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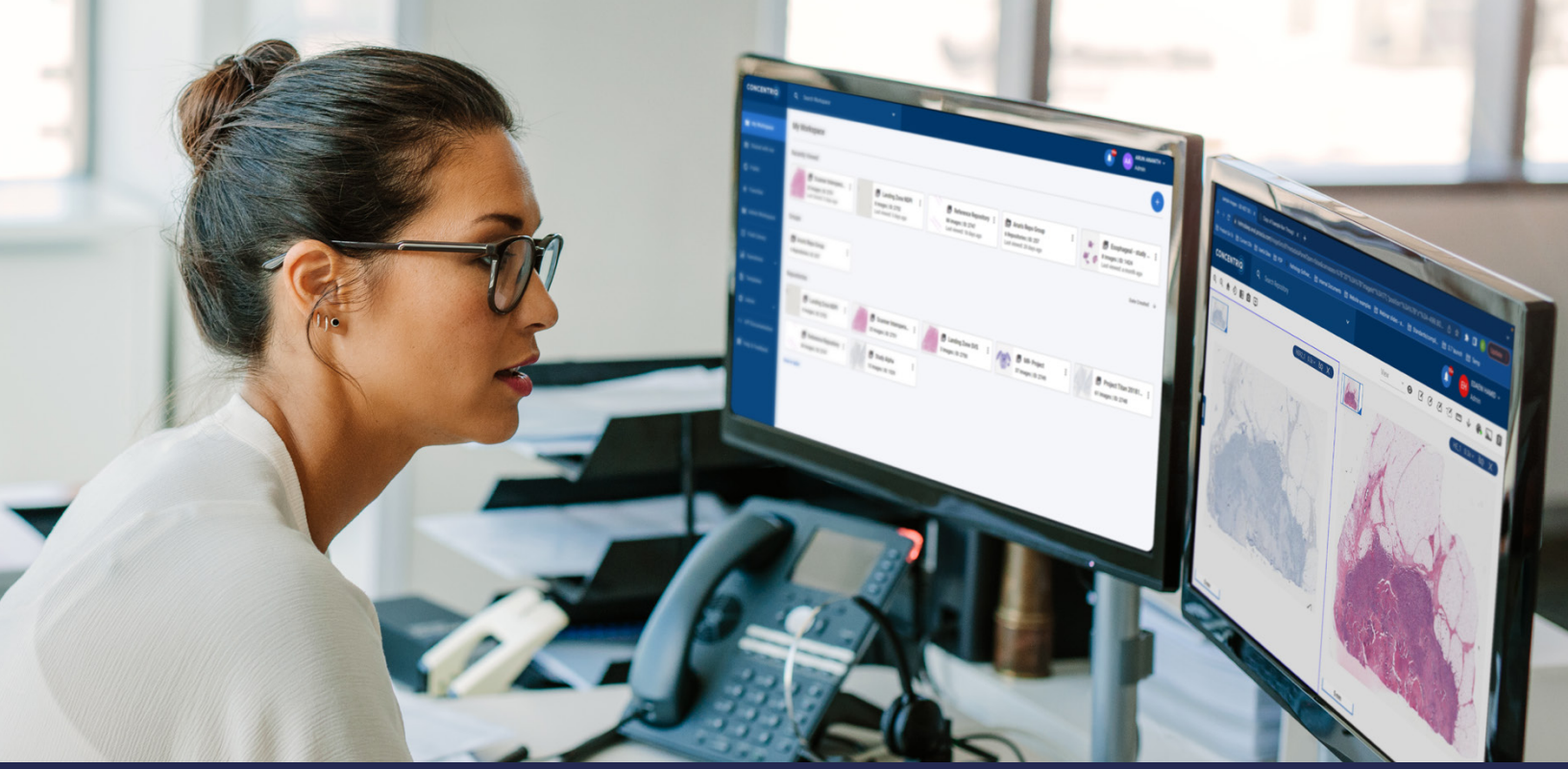
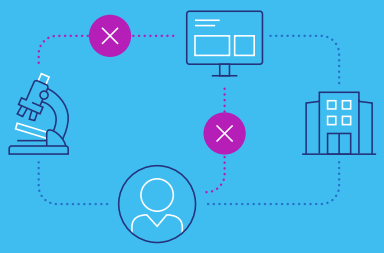
8 Ways to Accelerate Life Sciences R&D

‘Good enough’ software may be holding back your ability to deliver quality results faster. Find out how your lab can streamline the journey from discovery to market with modern digital pathology software.



