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HOW TO CAPTURE THE BEST PERFORMANCE

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WHITE PAPER

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ABSTRACT

In most of the performance management systems, objectives are interrelated and, often, measured by two or more indicators. Establishing the right rules to distinguish the best performance is a key issue to deal with.
In fact, interpreting performance data is one of the critical, and most overlooked, aspects to:

- make performance management systems more robust and responsive;
- determine whether results we achieve are good or not;
- evaluate if the performance achieved by a unit/person is better than the performance achieved by another one.

The aim of this paper is to offer a valuable approach and some effective tools and rules to enhance the ability of interpreting performance data.

Keywords: Performance Management, Performance Measurement, Results Interpretation, Indicators, Multidimensional Objectives

While introducing a performance measurement and management system in an organization the focus is mainly on designing the system. Too little attention is paid to set up the rules for interpreting the results we will achieve, or rather to verify whether the rules we are going to adopt are the most appropriate.

The topic of data interpretation is crucial, not only to extract meaningful information from data we collect, but also to design a performance management system truly effective (Kennerley and Mason, 2008). It is an issue that must be addressed ex-ante, during the design phase, because only when the rules of interpretation are tested and validated we can be satisfied with what we have realized.

If we do not tackle the problem before the system is implemented, we run the risk of implementing a system that:

- is less reliable than expected,
- does not reflect what we would like to actually measure and/or obtain,
- is based on weak criteria (affecting the credibility) and then criticized by all those, within the organization, who do not want that such systems are introduced and become established.

Not only that, we also risk losing the confidence of all those who initially have believed in it, but have cooled their enthusiasm when the system in place has shown its shortcomings.

To avoid all of that, the system we are going to implement must have its logical consistency. When it comes to robustness of the system I mean its logical consistency and sustainability. The more we can ensure logical consistency, the more the system will be robust. What does it mean for a performance management system having a logical consistency? It means that the system can allow us to measure what we actually want to measure and distinguish better and worse performance. It sounds simple, but it is easier said than done.

FACTORS AFFECTING THE LOGICAL CONSISTENCY OF A SYSTEM

What are the factors that may affect the logical consistency of a system? Obviously there are many factors that determine whether a performance management system is more or less robust and reliable. Among these, the ones that affect more the architecture of the system, in my opinion are:

1. Choice of inappropriate indicators
2. Failure to point out and manage possible correlations between objectives
3. Rules for interpreting results that are overlooked or neglected

1) In selecting indicators to monitor progress achieved in pursuing our objectives, the first question to answer is “are they measuring what it is meant to measure?” (Gray et al., 2015). The challenge is to find indicators that can capture what is substantively relevant. If an objective can be measured by an individual, meaningful and relevant indicator, answering to that question is easier. There are tons of literature that give advice on what to do in order to make a good choice (Neely et al., 2002). If two or more indicators need to be used to catch the multidimensional complexity of an objective, we need to make a deeper reflection and some further simulations to realize whether the choice we are making is the most appropriate, or at least to become aware of the limits of our choice and investigate possible suitable alternatives.

2) If each objective in our system is considered individually, we lose sight of the possible correlations between objectives we want to pursue and risk to jump to the wrong conclusions about the performance achieved as well as strengthen functional silos in our organization. In a world where everything is interconnected with everything else, if we don't reflect on cross-relationships between objectives, we cannot understand and grasp the best performance. Systems that tend to measure and evaluate performance only "one dimension at a time", often lead to error.

3) In a performance management system there are many objectives measured by two or more indicators. When we deal with these "multi-dimensional" objectives we have to wonder whether the rules for interpreting results are adequate for the purpose. Not only that, but whether the parameters used in the rules have been set correctly (weights, tolerances, polarities, scales, etc.). Unfortunately there is no single rule that applies to all cases. Each multidimensional objective requires an empirical verification of the best rule to apply in order to establish how to measure and evaluate its achievement. We face a similar issue when we set up multiple objectives to evaluate employees' performance and want to make an integrated evaluation to reward top performers.

All these considerations point out the need to submit the most critical parts of the system to specific simulations to test their logical consistency. A failure to do so is likely to implement a system that, instead of meeting the expectations and crowning the efforts, will be characterized by the ambiguities and contradictions that it will reveal when in use.

OBJECTIVES MEASURED BY TWO OR MORE INDICATORS

The issues mentioned above are critical in evaluating the overall performance when a multidimensional objective is measured by two or more indicators. Multidimensional objectives can be treated as a sort of composite indicators or indices. Using the OECD definition, "*a composite indicator is formed when individual indicators are compiled into a single index, on the basis of an underlying model of the multi-dimensional concept that is being measured*" (OECD, 2004). Composite indicators might provide misleading or non-robust feedback if they are poorly constructed or misinterpreted (Saisana and Tarantola, 2002). Usually a weighted linear aggregation method is used to build it. Unfortunately, a weighted linear aggregation could be fine for some objectives but misleading for others. Different combination rules (or criteria) are possible to aggregate data and evaluate the extent to which a multidimensional objective has been achieved. They depend on the nature and structure of the multidimensional objective. Here are some meaningful ones to take into account (Bocci and Mojoli, 2012):

1. **Weighted combination** - The objective is treated as a sort of performance index
2. **Sum of portions** – A weighted portion of the objective is assigned to each indicator
3. **Logical combination** – For each indicator we define a target and an interval of tolerance and, therefore, we act on the basis of a "traffic light" combination

WEIGHTED COMBINATION

A weighted combination (also named weighted linear aggregation, or composite indicator, or performance index) is a combination of several individual indicators, weighted and added together to result in a single overall index (Nardo et al., 2005) (Brown, 2000). It requires to assign a weight to each indicator, normalize measures to a common performance scale, i.e. 0-100, multiply each normalized measure by its weight, and then sum up all the shares of the individual indicators (weight by normalized measure). As different indicators could have different measurement units, polarities and scales, it is impossible to build a reliable aggregation unless a normalization is made.

