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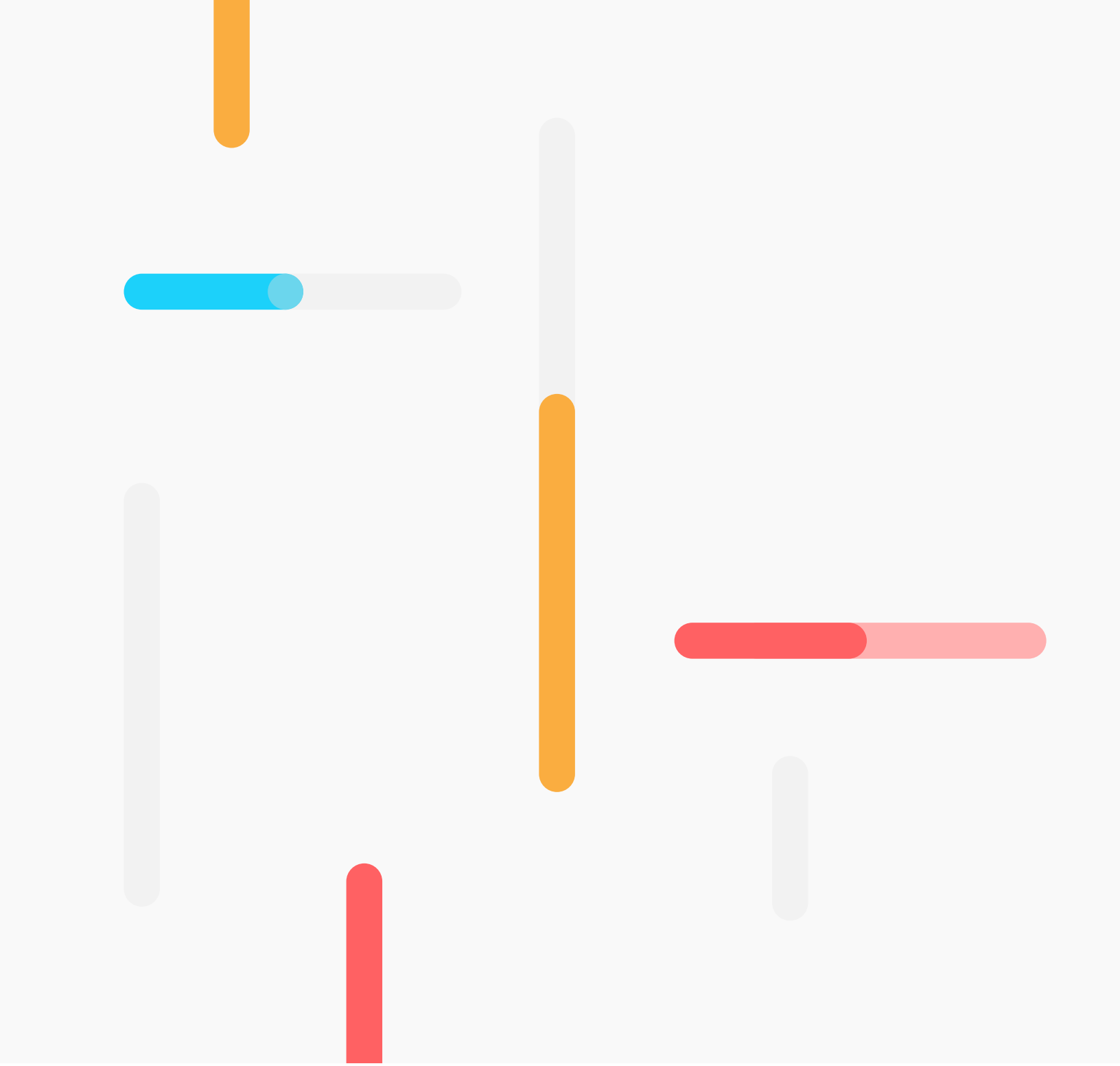
Optimizing Analytics Capabilities: 3 Areas of Focus for Better Insights Faster

Leveraging machine learning, selecting the right tools, and increasing team efficiency



