The 🧬 Benchling

Enterprise Implementation Methodology

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Introduction

Digital transformation is, by nature, a tricky process. Beyond even the technical considerations, habits and engrained interdependencies are difficult to adjust, even if all parties agree that it's for the best. To make sure that your software evaluation process and subsequent implementation efforts lead to lasting success, you need a partner who not only has experience, but who's also had success at bringing enterprise-scale digital transformation to modern life science R&D organizations.

At Benchling, we've refined our enterprise implementation methodology across one third of the top 40 pharmaceutical companies. The lasting success of our partners is underscored by the fact that no company has ever switched off of Benchling's enterprise solution. While legacy ELNs and LIMS are infamous for being unused and unusable, scientists love using Benchling. In fact, the average Benchling for Enterprise client more than doubles the size of their deployment every year.

In this paper, we discuss our tried-and-true Enterprise Implementation Methodology. We'll start by sharing some background on the Benchling team. Then, we'll walk through the high-level best practices we've developed for enterprise implementations and discuss the implementation process itself, step-by-step. We'll conclude with a case study on how this implementation methodology led to organization-wide success at a top 40 pharmaceutical company.

Table of Contents

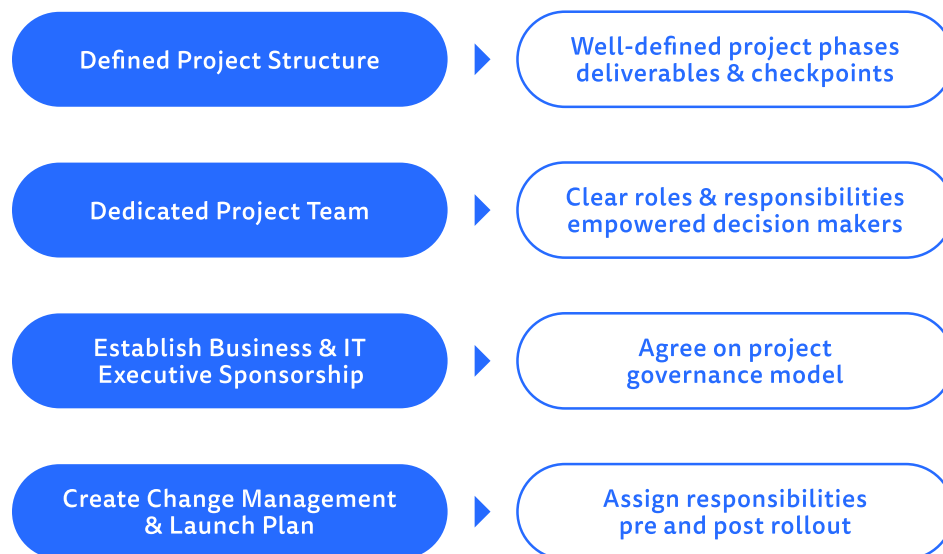# We're Your Experts in Scientific Data Management

Legacy software vendors have an outdated understanding of life science R&D. The workflows of traditional small molecule R&D are well-categorized and differ greatly from the more complex, emerging workflows of modern life science. Our team has spent years working exclusively with hundreds of companies doing cutting-edge biology-based R&D. Having seen these workflows up close across a wide gamut of modalities and idiosyncratic applications, their understanding of the science is unmatched.

Similarly, the data management needs of modern life science differ greatly from those of small molecule R&D. More complex molecules, more teams, and more processes need to be modeled, tracked, and analyzed. Our team has built industry-first data models for these emerging research areas — in fact, we've even published best practices on setting up registration systems for some of the newest scientific modalities, from CRISPR gene editing to CAR-T R&D. Whether you're looking to fully overhaul a group's informatics infrastructure with the Benchling platform, or integrate a single new Benchling application with a broader software ecosystem, our team's singular expertise will help you make your data strategy a competitive differentiator for your R&D.

Best Practices of the Benchling Methodology

What is the Hybrid Agile Approach, and how do we ensure success?

Our Enterprise Implementation Methodology combines a **hybrid approach** to the implementation process at large, with an **agile approach** to working with your scientific teams. This allows us to remain structured and move in discrete stages when executing on the project overall, while quickly responding to and iterating on the needs and feedback of your scientific teams. There are four key success factors to this approach. By adhering to them, we will remain aligned throughout the project with clear goals and expectations, while executing swiftly.

