

How can I optimize my workflow to boost efficiency and productivity?



Laboratories need to achieve more with less

Diagnostic labs face challenging times as the demand for testing services rises. Further adding pressure is the shortage of medical technologists — labs in the U.S. are averaging 7-11% vacancy rates across most immunology areas.¹ Owing to this shortage, labs need to be able to achieve more with less.

To ensure your lab is highly productive and can meet demand, you must make sure that your workflow is as efficient as possible. An inefficient workflow not only hinders productivity, it also means that labs face:

- **Higher costs:** the workflow takes longer, and more resources are wasted
- **Expansion struggles:** floor space is underutilized, making it difficult to bring in additional instrumentation/resourcing
- **A reduction in service quality:** slower services may lead to loss of reputation and business, and if samples are mislabeled or lost, patients may face increased risk of harm
- **Lower staff retention:** personnel who work in inefficient labs may have lower job satisfaction, which could make them seek employment elsewhere

So, how can labs improve their efficiency and productivity, and achieve more with less? The answer is through workflow analysis and optimization.

In this guide, you'll discover:

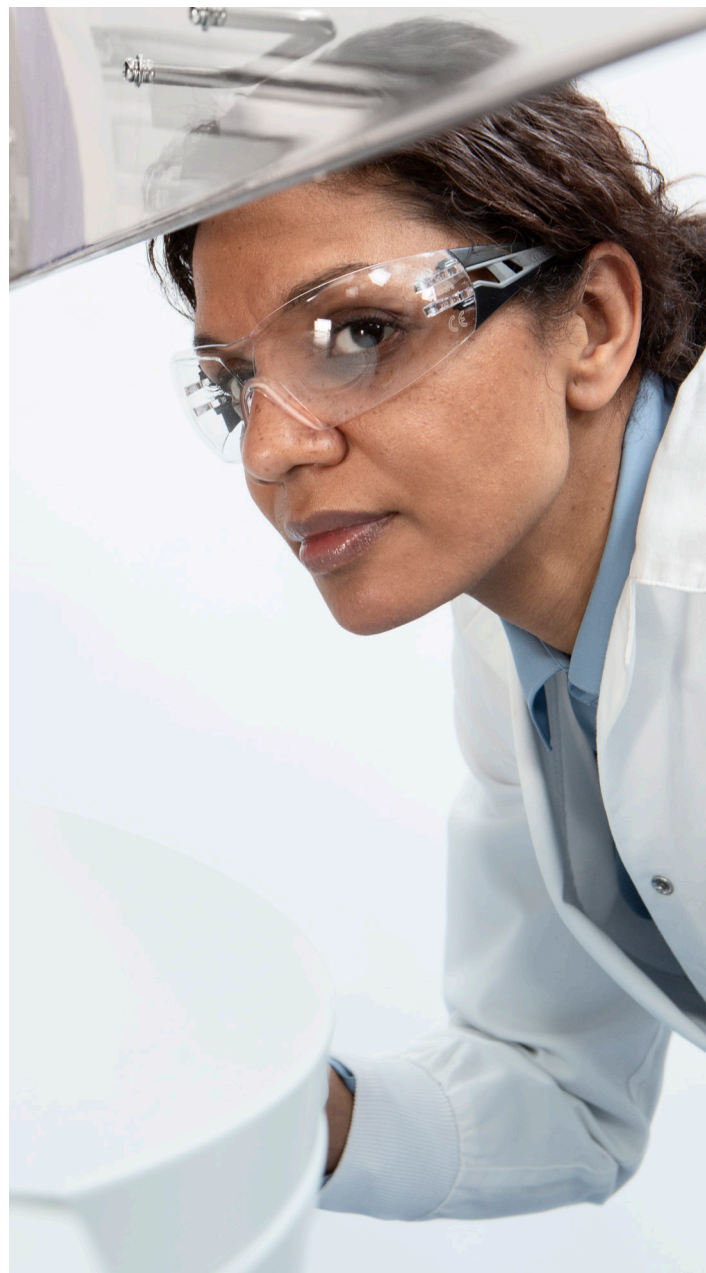
- What workflow optimization is
- How to optimize your workflow
- What workflow optimization looks like in reality
- Ways you can achieve more by working with a partner

1 What is workflow optimization?

Workflow analysis and optimization is a strategy that allows labs to **find and solve workflow efficiencies**. Undertaking these brings multiple benefits to the diagnostic lab:

- **Greater efficiency:** makes processes more cost-effective and faster
- **More economically viable:** enables better resource utilization
- **Strengthens reputation:** improves diagnostic and testing results quality
- **Improves staff retention:** boosts staff morale and improves their interest in the workflow

The strengths of workflow optimization are clear. What is less clear, however, is what to optimize, and how to implement changes.