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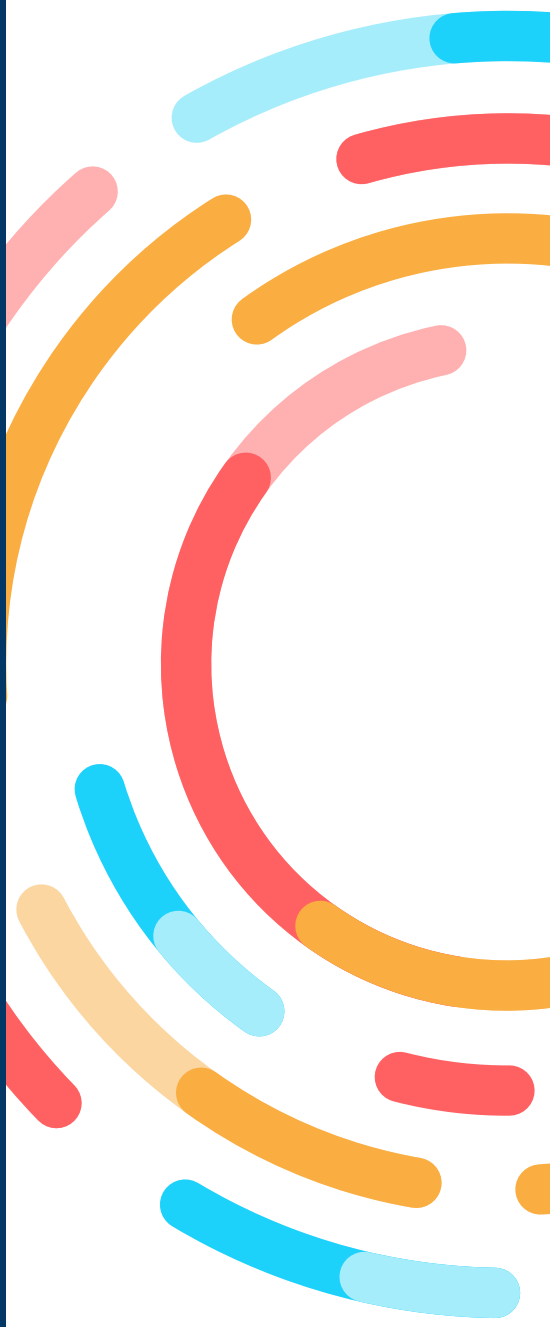
INTRODUCTION

It's been endlessly stated - the volume of healthcare data continues to grow exponentially with no signs of slowing. For life sciences organizations, the demand for rapid analytics to generate insights from this wealth of data has only grown in an increasingly competitive market. The increased focus from regulatory agencies, drug price scrutiny from the public and the havoc wreaked by COVID-19 are among many factors contributing to the need for effective real-world data (RWD) analytics to improve therapies and interventions.

Thus, it is critical for life sciences organizations to continually assess their teams and processes to best identify how they can continually refine and optimize their analytics function.

Optimizing the data analytics function can help organizations improve their workflow and reduce the time and cost that goes into gathering better insights. To do this successfully, organizations need to have the right kinds of data, clear communication and visibility across teams, as well as effective tools to help generate novel, impactful insights.



This white paper will cover three key elements to optimizing analytics for your organization:

1. Leveraging machine learning for predictive analyses
2. Selecting the right analytics tools
3. Improving analytics team efficiency

By considering these three areas, organizations can optimize their analytics effectively and take their productivity and insights to the next level.

CHAPTER ONE

Machine Learning

As healthcare data continues to grow in volume and complexity, it's important to choose the right data sources and technology based on the goals of the analysis and the variables necessary for the analysis. For example, traditional methods such as logistic regression are useful for identifying relationships in data, but are less useful in identifying important relationships when applied to extremely large datasets with hundreds of variables. That's where the power of machine learning (ML) plays a key role.

Machine Learning

Machine learning is a powerful tool in the analytics toolbox. Statistical methods have a long-standing focus on inference, achieved through creating and fitting a project-specific probability model. Traditional models also have rigid assumptions about the data that make it difficult to find complex relationships and associations. Alternatively, machine learning concentrates on prediction, by using general purpose learning algorithms to find patterns in often rich and unwieldy data with minimal assumptions.

