

Discovery Metrics – Creating the Right Balance

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Metrics can be powerful tools for driving performance in organisations and have proliferated in the pharmaceutical industry over the last decade. However, their uptake has sometimes been resisted, particularly in Discovery organisations, where measurement of effort and output has been felt to be in fundamental conflict with the need for the creative, unconstrained culture required to drive innovation. Experience seems to confirm these initial fears. Metrics have become over-abundant and often create an administrative burden that far outweighs any resulting benefits. Furthermore, they can incentivise behaviours and actions that are, in fact, at odds with the goals of the Discovery organisation. Perhaps the best example of this is the delivery of poor quality compounds to Development which has resulted when the number of outputs produced each year has been the primary metric for Discovery.

Experience suggests that there are two major reasons behind the failure of Discovery metrics to yield benefits. They are:

- Difficulties in defining metrics which adequately capture the essential strategy and tasks of the Discovery organisation
- Failure to understand co-dependencies between metrics

Defining ‘fit for purpose’ metrics

There are considerable difficulties in identifying metrics that enable managers to positively impact performance in Discovery. While the objectives of a Discovery organisation are easily articulated in simple terms, they can be challenging to translate into goals which are relevant to day-to-day activities. Objectives around, for example, “being innovative” are often poorly defined or misunderstood, and there can be clear differences between the understanding of senior management versus that of a bench scientist.

Compound “quality” presents similar problems, where in addition to internal differences of opinion, Discovery may measure quality in different ways to its customers in Preclinical or Early Development. In addition, commonly used metrics do not always enable **proactive** performance management at the operational level. In interviews, managers in discovery organisations identified a focus on lagging rather than leading metrics, and a lack of alignment in metrics between different operational aspects (notably alignment of human resource management with departmental objectives) as areas for improvement. Finally, the long delay between activities that take place in Discovery and the market launch of the resulting drug means that Discovery managers need to rely on metrics which are, in essence, surrogate measures of future success, and these can be very difficult to define.

The challenge of co-dependencies

There is a fundamental tension in Discovery between the quality of the compounds that it produces and the time and cost that are incurred in their creation. If metrics focus on a single one of these dimensions, tensions emerge in the others - measuring time incentivises getting compounds into development faster and this compromises either or both of quality and cost. The temptation is then to measure these as well, and because additional tensions exist *between* and *within* each of these broad areas, there is a risk of developing an enormous cascade of metrics which, at best, fail to achieve their purpose and, at worst, incentivise counter-productive behaviours.

Getting the balance right

Despite these difficulties, it is clear that the proper identification and application of metrics can simplify the task of managing Discovery.

The first step in getting this right is to map how the strategic goals of the Discovery organisation

translate into actionable objectives throughout the various functions. Figure 1 below illustrates such a cascade and shows how the task becomes more difficult at the more detailed level of day-to-day operations. For example, while it is easy to establish whether compounds have been identified, it is harder to measure the quality or value of those compounds and extremely difficult to measure the degree to which the organisational environment enables their discovery and maturation.

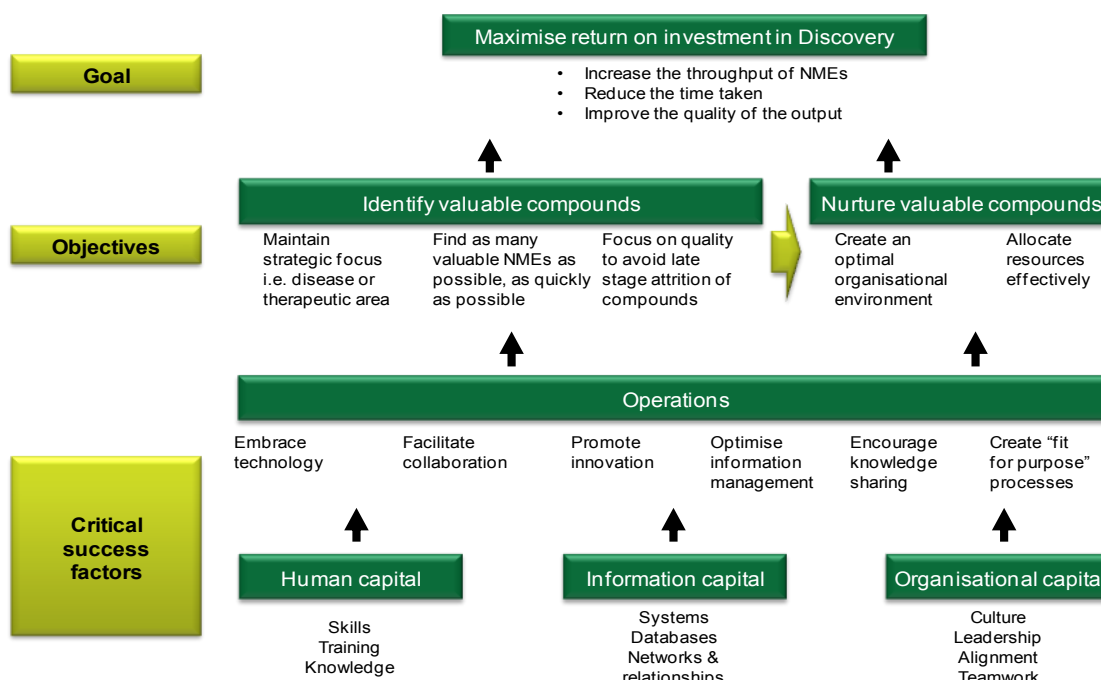
Our approach is to identify and track the underlying critical success factors (CSFs) that deliver quality and optimisation of operations. Furthermore, we acknowledge the need to track the human, information and organisational capital that is required to sustain successful operations. When asked what they believed were the most important critical success factors in a Discovery organisation, Discovery leaders identified factors relating to both of these dimensions:

