

**Unit 22**  
**Performance Management in Decentralized Organizations: Residual Income and  
Balanced Scorecard**

- ILO1. Residual Income**
- ILO2. Operating Performance Measures**
- ILO3. Balanced Scorecard**

**ILO1. Residual Income**

Residual income means the net operating income from an investment that is greater than the minimum required return on assets. To calculate this amount we use the following equation.

|                            |          |                                     |          |   |          |  |
|----------------------------|----------|-------------------------------------|----------|---|----------|--|
| <b>Residual<br/>income</b> | <b>=</b> | <b>Net<br/>operating<br/>income</b> | <b>-</b> | <b>Average<br/>operating<br/>assets</b> | <b>×</b> | <b>Minimum<br/>required rate of<br/>return</b> |
|----------------------------|----------|-------------------------------------|----------|---|----------|--|

Fig 22.1 Residual Income Calculation

This differs from return on investment, which measures net operating income relative to the investment in average operating assets. Conversely, residual income measures the net operating incomes minus the minimum return on average operating assets. We will use Zen Inc and its division as an example with the following inclusions.

- Zephyr Inc has average operating assets of \$100,000, and its required return on this assets is 20%
- Zephyr earns \$30,000 during the period
- The residual income of \$10,000 is found deducting the required return of \$20,000 from the actual income \$30,000

This approach motivates strategy that is profitable for the whole company that would otherwise be rejected if evaluated under the return on investment model. The residual approach method encourages investments where the return on investment exceeds the company's required return but is less than the return on investment being earned. There is one drawback however, the residual approach cannot be used to compare performance of divisions of various sizes. Zen Inc below illustrates.

Revisiting the division Zephyr, which had average operating assets of \$100,000, minimum required rate of return of 20%, net operating income of \$30,000 and a residual income of \$10,000. If we imagine the entirety of Zen had average operating assets of \$1,000,000, a required return of 20%, net operating income of \$220,000 and a residual income of \$20,000. These figures suggest Zen outperformed Zephyr because its residual income is \$10,000 higher. However, Zephyr earned a return of 30% compared to a return of 22% by Zen. Zen experienced a larger residual income because it is a larger division.

|                                  | Retail     | Wholesale    |
|----------------------------------|------------|--------------|
| <b>Operating assets</b>          | \$ 100,000 | \$ 1,000,000 |
| <b>Required rate of return ×</b> | 20%        | 20%          |
| <b>Minimum required return</b>   | \$ 20,000  | \$ 200,000   |
| <b>Actual income</b>             | \$ 30,000  | \$ 220,000   |
| <b>Minimum required return</b>   | (20,000)   | (200,000)    |
| <b>Residual income</b>           | \$ 10,000  | \$ 20,000    |

Fig 22.2 Zen Example

## ILO2. Operating Performance Measures

In measuring performance efficiency, time is a critical denominator. Throughput time is defined as the time from when production begins until the finished goods are shipped to customers. With processing time the only value added activity that is consistent across throughput time, inspection time, move time, and queue time. This differs to delivery cycle time which is from the time a customer's order is received to the point the finished product is shipped to them. An efficiency scale, in this case; manufacturing cycle efficiency is measured by dividing the value added time by the throughput time. Doing so allows for a benchmark that can be improved upon, and recognizes any nonvalue added time resulting in a manufacturing cycle efficiency of less than 1.

