacks the following measure of productivity could be used:

$$\text{Partial productivity} = \frac{\text{total output}}{\text{single input}}$$

Waters (1996) states "In practice, the 'total output' is taken as the production and does not include secondary outputs, like waste and scrap. Partial productivity measures are often related to four types of resources:

- o **Equipment productivity** such as units of output per machine hour, tonnes made per operating hour, units made per breakdown.
- o **Labour productivity** such as units of output per person-hour, tonnes of output per employee, shipments made per pound spent on wages.
- o **Capital productivity** such as units made per pound of investment, value of outputs per unit of input.
- o **Energy productivity** such as units of output per kilowatt-hour, units of output for each pound spent on electricity, value of output per barrel of oil used.

Ahmad Hosseini, Sanoma State University gives the following advise in how to measure productivity:

- o Define and manage expectations
- o Understand the conceptual framework for management, planning and control, which take place at three different levels:
 - The control level (on a daily, weekly or monthly basis)
 - The tactical level (covering a one to two year period)
 - The strategic level (covering a five-year period or longer)
- o The productivity measurement process should serve all three levels. At each one, it should provide the information that allows managers to quickly and efficiently find out whether the organization is executing its plans and reaching its objectives.

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Sanoma states the objectives of a productivity measurement process are the following:

- o PERFORMANCE Comparative performance should be measured in business terms against some planned activity, level, event or standard.
- o QUANTITATIVE Objective criteria should be discrete and measurable.
- o ACCOUNTABILITY Specific individuals or groups responsible for the performance should be identified and charged with that responsibility but also given the resources and authority to affect the performance.
- o AUDIBILITY The reporting system to support the process should be consistent and supported by detailed information.
- o SIMPLICITY All good ideas can be presented on a single sheet of paper.
- o COMPREHENSIVE The management reporting process should be complete in scope and reflect the organization's actual activities. This effort begins with the establishment of a comprehensive productivity reporting system that focuses on agreed-upon measures. Such a system essentially manages expectations and perceptions.

Robbins and Coulter view performance measurement as:

- o Utilization = $\frac{\text{actual output}}{\text{Design capacity}}$
- o Efficiency = $\frac{\text{actual output}}{\text{effective capacity}}$

For a detailed explanation and worked examples please refer to:
Robbins and Coulter (2002) chapter 11

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In relation to the five performance objectives of quality, speed, dependability, flexibility and cost Slack *et al* (2001) identifies the following typical measures:

Performance objective	Some typical measures
Quality	Number of defects per unit Level of customer complaints Scrap level Warranty claims Mean time between failures (reliability) Customer satisfaction score
Speed	Customer query time Order lead time Frequency of delivery Actual versus theoretical throughput time Cycle time
Dependability	Percentage of orders delivered late Average lateness of orders Proportion of products in stock Mean deviation from promised arrival Schedule adherence
Flexibility	Time needed to develop new products/ services Range of products/services Machine change-over time Average batch size Time to increase activity rate Average capacity/maximum capacity Time to change schedules Minimum delivery time/average delivery time
Cost	Variance against budget Utilization against resources Labour productivity Added value Efficiency Cost per operation hour

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Slack (2001) identifies process layout as the king-pin of operations efficiency. Throughput efficiency is a result of effective process layout. An integrative approach at the design process has tremendous implications on the effective layout of the plant and its operations at the micro level. Throughput efficiency is determined to a large extent by how the individual operations and activities that take place in producing the product or service are laid out. As Slack states ... "Designing the layout of an operation, like any design activity, must start with an appreciation of the operation's strategic objectives. The three stages of process are:

1. Select the process type – project process, jobbing process, batch process, mass process, continuous process, professional services, service shops, mass services
2. Select the basic layout – fixed-position layout, process layout, cell layout, product layout
3. Select the detailed design of the layout – use appropriate techniques to aid this final stage in which moves towards the fully specified design of the layout.

Process design and the way in which the process is laid out, will effect the operating efficiencies of the organization. Process layout and product design should closely mirror each other. In an ideal situation the market determines the product design, the process is deigned to maximise operating efficiency in terms of the features and characteristics of the product or service and people are employed that have the necessary skills and competencies to achieve maximum performance.

Layout and process flow are discussed in detail by Slack (2001) chapter 7.

Clearly, there are many measures of effectiveness and efficiency. Any single measure of performance only gives a limited view. The operations manager therefore needs to utilise a broad range of measures that relate to the different aspects of the operations s/he is responsible for.

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CLASS DISCUSSION POINTS – Measures of effectiveness and efficiency

Question 1

As an Operations Manager what are the primary measures of efficiency in your immediate area of responsibility?

Question 2

Explain how the desire to become efficient may conflict with being effective.

Question 3

If you were the operations manager of a hospital, how would you measure productivity?

Question 4

If you were the operations manager of an academic institute how would you measure productivity?

Question 5

'Being productive does not necessarily mean you are effectively contributing to the success of the organization'. Discuss this statement.

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CASE STUDY 1

The mission of the British Tourist Authority (BTA) is 'to strengthen the performance of Britain's tourist industry in the international markets by encouraging people to visit Britain and encouraging the improvement and provision of tourist amenities and facilities'.