Digital pathology has become the standard for labs driving development in life sciences.

And while the impact of digitization to date has been significant, life sciences organizations are looking to do even more to capitalize on this digital foundation and drive improvements in their operations. Unfortunately, many of these organizations are finding that the software that helped them transition from glass to digital is unable to support many of their advanced use cases—capabilities that will help them make the leap to true software-centric, data-driven pathology research.



Disconnected Operations

Impacting development timelines and research efficiency

The challenges with legacy digital pathology solutions that many organizations face results in disconnected operations that impact development timelines and research efficiency.

Labs in this position are faced with a decision:

Stick with their current scanner-based digital pathology software or make the investment in a new, more advanced digital pathology software platform.

It's tempting to continue to rely on your current software—with hope that future updates will address deficiencies, that workarounds will suffice for the time being, or that the cost and effort of moving to a new system outweighs the benefits.

The reality is that there is an often under-appreciated opportunity cost associated with the decision to stick with software that is "good enough." And while the type and scope of these costs may vary, the ultimate yardstick is in the lab's ability to produce quality results—quickly—and, ultimately, beat the competition to market.

This paper will explore eight aspects of pathology lab operations—some obvious and some more subtle—where modern digital pathology software can deliver significant value. Every lab should consider and assess these opportunities as they evaluate their digital pathology strategy.

01

Modernize Technology Infrastructure

Moving away from an existing image management software likely means investing in new architecture to support it—some combination of public cloud, private cloud, or on-premises hardware. And when the servers that support an existing system have already been paid for, the decision to invest in a new digital pathology platform might become that much more difficult to justify. The true cost of existing infrastructure, however, is often more complicated to calculate. This includes limitations for providing access for your internal and external users to your data and integrating third-party systems to effectively collaborate and for your organization to uncover insights efficiently.

Key Considerations

Are you paying maintenance to your software/scanner vendor? Will your infrastructure require an upgrade in the near future?

Are you required to store (and pay for) multiple instances of an image each time that image is copied into a new repository?

Are you required to support multiple viewers to facilitate collaboration? Are you required to support software on user workstations?

Is your current vendor prioritizing its hardware over important enhancements to its software?

Inflexible Technology Infrastructure

Inflexible technology infrastructure limits your organization from scaling your digital pathology operations.

02

Make Data Easily Accessible

Most labs struggle to understand what data they have, and where that data resides. This data is a critically valuable asset, but its value can only be realized when that data is not only accessible, but usable. Pockets of siloed, “dark” data are rendered useless despite its potential to deliver significant value. Ultimately, organizations that leverage their data resources effectively have a tremendous advantage. And while many scanner-based image management systems have data management capabilities, these capabilities are often more “inside out” focused (how data is organized coming from the scanner), as opposed to “outside in” (how users can access and engage with the data).

Siloed and Fragmented Data

Organizations struggle with siloed and fragmented data that limits accessibility of their teams to their most valuable asset.

Key Considerations

Are there limitations on how your data can be shared, and with whom? Can your users share a link to a single slide with collaborators?

Are your research teams limited with respect to how they are able to organize projects, create project folders, etc.?

Are you following FAIR data principles to manage data at your organization?

03

Connect Multiple Scanners and Lab Information Systems

A true digital pathology platform serves as the foundation for a connected digital pathology ecosystem. It is able to connect multiple scanners, image analysis and AI applications, and lab information systems into a seamless, integrated experience for the user. Technology supporting pathology-based research continues to advance at a rapid pace, and organizations that are able to effectively implement these technologies without workflow disruption are setting their labs up for success.