Defined Project Structure	▶	Well-defined project phases deliverables & checkpoints
Dedicated Project Team	▶	Clear roles & responsibilities empowered decision makers
Establish Business & IT Executive Sponsorship	▶	Agree on project governance model
Create Change Management & Launch Plan	▶	Assign responsibilities pre and post rollout

At the start of your implementation process, we'll work with you to structure a **detailed project plan** with clearly defined phases, deliverables, and checkpoints in alignment with our hybrid methodology. This plan will be the result of detailed discovery sessions with your R&D teams to fully understand their end-to-end processes, analytics needs, and any other specific requirements. This discovery process is detailed further in the below Implementation Process section.

To ensure project success, it's also critical to have a **dedicated project team** with clear roles and responsibilities on both the Benchling and client side. This involves designating client-side decision makers who can act with authority and drive hard decisions.

Additionally, it's crucial that we secure **business and IT executive sponsorship**, and that we agree on the governance structure from the beginning of the project. We'll go into greater detail on this in the subsequent section on governance structure, but throughout the implementation process, we'll have ongoing project governance to ensure we're aligned and ready for each next stage of the hybrid project plan.

Change management is the final piece to ensuring project success. From the start of your implementation, our team will work with you to develop a strategy to execute a successful launch and a model to support your Benchling deployment long-term. There are four components to our change management best practices:

1. **Alignment.** Are all stakeholders, from team leads, to executives, to research associates, aligned on the project objectives? Have we agreed on success criteria and metrics?
2. **Change Readiness.** Do we have a plan in place to retire legacy systems? Do we have a core group of power users ready to seed best practices and support?
3. **Enablement.** Do we have a training and communication plan in place?
4. **Value Realization.** Are we tracking metrics, and can we capture user stories and usage data?

Potential Project Structures: Application-by-Application or Team-by-Team

Project structures can vary greatly across implementations. Some clients purchase a single Benchling application for a single team and want to do minimal integration. Others want to deploy the full Benchling platform across one or multiple groups. And still others just know that they have a problem they need to solve, and look to Benchling for guidance on how to structure an implementation.

By and large, enterprise implementations of multiple Benchling applications tend to take one of two forms: application-by-application or team-by-team.

In an application-by-application implementation, we would roll out your chosen Benchling applications to multiple teams simultaneously in three phases, following the Implementation Process detailed in this document's subsequent section for each phase.

In a team-by-team — or use case-by-use case — implementation, we would work with you to identify which teams and use cases have the highest-priority needs for Benchling, and roll out your chosen applications to them before moving on to subsequent use cases.

With both structures, we conduct a thorough scientific discovery and implementation process to ensure that the Benchling platform meets the needs of all relevant scientific teams. The eventual structure that your implementation takes will depend on your business needs. As an example, for some clients, instituting the Benchling Notebook and Registry across their entire research organization might be their top priority. For other clients, solving specific use cases particular to a handful of teams may be a higher priority than implementing a system more broadly. No matter your business needs, our team can help you determine the structure most likely to lead to success.

What is the Hybrid Agile Approach, and how do we ensure success?

Governance Structures
- Oversight and Internal Controls
- Defined Governance At Project Onset
- Gate Reviews Throughout Project Lifecycle

Project Checkpoints
- Solution and Technical Experts
- Engaged in Key Deliverables and Reviews
- Responsible for Solution Alignment with Benchling Best Practices

Governance Structures		Project Checkpoints	
Project Status Meetings	Weekly meetings between Benchling and Customer Project Teams.	**Design Reviews**	Ensures design of solution fits into customer systems, data, and processes.
Weekly Status Reports	Provided to Benchling and Customer management teams.	**Configuration Reviews**	Verifies system configuration leverages optimal features and best practices.
Internal Project Governance	Project Health reporting leveraged to ensure transparency, alignment on risk mitigation, and project progress status.	**Integration Reviews**	Reviews integration strategy, data mapping, and performance adheres to standards.
Steering Committee Meetings	Regular meetings with Benchling and Customer Leadership. Transparency into Project oversight, direction, escalation, and decision making.	**Production Readiness Reviews**	Regular meetings with Benchling and Customer Leadership. Transparency into Project oversight, direction, escalation and decision making.
		Value Assessment	Helps define value and setup mechanism and reports to measure value and project KPIs.