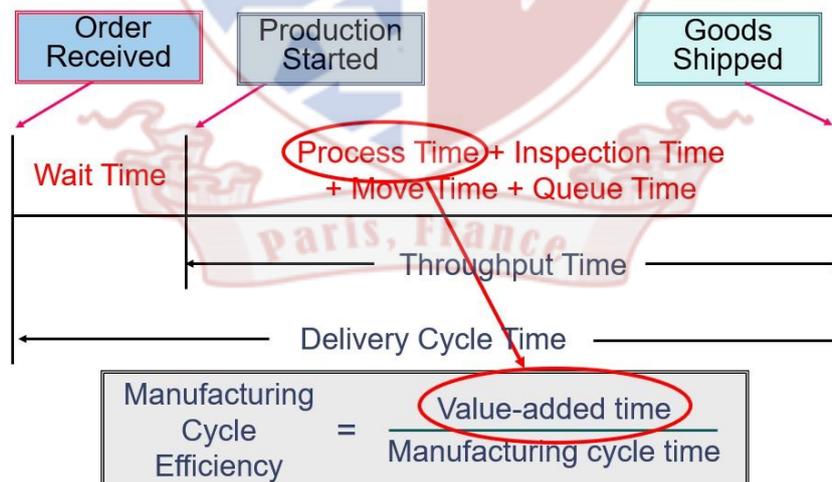


Fig 22.3 Operating Performance Measures

## ILO3. Balanced Scorecard

A balanced scorecard is a set of performance indicators that are unique to a specific strategy. This scorecard allows a manager to evaluate their strategy based on financial, customer, internal business process, and learning and growth milestones.

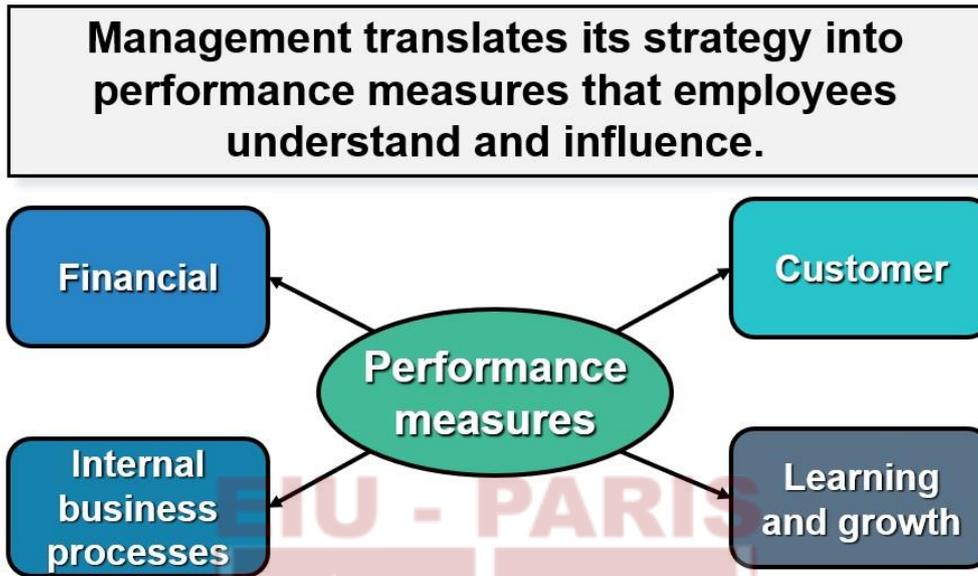


Fig 22.4 The Balanced Scorecard

These measures work collectively, as learning is necessary to improve internal business processes, which in turn heightens customer satisfaction, which then fuels financial results.