Multiple Scanners and Lab Information Systems

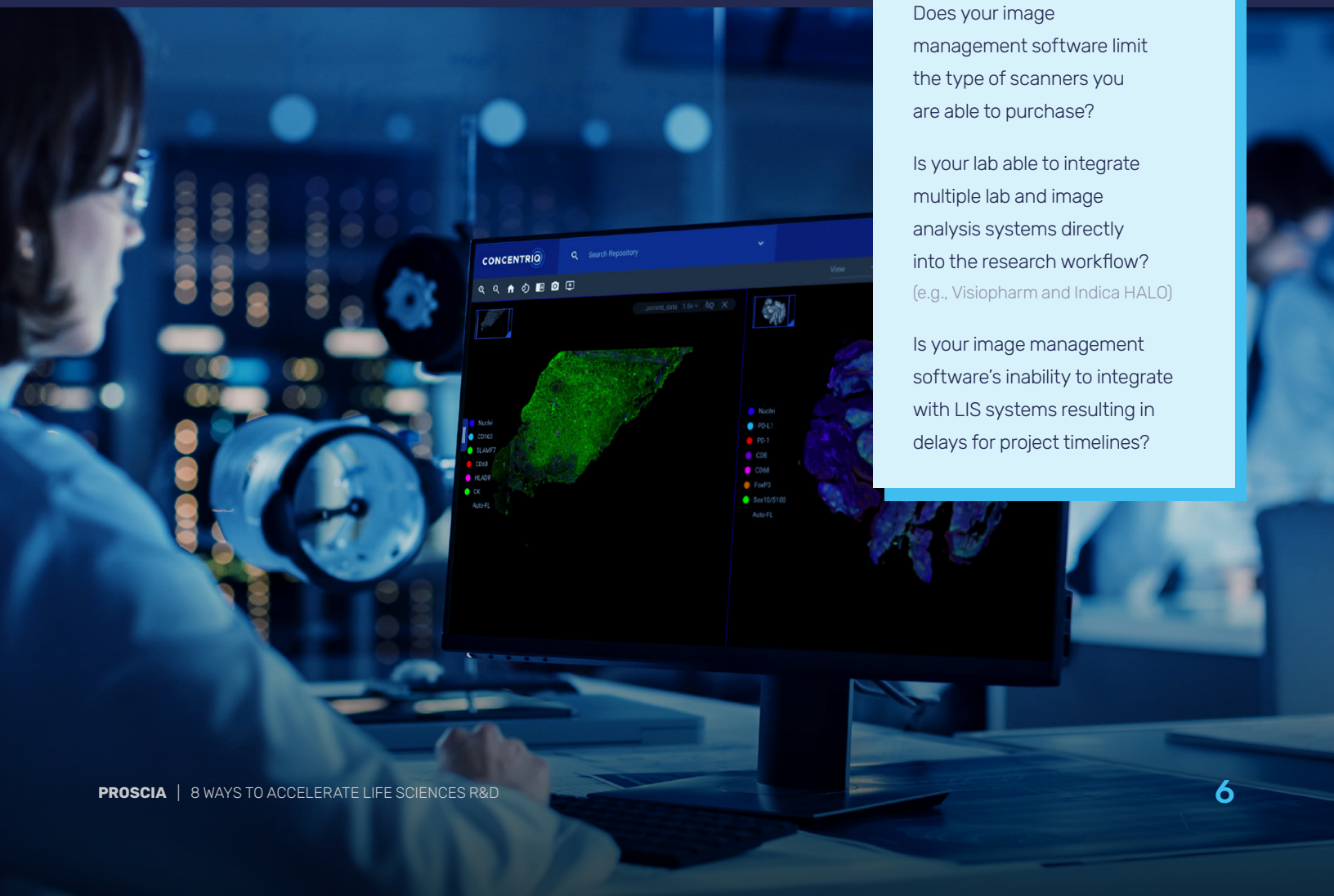
Inability to seamlessly connect multiple scanners, lab information systems, and more leads to users struggling without an integrated workflow experience that often results in delays for project timelines.

Key Considerations

Does your image management software limit the type of scanners you are able to purchase?

Is your lab able to integrate multiple lab and image analysis systems directly into the research workflow? (e.g., Visiopharm and Indica HALO)

Is your image management software's inability to integrate with LIS systems resulting in delays for project timelines?