There are no standard or established criteria to either assign weights or normalize performance scales. A global target is assigned to the objective as a whole (the overall indicator). Targets, assigned to individual indicators could be used to define the full scale, when the measure is normalized.

$$OBJ = \sum_{i=1}^{N} W_i \times M_i$$

Where:

OBJ is the objective (the overall indicator)
$\mathbf{W_i}$ are the weights
$\mathbf{M_i}$ are the normalized measures
N is the number of indicators involved

If, for example we have three indicators involved the formula is:

$\mathbf{OBJ = W_1 \times M_1 + W_2 \times M_2 + W_3 \times M_3}$

Given an objective measured by three indicators, let us suppose that the target T for the whole objective is 100% and measures are already normalized to a 0-100 scale. The following table gives an example of an application of this rule.

	Target	Normalized Indicator	Weight	Achieved	Share	% of the total performance achieved
OBJ	100%	M1	35%	100	35%	96,50%
		M2	25%	110	27,50%	
		M3	40%	85	34%	

SUM OF PORTIONS

The “sum of portions” is a sort of weighted aggregation, associated with a “**the whole or nothing**” rule applied to each indicator. As for the weighted aggregation, every indicator is weighted to reflect its relative importance or, at least, its perceived relevance. But in this case, each indicator contributes to the overall performance only if the performance it measures (or better the value achieved along the performance dimension measured by it) is equal to or better than the target. Otherwise its contribution is zero.

In the “sum of portions” targets are set up for each individual indicator, not for the overall objective.

$$OBJ = \sum_{i=1}^{N} W_i \times C_i$$

Where:

OBJ is the objective (the overall indicator)
W_i are the weights
C_i are the contribution of each indicator (100% if the performance achieved is equal or better than the target, 0 if it is worse)
N is the number of indicators involved

If, for example we have three indicators involved the formula is:

$$OBJ = W_1 \times C_1 + W_2 \times C_2 + W_3 \times C_3$$

Given an objective measured by three indicators, let us suppose that T1, T2 and T3, the targets for each indicator, are all equal to 100. The following table gives an example of an application of this rule.

	Indicator	Weight	Target	Achieved	Contribution	% of the total performance achieved
OBJ	I1	35%	100	100	100%	60,00%
	I2	25%	100	110	100%	
	I3	40%	100	85	0	

LOGICAL COMBINATION

Using the "logical combination" method, we set up a target and define an interval of tolerance for each indicator. Then, for each dimension measured, we use a colour to assess performance achieved compared to performance expected (target):

- **Green – We are on track** if the achieved performance is equal to or better than the target,
- **Amber – We need to improve** if the achieved performance is in the tolerance interval,
- **Red – We are in trouble** if the achieved performance is below the tolerance.

Once a rule for each indicator has been established, we need to establish a rule to evaluate the whole performance related to the multidimensional objective. An example is shown in the following table.

Indicator	Objective	% of the whole performance
If all the measures are "green"	then the objective is "green"	100%
If one of the measures in "red"	then the objective is "red"	0
If one of the measure is "amber" and none is "red"	then the objective is "amber"	80%

Given an objective measured by three indicators, let us suppose that every indicator has a target equal to 100 and an interval of tolerance equal to 10% of the related target. The following table gives an example of an application of this rule.

	Indicator	Target	Achieved	Individual colour	Overall colour	% of the total performance achieved
OBJ	I1	100	100	Green	Amber	80,00%
	I2	100	110	Green		
	I3	100	85	Amber		

A COMPARISON

By applying different rules, the level of achievement of the overall objective looks to be different, even if the performance achieved is the same:

- 96,5% applying the weighted combination
- 60% applying the sum of parts
- 80% applying the logical combination

Pros and cons of each rule are shown in the following table.

	Weighted combination	Sum of portions	Logical combination
Easy of use	Difficult, because it requires to normalize scales	The easier	Quite easy
Distortion in interpretation	In a few cases it could cause some distortion	Often, it could cause a serious distortion in the results	If the aggregation rule is set up wisely, it is the most reliable

SUGGESTION AND CONCLUSIONS

Different rules show different level of achievement of an overall objective measured by two or more indicators. How to make the best choice to avoid or limit misinterpretations? Here's a few suggestions to make performance management systems more effective:

- Make simulations
- Avoid any kind of automatism
- Validate objectives and indicators

We need to verify whether the rule we intend to apply is enough robust and does not cause serious distortions. Making simulations allows us to check whether the results we obtain applying the rule reflect the actual performance.

If we apply some automatism, we probably make the process less “subjective”, but this comes at the expense of improving our understanding of performance data. In my opinion, what is important is to capture the overall performance and improve our ability to read and interpret results in an integrated way. If a rule identified while designing the performance management system proves to be inappropriate for a correct interpretation, it is better not to use it.

We should link incentives to objectives only if the rule to evaluate their achievement is tested on the field and proves to be consistent. Otherwise we risk to reward mediocrity rather than excellence.

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