We'll use the first phase of the Implementation Process – Project Scoping – to agree on a governance structure. But we've also developed these best practices that can serve as a starting point for that discussion.

Governance Structures
Weekly Project Status Meetings and Reports between Benchling and designated customer project management teams will ensure progress and ongoing project success. Internal to Benchling, Benchling teams also regularly meet to discuss project health, ensuring transparency across teams and alignment on risk mitigation. Lastly, meetings between Benchling and a designated customer steering committee at some regular cadence will provide transparency into project oversight, direction, escalation, and decision making.

Project Checkpoints
There are multiple deliverables that we regularly create at the conclusion of implementation stages, from data model designs to system configurations and integrations. Together, we'll agree on designated client-side individuals to sign off on each of these deliverables. As a final project checkpoint, we provide the option for a value assessment to help measure the impact of Benchling against mutually agreed-upon project KPIs.
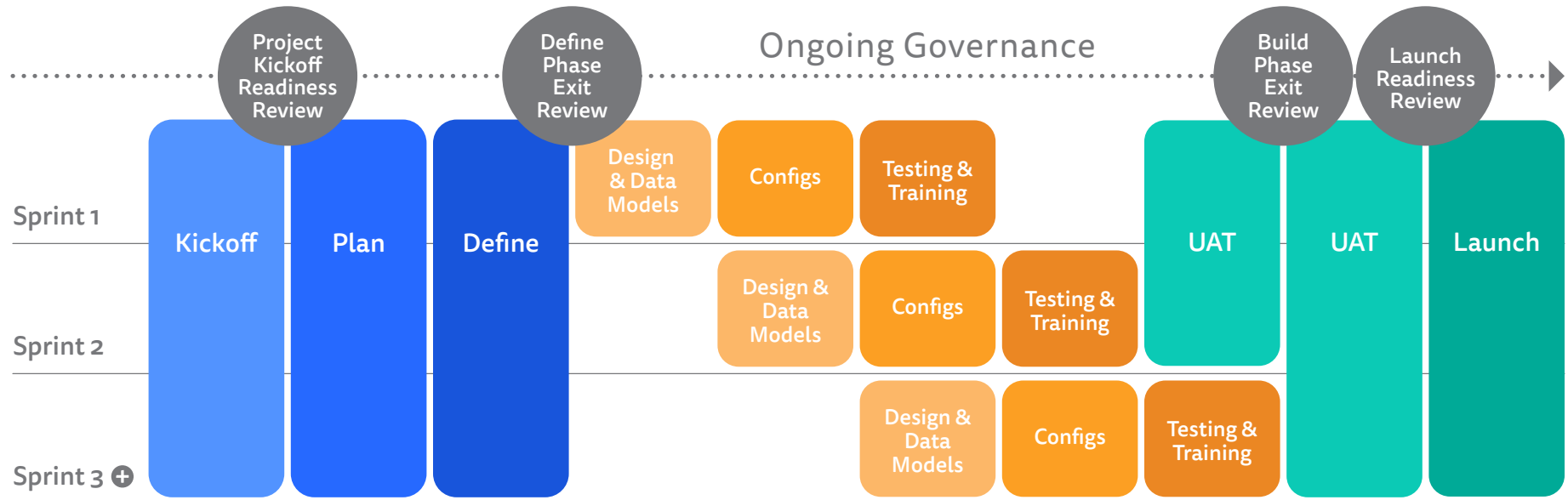
Working with Consultants

The Benchling team is accustomed to working closely with client' consulting teams to ensure all aspects of the implementation lifecycle are covered. Benchling's team approach to working with consultants breaks down into four parts:

1. **Pre-Kickoff Alignment:** The goal here is to have a clear alignment on roles and responsibilities between Benchling team and consulting team. This also includes discussion on any critical implementation dates and deliverables that the Benchling team and consulting team are committed to. Key outcomes from this phase include a RACI matrix (categorization of project stakeholders as *Responsible, Accountable, Consulted,* or *Informed*) and a detailed breakdown of implementation deliverables and their owners.

