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PERFORMANCE MEASUREMENT IN DECENTRALIZED ORGANIZATIONS

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OUTLINE OF THE LECTURE

1. Decentralization in organizations
2. Responsibility accounting – cost center, profit center, investment center
3. The return on investment (ROI)
4. Residual income
5. Economic value added (EVA)

DECENTRALIZATION IN ORGANIZATIONS

- in a decentralized organization decision-making authority is spread throughout the organization rather than being confined to a few top executives
- organizations do differ, however, in the extent to which they are decentralized
- in strongly centralized organizations, decision-making authority is reluctantly delegated to lower-level managers who have little freedom to make decisions
- in strongly decentralized organizations, even the lowest-level managers are empowered to make as many decisions as possible

ADVANTAGES OF DECENTRALIZATION (1)

- by delegating day-to-day problem solving to lower-level managers, top management can concentrate on bigger issues, such as overall strategy
- empowering lower-level managers to make decisions puts the decision-making authority in the hands of those who tend to have the most detailed and up-to-date information about day-to-day operations
- by eliminating layers of decision making and approvals, organizations can respond more quickly to customers and to changes in the operating environment

ADVANTAGES OF DECENTRALIZATION (2)

- granting decision-making authority helps train lower-level managers for higher-level positions
- empowering lower-level managers to make decisions can increase their motivation and job satisfaction

DISADVANTAGES OF DECENTRALIZATION (1)

- lower-level managers may make decisions without fully understanding the company's overall strategy
- if lower-level managers make their own decisions independently of each other, coordination may be lacking
- lower-level managers may have objectives that clash with the objectives of the entire organization. For example, a manager may be more interested in increasing the size of his or her department, leading to more power and prestige, than in increasing the department's effectiveness

DISADVANTAGES OF DECENTRALIZATION (2)

- spreading innovative ideas may be difficult in a decentralized organization. Someone in one part organization may have a terrific idea that would benefit other parts of the organization, but without strong central direction the idea may not be shared with, and adopted by, other parts of the organization

RESPONSIBILITY ACCOUNTING (1)

- decentralized organizations need responsibility accounting systems that link lower-level managers decision-making authority with accountability for the outcomes of those decisions
- the term responsibility center is used for any part of an organization whose manager has control over and is accountable for cost, profit, or investments
- the three primary types of responsibility centers are cost centers, profit centers, and investment centers

RESPONSIBILITY ACCOUNTING – COST CENTER

- the manager of a **cost center** has control over costs, but not over revenue or the use of investment funds
- service departments such as accounting, finance, general administration, legal, and personnel are usually classified as cost centers
- in addition, manufacturing facilities are often considered to be cost centers
- the managers of cost centers are expected to minimize costs while providing the level of products and services demanded by other parts of the organization

RESPONSIBILITY ACCOUNTING – COST CENTER

- for example, the manager of a manufacturing facility would be evaluated at least in part by comparing actual costs to how much costs should have been for the actual level of output during the period.
- standard cost variances and flexible budget variances, such as those discussed in earlier chapters, are often used to evaluate cost center performance

RESPONSIBILITY ACCOUNTING – PROFIT CENTER

- the manager of a **profit center** has control over both costs and revenue, but not over the use of investment funds
- profit center managers are often evaluated by comparing actual profit to targeted or budgeted profit

RESPONSIBILITY ACCOUNTING – INVESTMENT CENTER

- the manager of an **investment center** has control over cost, revenue, and investments in operating assets
- investment center managers are often evaluated using return on investment (ROI) or residual income measures

EVALUATING INVESTMENT CENTER PERFORMANCE - RETURN ON INVESTMENT

- an investment center is responsible for earning an adequate return on investment
- the method for evaluating this aspect of an investment center's performance is called return on investment (ROI)

THE RETURN ON INVESTMENT (ROI) FORMULA

- **return on investment (ROI) is defined as net operating income divided by average operating assets**

$$\text{ROI} = \frac{\textit{Net operating income}}{\textit{Average operating assets}}$$

- **the higher a business segment's return on investment (ROI), the greater the profit earned per dollar invested in the segment's operating assets**

NET OPERATING INCOME AND OPERATING ASSETS DEFINED (1)

- net operating income, rather than net income, is used in the ROI formula
- **net operating income** is income before interest and taxes and is sometimes referred to as EBIT (earnings before interest and taxes)
- net operating income is used in the formula because the base (denominator) consist of operating assets
- to be consistent, we use net operating income in the numerator

NET OPERATING INCOME AND OPERATING ASSETS DEFINED (2)

- **operating assets** include cash, accounts receivable, inventory, plant and equipment, and all other assets held for operating purposes
- examples of assets that are not included in operating assets include land held for future use, an investment in another company, or a building rented to someone else
- these assets are not held for operating purposes and therefore are excluded from operating assets
- the operating assets base used in the formula is typically computed as the average of the operating assets between the beginning and the end of the year

UNDERSTANDING ROI

- the equation for ROI, net operating income divided by average operating assets, does not provide much help to managers interested in taking actions to improve their ROI
- it only offers two levers for improving performance - net operating income and average operating assets
- ROI can also be expressed in terms of margin and turnover as follows:

$$\text{ROI} = \text{Margin} \times \text{Turnover}$$

$$\text{Margin} = \frac{\text{Net operating income}}{\text{Sales}}$$

$$\text{Turnover} = \frac{\text{Sales}}{\text{Average operating assets}}$$

CRITICISMS OF ROI (1)

- although ROI is widely used in evaluating performance it is subject to the following criticisms:
- just telling managers to increase ROI may not be enough. Managers may not know how to increase ROI; they may increase ROI in a way that is inconsistent with the company's strategy; or they may take actions that increase ROI in the short run but harm the company in the long run (such as cutting back on research and development). This is why ROI is best used as part of a balanced scorecard. A balanced scorecard can provide concrete guidance to managers making it more likely that their actions are consistent with the company's strategy and reducing the likelihood that they will boost short-run performance at the expense of long-term performance.