- Effective leadership
- People with the required capabilities
- Good working environment with appropriate human resource management
- Alignment between the external environment (commercial opportunities, competitors, regulatory bodies etc) and internal operations (areas of focus, strategic objectives, goals etc)
- An effective matrix for project teams
- Effective processes
- A good interface with Development

More often than not, quantitative metrics will be hard to define for CSFs and some will need to be based on a quantitative scale with a designated baseline. While there is a necessary upfront investment of time and effort in order to define qualitative metrics (e.g. metrics around leadership or the working environment), this approach does enable an organisation to focus on factors which are likely to be better surrogate indicators of future success. This in turn provides further perspective on potential conflict between delivering near-term pipeline results versus developing the capabilities required to drive a successful discovery engine.

Furthermore, there are often tensions within the broad areas defined as CSFs and it is rarely easy to improve one aspect without compromising another e.g. innovation vs. strategic alignment, or effective processes vs. good working environment. These must be recognised and aligned wherever possible in creating the necessary tracking tools. Similar tensions need to be recognised and managed in the overall approach to using metrics in the management of the organisation (see figure 2).

Figure 1: Strategy mapping for the Discovery Organisation



Summary

Metrics clearly have an important role to play in managing Discovery organisations for success. In developing metrics with our clients, our approach adheres to a few simple guidelines – keep the number of metrics in use at a manageable level, ensure that they are explicitly linked to and supportive of the goals of the organisation, and take into account co-dependencies between metrics when setting targets. Finally, ensure that Discovery metrics are properly aligned with those used in functions external to Discovery, such as Preclinical and Early Development.

Figure 2 shows two differing approaches to the use of metrics in managing a Discovery organisation, resulting from fundamental differences in goals. While the scenarios shown are at different ends of the continuum of possibilities, they are not mutually exclusive. The ultimate aim should be to optimise the area bounded by the profile created i.e. to increase the value of the portfolio in as lean and efficient way as possible.

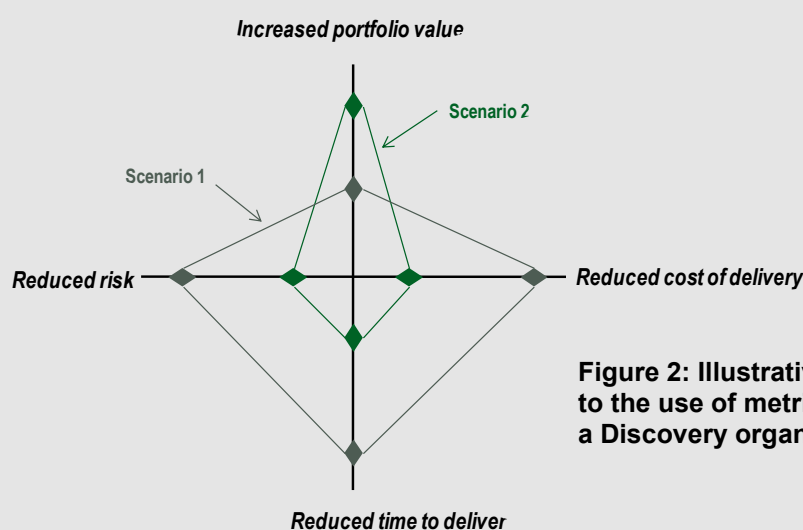


Figure 2: Illustrative approaches to the use of metrics in managing a Discovery organisation

Scenario 1

Discovery goal emphasises the need to deliver a certain number of PoCs within a certain time, and a tightly constrained cost base. In practice, this suggests:

- The use of metrics which closely monitor costs throughout Discovery and provide sufficient information to enable management to make positive interventions
- Recognition that cost reductions can best be achieved by reducing time and risk and that, as a result, portfolio value is likely to be sacrificed

Implications for metrics:

- Costs monitored closely at portfolio level, per compound and per phase; in some cases, per activity
- Metrics for risk, value and time established, and assessed with the intention of keeping within broad tolerances.

Scenario 2

Discovery goal emphasises the delivery of high value PoCs. In practice, this suggests:

- The use of metrics which closely monitor the expected value of compounds in the portfolio throughout Discovery
- Recognition that value is most likely to be achieved by focus on unprecedented or otherwise higher risk targets
- Difficulties in reducing either time or cost associated with the emphasis on quality in progressing compounds through the Discovery process

Implications for metrics:

- Portfolio value tightly measured and monitored throughout discovery
- Overall portfolio costs monitored against planned annual budget
- Portfolio risk assessed semi-annually
- Dwell time in phases monitored and assessed in relation to industry benchmarks
- Interventions in cost, time and risk only when metrics indicate a substantial deviation from benchmarks and broad tolerances established at the outset of the year

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