# Benchling

## The Three E's of Measurable R&D

**Group Heads**   Executives   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 group heads to measure the success of their teams.
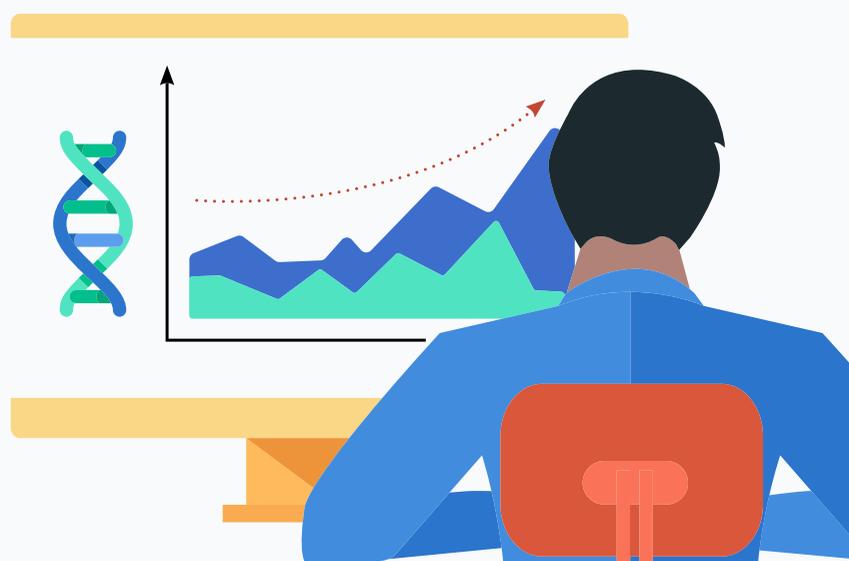
### Efficiency

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

## For a given program or a given team, which workflows are the most resource/time intensive?

Putting in place a standard way to measure the resource usage of different workflows is key to tracking the efficiency of your teams. This doesn't always have to be a comprehensive, rigid system that might make your scientists' work cumbersome. Gather just enough information to sufficiently inform your decisions. Where are your teams' primary bottlenecks, and how can you reallocate resources to eliminate them? How does FTE allocation look relevant to your benchmarks for output?

## What's the average throughput of our core teams?

How many viral preps does your vector production team generate everyday? How many samples do your QC teams analyze? Measuring the rate at which your core functions fulfill their requests is one of the most impactful ways to improve your group's overall efficiency. Are you sufficiently equipped to set your own internal benchmark, or compare against industry benchmarks?

## Which instruments are overutilized or underutilized?

Beyond the actual cost of purchase, instruments take up precious space in the lab. Not taking full advantage of all your instruments is often an unseen productivity drain, since tracking the specific instruments involved in a workflow can feel like an afterthought. This tracking can materially affect the ROI of your purchasing decisions.

# EFFECTIVENESS

## Which candidates are generating the most promising results?

Obviously, producing the most effective candidates possible is the bottom line for any biologics R&D organization. But what goes into deeming a candidate to be promising? What are the key indicators that you're working with, and how can you supplement them with additional experimental context from across your teams? Are you backing up your decisions with the full history of each candidate?

## Are there any clear upstream indicators of successful candidates?

Once you're assessing your 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? On the other hand, are there any indicators that you can learn from to "fail faster"?

## Across different versions of a process, how effective is it at producing desired outputs?

Large molecule R&D processes are constantly in flux – perhaps your teams are experimenting with different display models for antibody discovery, or testing different fermentation run times. Being able to link the effectiveness of your outputs back to the process version that generated them is paramount to optimizing your R&D.

## 📈 ENHANCEMENT

### How much have we increased the speed of discovery?

Compared to a year ago, how long does it take for a candidate to progress through the key stages of your preclinical pipeline? Are you producing more candidates than you used to? Substantiating the research decisions you've been making with quantitative metrics sets your organization up for continued process improvements, and for increased POTS.

### How much have we decreased costs?

Tracking changes in resource usage against the outputs of your teams and workflows gives you a much more comprehensive picture of how your R&D landscape has changed. Which teams have been the source of the most significant savings, and which still have room for improvement? Given changes in resourcing, how do teams' outputs compare to the internal benchmarks you've set?

### How much have we increased the quality of our candidates?

How many candidates are making it through your screening stages? 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? How many candidates have you been able to reject earlier in the pipeline?

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

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