2. **Planning:** This is a joint effort between Benchling and the consulting team to schedule kickoff, discovery, and training sessions with key stakeholders and establish the right meeting cadence to track implementation progress.

3. **Coordination:** Based on the defined RACI, the Benchling team will work closely with the consulting team to track all open action items, drive user engagement during scheduled working sessions, and mitigate any identified risks and issues with key decision makers from the client site.

4. **Hypercare / Post Go-Live:** Once all critical implementation activities are complete, the Benchling support team will coordinate with the consulting team on any necessary triage activities to ensure all client questions and new requests are reviewed and resolved.

The Implementation Process

Ongoing Governance

Milestones: Project Kickoff Readiness Review · Define Phase Exit Review · Build Phase Exit Review · Launch Readiness Review

	Sprint 1	Sprint 2	Sprint 3 ⊕
Kickoff	✓		
Plan	✓		
Define	✓		
Design & Data Models	Sprint 1	Sprint 2	Sprint 3
Configs	Sprint 1	Sprint 2	Sprint 3
Testing & Training	Sprint 1	Sprint 2	Sprint 3
UAT	✓		
UAT	✓		
Launch	✓		

Kickoff and Planning
- Pre-project questionnaire
- Align on project scope
- Confirm R&Rs
- Detailed project plan
- Discuss test and training plans
- Set up governance structures
- Initial design workshops
- Access to training content
- Policies and permission setup

Configuration, Training, and Initial User Testing
- Review and understand current process by team
- Configure Benchling to support each team
- Review configurations, capture feedback, update data models and configurations
- Layer in application specific trainings (train the trainer)
- Prepate for UAT

Test and Launch
- Complete Training Delivery
- Execute UAT
- Address Issues
- Plan for Post Go Live Updates
- Execute Launch Plan
- Launch Support/ Hypercare
- **Celebrate!**

Kickoff and Planning

Because project scoping is the most foundational part of the implementation process, we do as much of it as possible before any contracts are signed. Towards the end of the evaluation process, we bring in members of our Customer Experience and Product teams to consult with your R&D and IT stakeholders on your project's precise needs and establish a current-state analysis.

There is often much back-and-forth during this process, and many clients find it valuable for Benchling to help refine their project needs and contribute thoughts on best practices, especially with regards to technical details. We use this time to scope out a plan for data migration and API setup for any systems that Benchling is replacing or integrating with. Our teams routinely conduct data migrations from and integrations to legacy informatics providers (ex. IDBS, Biovia, PerkinElmer), standalone tools (ex. Geneious, Genedata, FreezerPro), and custom software and databases. If any new development work is requested, our technical leads will scope that out and return with a statement-of-work.

During this process, we will agree on a governance structure (best practices detailed above) and also confirm roles and responsibilities on the teams to be involved, including designating client-side "team leads". Client-side team leads should expect to spend 5-7 hours per week during their phase (4-5 weeks) of the rollout. Responsibilities include:

- Owning decisions that affect how scientist will use the system
- Being available to clarify gaps and questions
- Developing registry, inventory, results, request, and workflow template specifications
- Conducting configuration / user-acceptance training sign-off
- Developing and enforcing team expectations

Once we've agreed on the scope and objectives of the project, the official implementation begins. Along with the designated client leads, we will align on a communication plan for ongoing status updates and occasions for issue mitigation.

Your Benchling Customer Experience managers will then circulate background materials on Benchling and a preliminary questionnaire to client leads in advance of the scientific discovery process. The discovery process consists of face-to-face meetings with client leads to assess exactly how Benchling will be incorporated into existing scientific

workflows. We will then circulate a further project questionnaire more broadly, to gather thoughts and needs from scientists beyond the designated client leads.

Using these discovery sessions and the project questionnaires, the Benchling Implementation Leads will assemble an initial project plan including concrete timelines, deliverables, and parties responsible. This plan will be completely tailor-made to meet your teams' unique needs and will include distinct rollout phases. We will then engage in multiple rounds of review and iteration to make sure that all parties involved are fully aligned on the project plan.