2 Optimize your workflow in three steps

To begin optimizing your workflow, it is vital to understand where inefficiencies come from. In diagnostic labs, there are three major causes of inefficiency: manual processes, excessive method types, and poorly organized lab space.

With these three productivity blockers in mind, you can take steps to overcome them and optimize your workflow:

1. Reduce manual work through automation

Many laboratories still rely on manual processes, which take up valuable personnel time (and increase the risk of error). To make your workflow more efficient and productive, you should try to reduce any unnecessary manual components.

First, you should identify what processes your lab performs manually. From here, you can determine which tasks can be replaced by automation tools. However, you may not be able to automate every single task for logistical or cost reasons, so you should prioritize which tasks are the most worthwhile to automate. To prioritize your tasks, consider the following:

- **Laboratory requirements:** to maximize value, work out how many processes you can automate with just one system. You should also make your decision based on your lab's individual needs — for example, whether expanding capabilities is a priority.
- **The overall value:** the upfront costs of your system need to be balanced with the return on investment to determine the true value of your proposed automated solution.
- **Quality of results:** just because you *can* automate something, it doesn't mean you should. Ensure that any solution you plan to implement also delivers high quality results, as well as the intended efficiency gains.
- **The vendor:** not all vendors offer the same experience. Choose a vendor that you know will understand your labs' wider optimization goals, and that will support you throughout the process.

2. Consolidate methodologies

Having multiple methodologies not only makes the workflow more complex, but it also takes significant amounts of time to train personnel to be able to perform them all — hindering your overall productivity. To improve workflow efficiency, determine if you can consolidate your methods and bring them onto a singular platform. For example, there are now platforms that allow you to perform both allergy and autoimmune testing, simplifying your overall workflow.

We recommend evaluating your instrumentation to see if you can achieve consolidation with your existing setup. If not, it may be more cost-effective to implement a new platform that allows you to do so.



3. Make the most of existing space

It may not be the first thing you consider when optimizing your lab, but space utilization can play a significant role in your overall workflow efficiency. Lab space is expensive, and so ensuring you use your existing space as effectively as you can is key to keeping costs lower. What's more, it can prepare your lab to scale in the future if desired.

When optimizing your laboratory space, consider these five crucial components:

1. **Layout.** Rearrange instrumentation on your lab floor to optimally position it, particularly focusing on equipment that experiences high traffic.
2. **Storage.** Optimize your storage, including fridges and freezers. You should ensure that you are effectively tracking and labelling your samples and reagents, for instance.
3. **Instrumentation.** Decommission any unnecessary equipment, including those no longer needed after consolidating methodologies.
4. **Space.** Use vertical space where possible, to make the most of *all* available space in the lab.
5. **Records.** Digitalize your data to reduce paper storage.

After reducing manual work, consolidating methodologies, and optimizing existing space, your lab can start reaping the benefits of an optimized workflow.

3

Workflow optimization in action

Who is Geisinger?

A lab at Geisinger Medical Center (Geisinger), a 550-bed hospital in Danville, Pennsylvania, decided to optimize their workflow — and the results were staggering. Within the institute is a core clinical lab serving as a reference for autoimmune/allergy testing labs, and it processes 80,000 allergy and 55,000 autoimmune tests annually. To allow them to better support the hospital and meet increased need, the lab realized they needed to optimize their workflow.

The challenge: A complex workflow

To determine the best way to optimize their workflow, Geisinger sought external support from a trusted partner. The Phadia™ Workflow Analysis program had the capability needed to analyze testing workflow for inefficiencies. Through the evaluation, Geisinger found they:

- **Had a complex workflow:** the lab used four methodologies across seven separate platforms.
- **Used a lot of floor space:** their instrumentation took 638 square feet to operate.
- **Performed many manual processes:** lots of operator time that could be better used elsewhere was tied up in routine tasks.

