



# Metrics

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## An Important Tool to Improved Productivity in Today's R&D Environment

A White Paper by  
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## Introducing Metrics in R&D

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Mention metrics and cycle time reduction to R&D managers and most will comment that they understand the general concept of metrics but don't fully grasp how this can be applied in a practical way in R&D. Some specifics of their issues are often where to start and how to assure that changes and improvements are not only initiated but sustained. Another challenge they grapple with is how to achieve not only acceptance of change but actually having initial efforts become a starting point for internally generated further improvements in metrics. Alternatively, managers may admit they have attempted to introduce metrics and cycle time reduction but have been less than successful. Here we will address why metrics are a key tool to improved productivity in today's R&D environment, keys to doing this effectively; assuring long term change, pitfalls and problems – and solutions to same. We'll also look at some real life examples and key success factors.

## Why are metrics important in R&D?

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First, the time and overall cost of R&D in pharma – with costs averaging nearly \$1 billion and a development timeline of well over ten years - make optimization of processes and timelines a critical factor. While costs and timelines are shorter in devices, the competitive environment and market changes make development cycle time an important issue. Second, earlier launch of product equals not just earlier revenue but higher peak in overall lifecycle revenues. Establishing processes and metrics clears the pathway for focus on the science and quality of output. Having tools that can be used consistently and with confidence to make better decisions early in development leads to more resources applied to productive development efforts. This can result in significant, quantifiable savings. At the clinical trials stage, it is well documented that over 80% of trials are not completed on time. In total, a focus on reducing development cycle times and keeping trials on track has a profound impact on not just R&D but on the marketing timeline and success.

The practical value that can be achieved with an effective approach to R&D metrics can be quickly demonstrated with two examples. At one site, there was a late reports backlog that was worsening steadily and could have created significant FDA problems. With a site-wide metrics approach, leading to a redesign of handoffs, review stages and commitments to timelines the problem was eliminated. The internal team later successfully took on the challenge of significantly reducing study cycle times to become more aligned with industry standards. In another situation, the pathology section had requested additional headcount to meet workload demands. A metrics assessment of time, process and productivity demonstrated there was a significant productivity issue in the current group that was addressed with some redesign approaches to process and time usage. Factoring in the savings of not hiring two PhD level headcount with the improved productivity (and morale) of the current group yielded very significant and quantifiable results.

## What kind of organization benefits from process assessment and metrics/cycle time reduction?

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Regardless of size, today's successful organizations are geared toward strategic thinking applied to product development, production, and marketing. In a larger, established organization, metrics issues arise because of size, lack of co-location, 'we've always done it this way' and organizational 'silos'. In a smaller or newer operation, the challenges often come from the need to establish systematic approaches that have started from more ad hoc problem solving, issues that arise from growth and complexity. Whilst Biotech currently has a significantly higher percent of compounds making it through to approval, maintaining and even improving this productivity will be the future challenge.

## If there are such clear and demonstrable benefits to metrics in R&D, why is it not more broadly implemented?

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Consider the nature of the process. In manufacturing, process assessment, metrics and productivity improvement are used almost universally – but in this case, we already know exactly what the final product should look like. R&D is knowledge work and, by its nature, we don't know the result going in. However, in addressing R&D metrics, we're not focusing on outcomes but rather on process. What about quality – won't 'speeding up' introduce error? R&D metrics is not about working faster; it is about opportunities to optimize approaches, reduce handoffs and delays – reducing the burden of re-work, scheduling issues etc. In reality it becomes easier to sustain or improve quality measures when clear metrics are established.

Working through a metrics/cycle time reduction project is not a 'quick fix' that will solve unrelated underlying problems. Building a metrics 'culture' is an organizational issue, which must be approached cross-functionally and must fit with the mission of the entire operation. Having an outside team come in to 'solve' the problems without broad-based internal involvement is an invitation to fail. There is a process of unlearning and learning that has to go on here – and it is very hard to go through unlearning. Guided involvement of the internal teams in diagnosing and 'fixing' their own is a big part of gaining acceptance. Expect some resistance, and also expect to see this diminish rapidly as successes are achieved and documented.

## Key success factors in implementing and utilizing metrics

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- **Alignment** - Understand and deal with other unrelated organizational and team issues as completely as possible before taking on a metrics project
- **Involvement of scientists and other product development professionals is critical** – while a guided effort, in essence *they* are mapping and improving their own processes. This exposes any problems and generates ownership by the group
- **Process, not people** - By stepping back and assessing processes and problems, we stay away from fingerpointing. Often those that are supposedly part of the problem end up being the people that, in this environment, come up with the quantum leap ideas on re-design

## Key success factors, (con't)

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- › **Integrate across areas** - In a product development environment, 'no function is an island'. Reducing cycle times and establishing strong sustainable metrics demands involvement of all groups that interface or are involved upstream/downstream.
- › **Work small to large...and back** - The total effort must include cross-functional operations. However, the most productive approach is to work through each area's assessments and proposed improvements, then look at the total group together. If the integrated result requires rethinking of a particular area, then that goes back to the originating group to reassess and agree.
- › **Establish a few key metrics to track including at least one quality metric** - No one pays attention to tables of dozens of numbers, but presented with two or three key indicators and targets, will take note.
- › **Make it easy to enter, easy to see** - document, integrated with company intranet or other tracking tools. Don't set up anything that requires additional or offline documentation
- › **Keep it public** – publish or post results regularly to sustain momentum and also to get an early warning if there are any areas that are not achieving targeted improvements. A reassessment done quickly can get a group back on track before major problems occur
- › **Celebrate success** - As targets are met and exceeded, recognize the team or operation involved.
- › **Don't rest on your laurels** – after the first round of improvements, you will be prepared to further accelerate efforts. By this point, resistance will have diminished and some in the groups will emerge as ideas leaders. To capitalize on this, provide a timeline and forum to revisit and take the next step in improvements

## Summary

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Metrics can be applied successfully in an R&D environment. The results are dramatic in terms of cycle time reductions and quality of work done. The tools of process assessment, typically used in operational areas work well in R&D. However, the approach and implementation include some special considerations relative to knowledge work and inherent uncertainty of results that are the nature of development. Effective process assessment has been demonstrated to produce long term sustainable results in a range of R&D situations.

## About the Author

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Dorothy Erlanger has over 29 years of business knowledge and consulting experience gained in a corporate setting for ten years and as an independent consultant since 1984. She brings to her top-ranked global clients a unique blend of consulting and training experience coupled with her capability as an outstanding group facilitator whose programs provide a strong emphasis on actionable results.

During her consulting career, she has engaged a broad range of assignments including corporate-wide and region-specific marketing personnel development programs as well as market feasibility studies and market entrance assistance, strategic plan development and the creative use of metrics in research and development project management.

Her projects have extended globally to Asia, Europe, South Africa and the Mideast as well as the United States and Canada. Her language fluency in Spanish and Portuguese has proved especially helpful to clients in Latin American countries.

Ms. Erlanger holds a BS degree in Biology from the University of Chicago and an MBA in Finance from Seton Hall University. She has published articles on product marketing and is sought after as a speaker on marketing and health care management topics at regional and international meetings.

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