British Tourist Authority (BTA) objectives.

The BTA has agreed the following long-term objectives:

1. Maximise the benefit to the economy of tourism to Britain from abroad
2. Ensure the Authority makes the most cost-effective use of resources in pursuing its objectives.

(Resources are constrained by grants and the ability to agree joint venture projects; and therefore the benefits generated are inevitably limited. With more money, benefits could be increased, but when do they become less cost-effective to create?)

3. Identify what visitors want and stimulate improvements in products and services to meet their needs.
4. Encourage off-peak tourism?
5. Spread the economic benefit of tourism more widely, and in particular to areas with tourism potential and higher than average levels of unemployment.

Objective 3, 4, and 5 may well prove contradictory. Moreover, there will always be considerable elements of subjectivity and value judgement in establishing priority areas.

Measures of corporate performance

BTA could be judged to be successful if visitors (business people and tourists) come to Britain, if they spend increasing amounts of money while they are in Britain, if they spend in the preferred places (objective 5), and if they go home and tell other people to come - and over a period this increases the number of visitors and their expenditure (objective 1 explicitly and objective 3 implicitly).

These are all measures of effectiveness, whilst objectives 2 address resource efficiency. However, there is a problem of cause and effect. While the criteria listed above can all be measured, the net contribution of the BTA cannot be so easily ascertained. Tourists and business people would still come, regardless of the existence of the BTA. In addition, many of the reasons for them to come, or not to come, are outside both the control and influence of the BTA. The cause and effect of BTA

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initiatives is consequently very difficult to ascertain without extensive tracking studies, which can be prohibitively expensive. However, research in the early 1990s showed that at that time 27% of all visitors to the UK had visited a BTA office abroad.

It is believed implicitly that the activities undertaken around the world contribute to corporate objectives and performance, but often it is the activities (efficiencies) which are measured rather than the outcomes. Are particular promotions actually implemented? Are planned brochures published? Are desirable workshops and seminars attended? In fairness, despite the difficulties, BTA does attempt to measure the impact of the special promotions that it undertakes on the number of visitors to the UK.

British Tourist Authority (BTA) <http://www.visitbritain.com>

QUESTIONS

1. Can you suggest any other / better measures of performance than those mentioned?
2. How difficult do you think it might be to track the effectiveness of the BTA?
3. As an operations manager responsible for managing a BTA office in Hong Kong, how would you go about establishing and implementing strategies to improve both the effectiveness and efficiency of the Hong Kong activities?

Thompson (2001:139)

A Case of Effectiveness and Efficiency doing the right things, right first time**CASE STUDY 2****A Managers dilemma**

In Seattle, on June 23, 2000, music lovers around the world rejoiced as the Experience Music Project (EMP), an interactive museum located at the foot of the city's famous Space Needle, opened. EMP (www.emplive.com) is a tribute to American popular music, especially rock 'n' roll. Although Tom Chiado, project manager at EMP, may have one of the most fun and interesting jobs in the world, his job as manager isn't easy.

EMP is the brainchild of Microsoft co-founder, Paul Allen. Allen had amassed the world's largest collection of rock memorabilia and needed a place to show case it. About \$100 million later, Allen's fascinating memorabilia had a home.

The building itself is a sight to see. Its wildly shaped exterior immediately attracts attention. But it's the interior that really grabs you. It's a technological fun house designed for experiencing music firsthand. Visitors can play live at the "on stage" exhibit and experience billowing smoke, lights sweeping the stage, and a filmed audience cheering wildly. Then there's the professional sound-mixing board where visitors can remix the Eurhythmics song "Sweet Dreams." There's even a crazy ride called Artist's Journey where visitors are strapped in for a ride that takes them from the middle of a filmed block party to a concert audience getting down with George Clinton's band.

Allen is determined to give visitors as much information as possible as they tour the museum. Therefore, upon arrival, visitors receive a hand-held multimedia device equipped with a small screen, headphones, and a 4 MB computer hard drive that they can use to call up music and text on virtually every object on display.

QUESTION

1. Despite all the high-tech touches, Chiado has some down-to-earth managing to do. One of his tasks is assessing EMP's performance. Put yourself in his position. How can he monitor how effective and efficient EMP is?

Robbins & Coulter (2002:552)

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Slack, N., Chambers, S. Johnston, R. (2001) *Operations management*.
Harlow: Pearson Education Ltd

Robbins, S.P., Coulter, M. (2002) 7th edition *Management*. New Jersey:Prentice Hall

Thompson, J. L. (2001) *Strategic management*. London: Thompson Learning

Jobber, D. (2001) *Principles and practice of marketing*. Maidenhead: McGraw-Hill

Waters, D. (1996) *Operations management*. Addison Wesley

Hosseini, A. *Definitions of productivity as used in business, hospital, and academia*. Sonoma State University

Useful links:

Operations Management by Slack et al
<http://www.booksites.net/slack>

Management by Robbins & Coulter
<http://www.prenhall.com/robbins>

Strategic Management by Thompson
<http://www.thomsonlearning.co.uk>

Principles and Practice of Marketing by Jobber
<http://www.jobber-marketing.com>