This is also the stage of the implementation when we will develop and align on a clear change management plan. This will involve agreeing on project objectives and success criteria; developing a plan to retire legacy systems and identifying a core group of power users to seed new best practices and support; putting in place a training and communication plan; and ensuring we have a way to measure project success with regards to the agreed-upon success criteria. Our change management best practices are detailed further in the "Best Practices of the Benchling Methodology" section above.

Configuration, Training, and Initial User Testing

Benchling's codeless configuration means that our team can quickly design and iterate on a data model unique to your business. User permissions, team structures, registry schemas, location hierarchies, notebook entry templates, workflow schemas, request schemas, and more can be set up and adjusted directly in the user interface.

For rollouts of the full Benchling platform (through our application-by-application approach), we break this process down into three phases. Phase I comprises configuration, user acceptance testing,

and training for the Notebook and Molecular Biology applications. Phase II comprises the same for the Registry and Inventory applications. And Phase III covers the Workflows and Requests applications. For clients that purchase individual applications or a mix of applications, we work with them to structure a different rollout strategy.

For each phase, our experts and your team leads will work together to review your current scientific processes, configure Benchling to support your requirements, gather feedback, and iterate as many times as is necessary to achieve your ideal data model. This configuration and iteration will take place in a testing environment, separate from your eventual Benchling deployment. Simultaneous to developing your data model, the Benchling team will train designated client-side stakeholders on how to adjust configurations in the future, so that you're not reliant on us to make the changes that your evolving workflows require.

During this process, we will also work with your stakeholders to develop any necessary integrations. Similar to configuration development, our technical leads will work with you to review your integration needs, develop it (or guide you in developing it), gather feedback, and iterate until it functions as desired.

After official sign-off on user acceptance testing for these configurations, we will commence broader user trainings. These trainings will be well-documented, with your Benchling representatives sharing tutorials, training materials, and tailored guides unique to your Benchling configurations. We will review these deliverables with your designated team leads to make sure they encompass everything you need to know.

Test and Launch

Data Migration and Go-Live Prep

This is the stage where the configurations you had been creating in the testing environment are officially moved into your production environment, where your scientists will actually do their day-to-day work. After one last verification of the test environment, your Benchling Customer Experience lead will manage the migration of your configurations (schemas, team structures, notebook templates, etc.) into the production environment.

For the purposes of data migration from legacy systems into Benchling, it's important for the Benchling team to obtain a snapshot of the legacy system's export as early as possible. While we routinely conduct data migrations from the vast majority of legacy R&D software tools, unique configurations (both of the legacy tools and of Benchling) mean that

every data migration is different. Once Benchling configuration is complete and we've agreed on how the extracted data will be represented in Benchling, your Customer Experience lead will commence data migration into your production environment.

At this stage, your Benchling deployment is officially ready for go-live. Your Benchling Customer Experience lead and your team leads will then align on a go-live schedule for your teams.

Go-Live and Hypercare

At this stage, your scientists will begin using Benchling to log experimental data on a day-to-day basis. The two weeks after go-live comprise the "hypercare" period, during which the Benchling team will closely monitor usage and, with your team leads, gather any needs and unidentified issues that may arise. During this period, the Benchling team will work at an accelerated pace to resolve these issues.

Following the hypercare period, your Benchling Customer Experience lead will hold a final project readout meeting with your team leads and any other project stakeholders. During this meeting, we will discuss the outcomes of the implementation project, identify any issues that remain unresolved, and set up a plan for ongoing communication and to transition you from implementation services to managed services.

Ongoing Success

Following your implementation, our Customer Experience team will continue to engage with your teams and users to ensure continuity and ongoing success with the Benchling platform. Scheduled check-ins and business reviews will ensure that you're tracking to hit key goals. And usage reporting enables you to track activities such as logins and average usage across your organization, and actions as granular as the number of entries that your scientists create per day.

Our cloud-based software and modern development processes allow us to roll out new Benchling features and bug fixes without any downtime. As these updates occur, we will provide you with notifications and new help documentation to make sure you're getting as much value out of the product as possible.

Your scientists will have a direct line to the Benchling Support team through our in-app messaging tool, which means no questions will go unanswered, and issues will be resolved in a timely manner. A Service-Level Agreement (SLA) will guarantee this. You will also have access to our deep and continuously growing library of online help, written by our product and implementation experts.