The solution: Workflow optimization

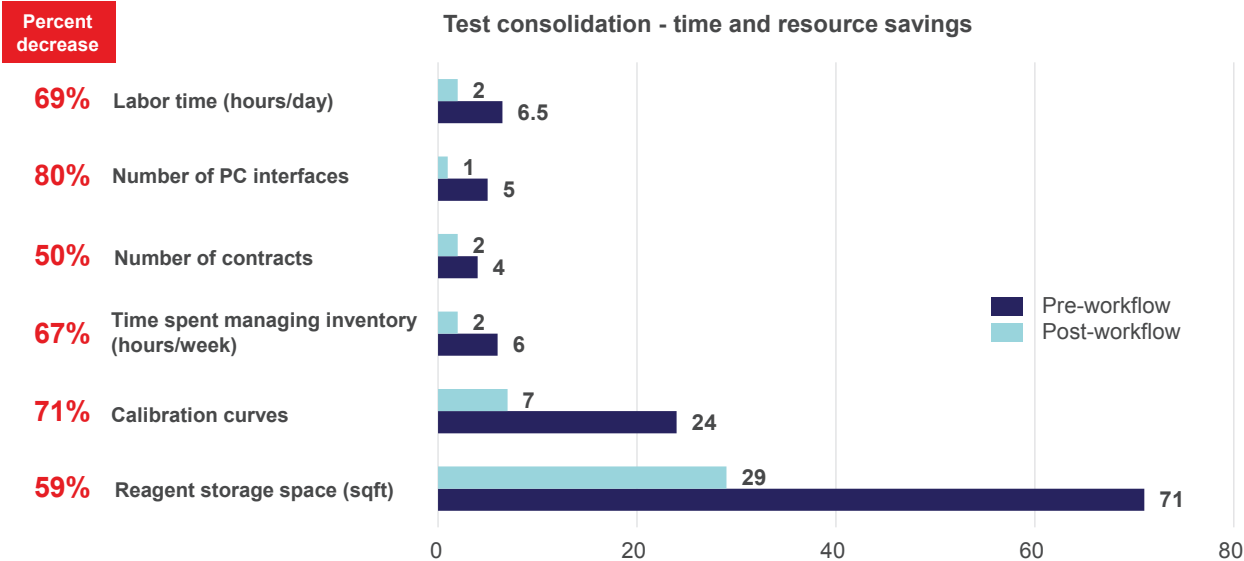
With the workflow analysis program, Geisinger identified that consolidation was a viable strategy to optimize their workflow. They were able to replace most of their instrumentation with a single automated platform that could perform both autoimmune and allergy testing. What’s more, the team determined they could improve their space utilization by rearranging their lab layout in a more logical manner.

The results: An optimized lab ready to grow

After consolidating their instrumentation and rearranging their lab, Geisinger observed many significant benefits to their workflow:

- **Fewer methodologies and instruments**
Geisinger reduced their methodologies from four to two, meaning they were able to reduce the number of platforms needed from seven to three.
- **Lower manual labor time**
Their daily manual testing time was reduced from 4.2 hours to 2.5 hours — representing a 38% improvement — in part, due to bringing in automated platforms.
- **Total cumulative testing time:**
The overall testing time for the lab was cut from 17.7 hours to 15.3 hours, which was a 14% improvement over their initial setup.
- **Space utilization**
Geisinger increased free lab space by 57% by decommissioning unnecessary instrumentation and rearranging their layout.
- **Labor value**
Overall testing savings equated to a nearly \$20,000 reduction in labor value per year, freeing up valuable personnel time for more important tasks.

With their space optimized and more technician capacity, the lab was perfectly positioned to meet the increased demand they faced. Crucially, they were able to bring in an extra instrument, which — in conjunction with their new setup — allowed them to **increase their overall testing volume by 77%**.



Key findings from the pre-workflow study and Phase 2 post-workflow study, showcasing time and resource savings after consolidation and expansion.



4

Stronger together: Maximize efficiency with a partner

Geisinger was able to make highly effective changes to their workflow through a strong and trusted partnership. Working together, Thermo Fisher Scientific and Geisinger could identify the most inefficient processes and determine which ones would lead to the most significant improvement once optimized.

By working with a vendor that offers workflow analysis services, you can maximize the impact of your workflow optimization, as they will have the knowledge and expertise needed to support you through the process. So, what does working with a partner entail?

First, they will thoroughly **evaluate your current diagnostic testing situation** through observations, measurements, interviews, and data analysis. From this evaluation, they can then **provide personalized recommendations to maximize your laboratory's performance**.

Working with a partner for workflow analysis helps your lab do more with less by increasing operational efficiency while decreasing hands-on time. What's more, they can help you lower reagent waste and reduce turnaround time delays, ultimately enabling you to improve your workflow efficiency and productivity.

5

Unlock your laboratory's potential with workflow optimization

Through workflow analysis and optimization, your lab can improve its efficiency, become more economically viable, improve your results quality, and ensure greater staff retention. While you can analyze your workflow yourself, only by working

with an expert partner such as Thermo Fisher Scientific can you get the most from your workflow analysis and optimization and unlock maximum productivity in your lab.



Want to read the full white paper? Ask your rep today for access.

References:

1. Garcia E, Kundu I, Kelly M, Soles R. The American Society for Clinical Pathology's 2018 vacancy survey of Medical Laboratories in the United States. American Journal of Clinical Pathology. 2019;152(2):155-168. doi:10.1093/ajcp/aqz046.

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