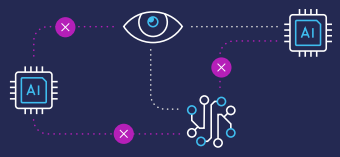
04

Accelerate Algorithm and AI Development

Pathology-based research is becoming more data-driven, with many labs leveraging their digital pathology software to not only access and review data, but develop their own AI-based algorithms directly within the platform. The most sophisticated digital pathology platforms have a robust API that makes the entire data repository accessible to data scientists and various data analysis tools. This direct access not only creates tremendous potential for discovery and analysis, but significantly reduces the time and investment required to initiate the development of a custom algorithm to address a specific analysis scenario.

Key Considerations

Does your image management software have an API that supports development of home-grown analysis and algorithms?



Multiple AI and Image Analysis Applications

Inability to support multiple AI and image analysis applications slows down workflows and limits accessibility of critical data to conduct breakthrough discoveries.

Key Considerations

How easily can you create new users, expand access to new teams, and provide the right data access privileges?

Can you integrate scanners from multiple vendors or multiple image analysis systems?

Will you be able to scale your infrastructure to provide the required access to new locations and users?

05

Scale to Better Connect Lab Operations

Most labs have, or will, experience some type of significant organizational change—from mergers to acquisitions, to creation of new departments and strategic focus areas. And while the business rationale behind these changes may be sound, ensuring your digital pathology systems and workflows are aligned to them can be challenging. A dynamic digital pathology platform can scale quickly to accommodate a changing business environment—connecting new teams, integrating new scanners and image analysis systems, and ensuring new users have access to the right data. Having a dynamic platform in place prior to a significant organizational change can have a tangible impact on the success of the new organization.

Key Considerations

Is your software able to integrate AI from different companies or are there limits to which vendors you can partner with for AI and image analysis tools?

06

Prepare for Strategic AI Adoption

AI will emerge as a primary driver of discovery in the coming years. And this AI will be developed by many different entities and will likely include your digital pathology software vendor as well as your own organization! No one organization will be able to develop the full suite of AI tools your organization will need to drive discovery and productivity into the future. Therefore, it's important that your digital pathology software can not only integrate with multiple AI sources from multiple vendors, but bring those AI capabilities to the user in a meaningful way that is aligned with the research workflow.

07

Improve Workflow and the User Experience

While difficult to quantify, functional limitations can hinder the productivity of your teams, and at worst, create barriers between your users and discoveries hidden within the data found within your image management software. For example, a platform that hinders the accessibility of data collected by the organization and one that doesn't allow users to quickly duplicate projects/ repositories to perform analysis without impacting storage hinder your team's workflow efficiency. Additionally, inability to create new users and assign the right privileges stands in the way of your teams to quickly collaborate with their peers to solve complex challenges. Ultimately, a platform that eliminates nuances in user experience and workflows can help your organization to make the most out of your existing image data.