The final tenet of our implementation methodology is understanding that when one team or a set of teams successfully implements Benchling, other teams want to follow. On average, Benchling for Enterprise clients grow their deployments by 130% every year. Our Customer Experience team is accustomed to working with our clients in this manner, and they'll bring the expertise they develop from earlier engagements with you to all future expansions. At the end of the day, it's our philosophy to treat all implementations as the start of an ongoing partnership, where your evolving needs are our evolving needs, and your success is our success.

Case Study: A project-by-project Benchling deployment at a top-40 pharmaceutical company

We've worked with a top-40 pharmaceutical company to deploy the full Benchling platform across an ever-expanding list of teams and use cases. Since starting with a small pilot project, Benchling usage has grown to more than 600 scientists across more than 10 teams and dozens of projects.

Before Benchling: Data loss and low vendor confidence

Our client's cell line production core was fielding dozens of daily requests from their full R&D organization via paper, email, and spreadsheets. They had a legacy database with some data on extant cell lines, but the data was unreliable and rarely queried. As a result, scientists couldn't find cell lines, regularly duplicated work, wasted time tracking paper-based requests, and ultimately couldn't base business decisions on sound data.

In addition, numerous legacy vendors had attempted to help our client solve these and other challenges. But their software saw little uptake from the scientists, and they were unfamiliar with large molecule research. As a result, our client became understandably skeptical of vendors and instead invested heavily in custom software development. Unfortunately, this custom development also failed to take off, leading to more wasted resources.

Collaboration Problems

- Scientists couldn't find existing cell lines, causing needless duplication of work
- Scientists wasted time tracking requests (often placed on paper)

Data Integrity Problems

- Low confidence in data produced over 20+ years
- Inability to base business decisions on data

(Occasionally) Query legacy database for extant cell line

▼

Place requests on paper or email

▼

Store inventory data on paper or spreadsheets

▼

Convey request completion through email

▼

Time wasted, data lost

Change Management Problems

- Given the complexity of legacy systems, company didn't know where to start

- Legacy vendors repeatedly failed to meet needs

- 1.5 years and millions of dollars had been spent on a failing custom solution

Crafting an Initial Solution in Five Months

Workflow Discovery and Agile Prototyping

- **Deep Biologics Expertise:** The Benchling team promptly unearthed research needs across five client teams.

- **Dozens of Prototypes:** Scientists tested dozens of configurations live in the product.

- **Point-and-Click Configuration:** Customer IT learned configuration themselves, further accelerating iteration.

- **Flexibility of the System:** Won over scientists who were skeptical of third party software.

Change Management

- **Guided Rollout Strategy:** With the Benchling Enterprise Implementation Methodology, scientists recognized value in Benchling at each step, not just seeing it as a compliance burden.

- **Catered Trainings:** Scientific specialists modified trainings for each team's use case.

- **Intuitive User Interface:** Promoted instant adoption by scientific teams.

20+ Years of Data Migration

- **Legacy Databases:** The Benchling team grappled with a large amount of complex data curation in advance of migration.

- **Physical Data:** In addition to data about virtual entities, container and freezer data also had to be migrated.

- **Comprehensive Services:** The Benchling team's combined scientific and engineering expertise made large-scale data curation and migration possible.

Long-Term Success

$4m

Capital saved
Had been scoped for further additional custom development.

7

Months saved
An additional year of custom development had been scoped.

90%

Increase in compliance and adoption
Improved knowledge capture and reduced experiment duplication

Unlocked Insights

SCIENTISTS

Have we made this cell line before?
How were our highest yield cell lines produced?

MANAGERS

Where are the bottlenecks in our process?
To what extent are we getting more efficient over time?

EXECUTIVES

How should we change resourcing for our cell line development team?

After Benchling succeeded where past vendors failed, our client was enthusiastic to bring the Benchling solution to other parts of the organization. What started as a single project within a handful of teams has since expanded into an organization-wide movement that positively impacts the work of hundreds of scientists. Projects are ongoing and now also include co-development efforts for entirely new Benchling functionality. And that cell production core? In 2019, they fulfilled more than 5,000 requests and registered more than 60,000 cell lines.