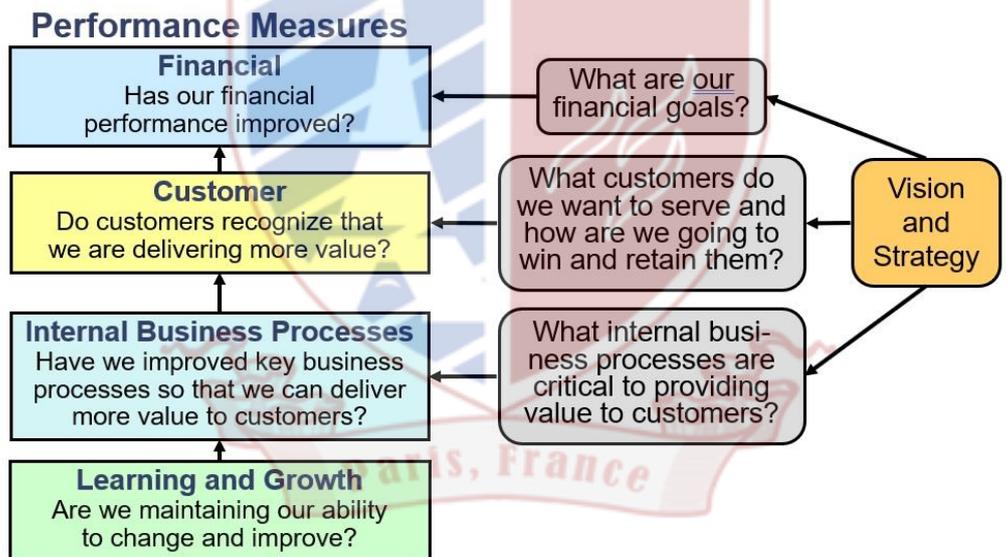


Fig 22.5 Performance Measures in Balanced Scorecard

A particular characteristic of the scorecard is that it relies on both financial and nonfinancial measures. Financial indicators are considered latent, in that they evaluate past performance, whereas nonfinancial indicators are signals of future financial performance. Senior managers are usually responsible for financial measures, while lower level managers typically control nonfinancial measures.

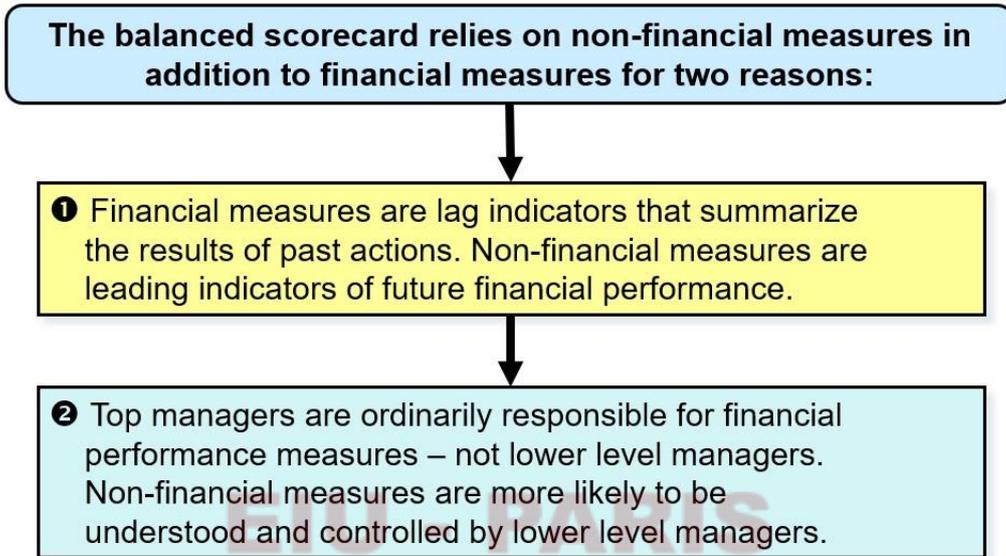


Fig 22.6 Nonfinancial Measures

Other unique performance measures are individual scorecards that support the measures in the overall company balanced scorecard. By doing so, it creates a link between company and work, but also of cause and effect.