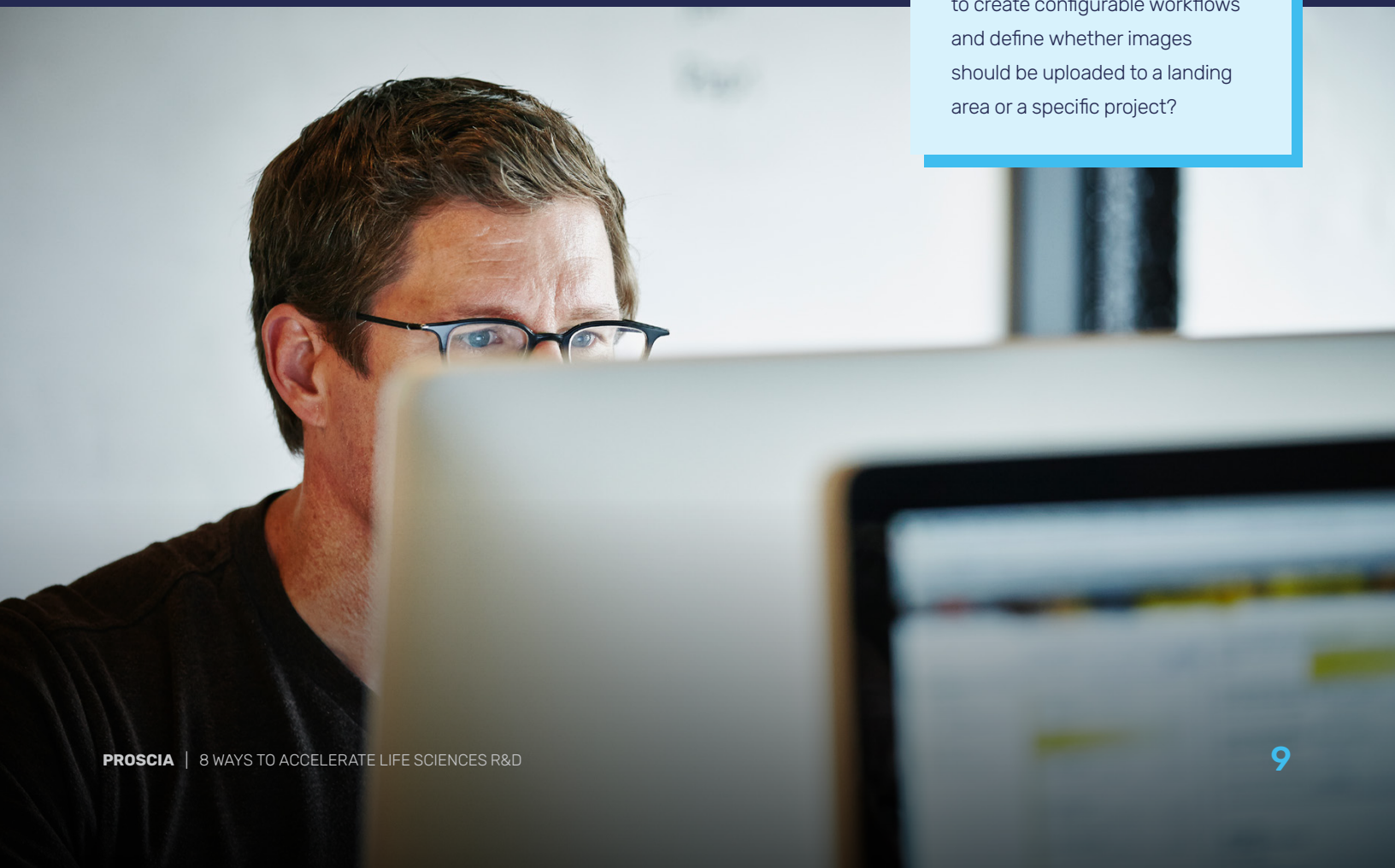
Disjointed Workflow, Poor User Experience

Limitations that hinder productivity include solutions that result in a disjointed workflow with a poor user experience.

Key Considerations

Are your users able to seamlessly view and collaborate with their peers?

Do you have a flexible platform to create configurable workflows and define whether images should be uploaded to a landing area or a specific project?



08

Improve Talent Acquisition and Retention

Key Considerations

Does your current solution require extensive training for new employees?

Is your digital pathology software working for or against your efforts to attract and retain top-performing professionals?

Is the viewer browser-based and can it support your team members who want to work remotely?

The battle for talent rages across all areas of biomedical research, and pathology is no exception. Top talent helps labs drive results and create a fertile environment for discovery. Top talent will also attract more exceptional candidates. However, many high-performing professionals will have an expectation that the tools they are provided with will support their work as they look to leverage the latest developments in image analysis and AI, collaborate with peers in real time, and dig deeper into the data the lab is producing to perform R&D. This applies to scientists and pathologists as well as data scientists who are playing an increasingly important role in the development process. Conversely, the cost to replace someone who leaves the organization for another who can offer this experience is costly, both in terms of lost productivity and rehiring.

Conclusion

Ultimately, limitations in the tools and technology of your organization contribute to a fragmented and siloed structure. The true cost of such disorganized operations often result in project delays, lack of visibility of how the data collected is used within the organization, and an inability to effectively expand and take advantage of the full capabilities of your team. The investment in a new, more advanced digital pathology software platform on the other hand can unify your dispersed pathology teams and set your organization up for success to meet the immediate short- and long-term goals.

For more information about modern digital pathology solutions for research organizations, or to see a demo of our Concentriq for Research® software platform, visit:

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