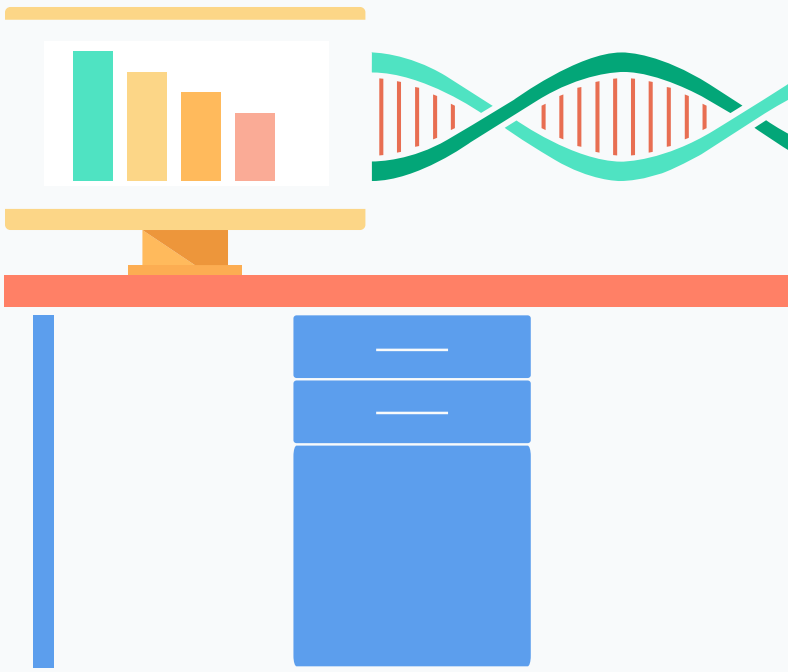
Benchling

The Three E's of Measurable R&D

Executives Group Heads Scientists

Given the rising costs, protracted timelines, and increasing complexity of biologics R&D, scientists, group heads, and executives all need to take a data-driven approach to optimizing their own processes and decision-making. Especially for companies working in emerging drug modalities, knowing exactly what to measure – and what actions to take in light of certain data – can give you a competitive advantage.

In this article, we explore a framework for executives to measure the success of their programs.



Efficiency

The time and resources you spend to generate your outputs.

Effectiveness

The quality of your outputs and how successful your processes are at generating desired outputs.

Enhancement

The extent to which your process changes have improved the Efficiency and Effectiveness of your outputs over time.

EFFICIENCY

Which candidates are on track to hit milestones, and which are falling behind?

Receiving periodic updates on candidates as they make their way towards the clinic gives you only a precious few data points on pipeline progress. Instead, you should be able to assess the progress of each program at a high level at any point. Back up your decisions with the full stories behind your candidates, not just a handful of disjointed reports.

For each program, what is its overall resource utilization?

Make sure your department heads can measure the resource usage of each of their teams in a standardized manner. Being able to break down expenditures by specific teams is key to tracking the overall efficiency of your programs. Although digging into individual teams' resource utilization isn't always necessary, having that granularity at your disposal makes it easier to make high-level business decisions with confidence. What's the most up to date FTE allocation, capital ex, and IRR for each program?

Especially for new teams/research areas, are we progressing in a timely manner?

Being able to generate insights about the resource utilization and progress of your programs is especially important when it comes to new research areas. Do you have the systems and processes necessary to continually assess your emerging research programs? Is your organization poised to gather data about these programs that will help you optimize them?

EFFECTIVENESS

Which programs are generating the most promising candidates?

Obviously, producing the most effective candidates possible is a core goal of any R&D organization. But are you missing anything by only considering key success indicators? Can you supplement your decisions with additional experimental context, and are your research teams equipped to provide you with that information? Any decisions to adjust investment in particular programs and any updated POTS assessment must take this data into account.

Are there any clear upstream indicators of successful candidates?

Once you and your teams are assessing candidates from a holistic perspective that takes their full experimental histories into account, you can start to identify potential early success indicators. Are there early candidates that you can fast-track, or double down on? How can you use these learnings to influence future discovery efforts? On the other hand, how can you use historical data to "fail faster"?

For new research areas, are the new processes we've put in place generating decision-quality data?

New disease targets and therapeutic modalities bring with them new research processes, all of which take time to be optimized and produce actionable data. How effective are these novel processes today at generating results that you and your teams can rely on? Based on this effectiveness, do you need to adjust your strategy for this emerging area?

ENHANCEMENT

Over time, where within our R&D organization have we made funding changes?

Simply tracking where and how you have adjusted funding across disease areas, programs, and teams is pivotal to assessing the effects of your decisions. How does a particular team's FTE allocation today compare to where it was a year ago? Two years ago? Do our core teams have sufficient capital budget to accommodate our emerging discovery efforts?

How have changes in R&D spend impacted the speed of discovery?

For disease areas, programs, and teams affected by funding changes, regularly re-assess their ability to hit milestones in the context of those funding changes. Are antibody candidates actually able to progress through screening stages more quickly thanks to the increased budget that you gave to your protein purification and quality control teams?

Are the candidates we're producing today more promising than the candidates we were producing a year ago?

For a given program, compare the success thresholds that you're working with today with the ones you worked with a year ago. Have you been able to raise your success thresholds as a result of increased candidate quality? To what extent have you been able to fast-track certain candidates due to early success indicators, and how have these candidates fared downstream? Are more candidates being rejected than ever before? How does the POTS of today's programs compare to the programs of last year?

Want to learn more about metrics-driven R&D? Click below.

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