CRITICISMS OF ROI (2)

- a manager who takes over a business segment typically inherits many committed costs over which the manager has no control. These committed costs may be relevant in assessing the performance of the business segment as an investment but they make it difficult to fairly assess the performance of the manager
- a manager who is evaluated based on ROI may reject investment opportunities that are profitable for the whole company but would have a negative impact on the manager's performance evaluation

RESIDUAL INCOME

- residual income is another approach to measuring an investment center's performance
- residual income is the net operating income that an investment center earns above the minimum required return on its operating assets
- in equation form, residual income is calculated as follows:

Residual income = Net operating income – (Average operating assets x Minimum required rate of return)

ECONOMIC VALUE ADDED (EVA)

- economic value added (EVA) is an adaptation of residual income that has been adopted by many companies
- under EVA, companies often modify their accounting principles in various ways
 - for example, funds used for research and development are often treated as investments rather than as expenses
- when residual income or EVA is used to measure performance, the objective is to maximize the total amount of residual income or EVA, not to maximize ROI - this is an important distinction
- if the objective were to maximize ROI, then every company should divest all of its products except the single product with the highest ROI

MOTIVATION AND RESIDUAL INCOME AND ROI

- generally, a manager who is evaluated based on ROI will reject any project whose rate of return is below the division's current ROI even if the rate of return on the project is above the company's minimum required rate of return
- in contrast, managers who are evaluated using residual income will pursue any project whose rate of return is above the minimum required rate of return because it will increase their residual income
- because it is in the best interests of the company as a whole to accept any project whose rate of return is above the minimum required rate of return, managers who are evaluated based on residual income will tend to make better decisions concerning investment projects than managers who are evaluated based on ROI

DELIVERY CYCLE TIME

- the amount of time from when a customer order is received to when the completed order is shipped is called **delivery cycle time**
- this time is an important concern to many customers, who would like the delivery cycle time to be as short as possible
- cutting the delivery cycle time may give a company a key competitive advantage - and may be necessary for survival
- the formula for computing delivery cycle time is as follows:

$$\textit{Delivery cycle time} = \textit{Wait time} + \textit{Throughput time}$$

THROUGHPUT (MANUFACTURING CYCLE) TIME (1)

- the amount of time required to turn raw materials into completed products is called **throughput time, or manufacturing cycle time**
- the throughput time, or manufacturing cycle time, is made up of process time, inspection time, move time, and queue time
 - **process time** is the amount of time work is actually done on the product
 - **inspection time** is the amount of time spent ensuring that the product is not defective
 - **move time** is the time required to move materials or partially completed products from workstation to workstation
 - **queue time** is the amount of time a product spends waiting to be worked on, to be moved, to be inspected, or to be shipped

THROUGHPUT (MANUFACTURING CYCLE) TIME (2)

- only one of these four activities adds value to the product – process time
- the other three activities - inspecting, moving, and queuing - add no value and should be eliminated as much as possible
- the formula for computing throughput (manufacturing cycle) time is as follows:

$$\textit{Throughput (manufacturing cycle) time} = \textit{Process time} + \textit{Inspection time} + \textit{Move time} + \textit{Queue time}$$

MANUFACTURING CYCLE EFFICIENCY (MCE) (1)

- through concerted efforts to eliminate the on-value-added activities of inspecting, moving, and queuing, some companies have reduced their throughput time to only a fraction of previous levels
- in turn, this has helped to reduce the delivery cycle time from months to only weeks or hours
- throughput time, which is a key measure in delivery performance, can be put into better perspective by computing the manufacturing cycle efficiency (MCE)
- the MCE is computed by relating the value-added time to the throughput time

MANUFACTURING CYCLE EFFICIENCY (MCE) (2)

- the MCE is computed by relating the value-added time to the throughput time

$$MCE = \frac{\textit{Value-added time (Process time)}}{\textit{Throughput (manufacturing cycle)time}}$$

- any non-value-added time results in an MCE of less than 1
- an MCE of 0,5, for example, would mean that half of the total production time consists of inspection, moving, and similar non-value-added activities
- in many manufacturing companies, the MCE is less than 0,1 (10%), which means that 90% of the time a unit is in process is spent on activities that do not add value to the product
 - monitoring the MCE helps companies to reduce non-value-added activities and thus get products into the hands of customers more quickly and at a lower cost

BALANCED SCORECARD

- financial measures, such as ROI and residual income, and operating measures, may be included a balanced scorecard
- a **balanced scorecard** consists of an integrated set of performance measures that are derived from and support a company s strategy
- a strategy is essentially a theory about how to achieve the organization s goals
- under the balanced scorecard approach top management translates its strategy into performance measures that employees can understand and influence

COMMON CHARACTERISTICS OF BALANCED SCORECARDS (1)

Performance measures used in balanced scorecards tend to fall into the four groups:

- financial
 - customer
 - internal business process
 - learning and growth
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- internal business processes are what the company does in an attempt to satisfy customers
 - for examples, in a manufacturing company, assembling a product is an internal business process

COMMON CHARACTERISTICS OF BALANCED SCORECARDS (2)

- the emphasis is on improvement - not on just attaining some specific objective (such as profits of \$10 million)
- in the balanced scorecard approach, continual improvement is encouraged
- if an organization does not continually improve, it will eventually lose out to competitors that do