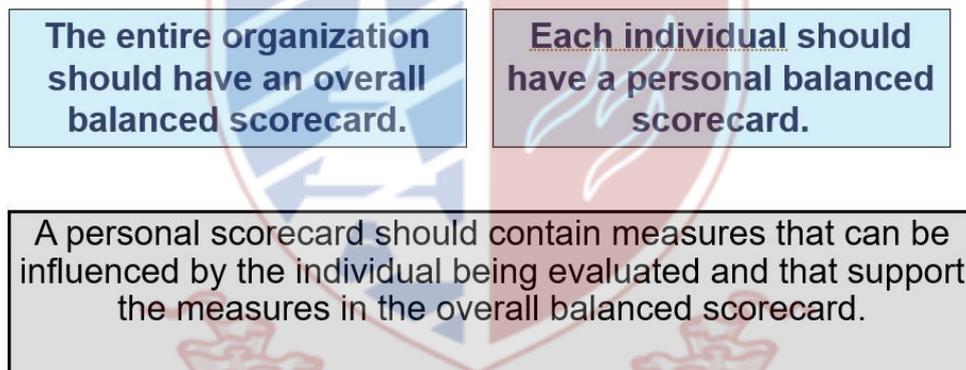


Fig 22.7 Balanced Scorecard for Individuals

Incentive compensation for workers should also be tied to the scorecard performance measures. However, this should only be implemented after the company has some experience utilizing such a platform.

For the overall experience of a balanced scorecard, we have attached the card from hypothetical GearCo. You will notice the underlying strategy by observing the linkages between the measures.

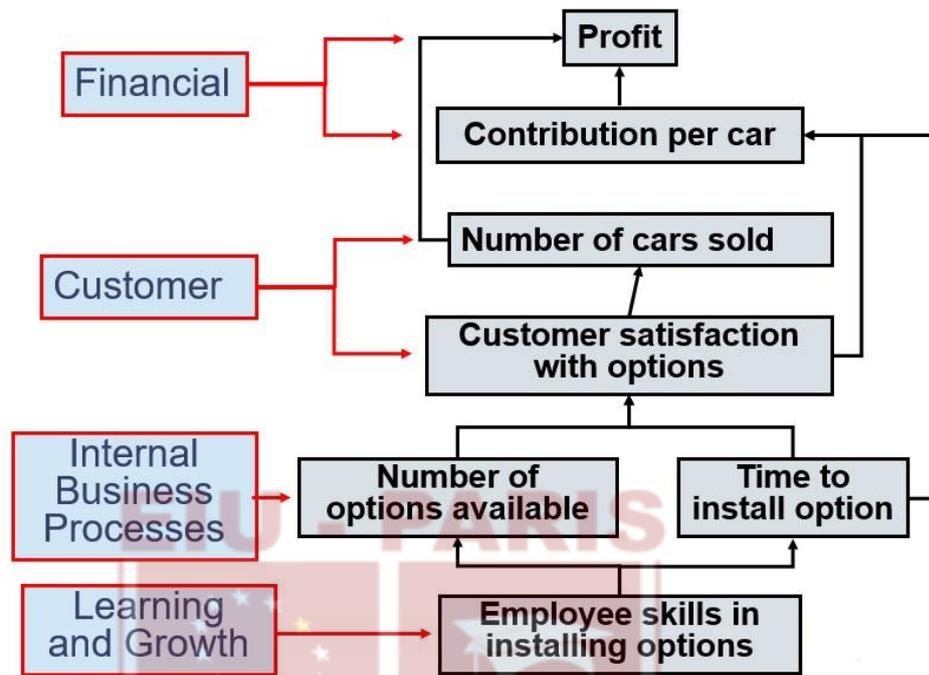


Fig 22.8 Balanced Scorecard Example

Following the cause and effect linkages, we can deduce the following:

- If “employee skills in installing options” increases, then the “number of options available” should increase and the “time to install an option” should decrease.
- If the “number of options available” increases and the “time to install an option” decreases, then “customer surveys: satisfaction with options available” should increase.
- If the “customer surveys: satisfaction with options available” increases, then the “number of cars sold” should increase.
- If the “time to install an option” decreases and the “customer surveys: satisfaction with options available” increases, then the “contribution margin per car” should increase.
- If the “number of cars sold” and the “contribution margin per car” increase, then the “profit” should increase.

**References:**

1. Managerial accounting, Ray Garrison-Eric Noreen-Peter Brewer - McGraw-Hill Education, 16 ed., 2018
2. Managerial accounting, John Wild-Ken Shaw - McGraw-Hill Education, 7ed, 2019

Management accounting, Will Seal-Carsten Rohde-Ray Garrison-Eric Noreen - McGraw-Hill Education, 6ed. - 2019