ML can offer organizations many benefits that can improve analyses for initiatives like product development and launch, understanding patient populations, determining unmet medical needs, predicting patient outcomes or disease recurrence and scrutinizing real-world drug performance. ML methodologies are well-suited for large, clinically-rich data sets, where relationships between the data can be highly nonlinear and complex. Essentially, ML approaches learn the patterns in data and make little to no assumptions about the data generating processes.

Common sources of healthcare data include:

- Electronic health records
- Medical claims and billing activity
- Patient-generated data (in-home, mobile services and social media)
- Data pools collected by public sector, not-for-profit and commercial organizations
- Administrative claims
- Registry data
- Integrated data
- Wearable devices
- Clinical trial data
- Synthetic data

COMBINING THE POWER OF MACHINE LEARNING WITH TRADITIONAL ANALYTICS

Easily train, validate and test models against multiple datasets to generate new findings in one single environment

Execute modern statistical and machine learning techniques with healthcare data to drive product success

Produce novel insights through a closed-loop, customized modeling solution

Leverage real-world data to answer your most pressing questions and develop more accurate predictions

Machine learning tools leverage predictive analyses in order to identify the best, most effective model for your study. To get the right kind of predictive analyses, you need to run many experiments to find the right predictive model. That's where augmenting traditional models with advanced tools like ML can help optimize your analytics workflow.

Once a model is identified, you can run a myriad of studies, such as those that can make estimations on clinical outcomes. Being able to predict future outcomes provides the ability to make clinical, safety and business decisions sooner which can have a significant impact on your business.

Questions to consider

1. Is your organization augmenting your traditional analytics with machine learning or other predictive analytics?
2. What is your long-term data strategy and how does machine learning fit in to it?
3. How important is it to move seamlessly between traditional analysis and machine learning in one platform?

CHAPTER TWO

Selecting the Right Tools

As stated in Chapter One, advanced tools like machine learning are advantageous when analyzing large datasets and can offer a predictive lens. So, it's important to assess your current tools and what you will need in the future. Take note of where your analytics function is now and think about where it is you want to be in one to two years. What does your organization want to be able to achieve? As your team grows, you will need an analytics tool that can grow *with* your team.

When choosing an analytics tool, there are three crucial areas to consider: speed, transparency, and reproducibility.

Speed

You want your tool to be able to cut down data preparation time by minimizing data wrangling. Instead of juggling multiple platforms, having one central platform can help save time and costs in streamlining your workflow. The tool should also be scalable, meaning minimal programming that allows staff with both tech and non-tech backgrounds to analyze data more quickly. This helps organizations scale their analytics teams.

Transparency

Evidence-based decisions require the highest levels of validation and transparency. Whether the project is implementing a protocol or viewing unique subpopulations in a dashboard, it is critical to provide defensible and accurate interpretations of results. Transparency requires a clear description of methods used to obtain results and an explanation of how evidence was generated. Choose a tool that provides results that you can understand, explain and defend.

Reproducibility

Reproducible research is when researchers or analysts can recreate analytic cohorts and gather the same findings by applying the same design and operational choices to the same large healthcare data source. An optimized analytics function requires a tool with built-in functionality for collaboration, quality control and documentation. This allows teams to define processes that can be reused and enable project shareability, making the research results much easier to reproduce.

Questions to consider

1. Is your team currently using an analytics tool that allows you to easily scale?
2. What are your most pressing analytics needs today and how will they change next year or 5 years from now?
3. What are the obstacles to overcome in order to meet your analysis goals?

CHAPTER THREE

Improving Analytics Team Efficiency

While having the right tools and process is key to optimizing your analytics workflow, it's equally as important to increase the awareness of your team's skillsets throughout the organization so analytic efficiencies can be further leveraged.

Increasing awareness of analytics capabilities across functional groups will provide additional opportunities to conduct analyses internally and increase efficiencies. Given the scarcity of data analysts, leveraging such expertise would increase accessibility to data and the advanced tool. Having an interconnected team that can maximize its skillset via communications is important. Leveraging an effective analytics tool enables ease of sharing and use across the organization, making it a critical element in improving efficiencies.

Dismantling Data Silos

Building a stronger, wider team internally takes good communication and transparency. Instead of having data silos within an organization, one approach to optimizing analytics is to democratize data wherever possible. This helps to better utilize data that may otherwise be left untouched or unused. By highlighting all areas of the organization, you're empowering your teams to leverage that data to generate more insights.

Training and Certification on Tools

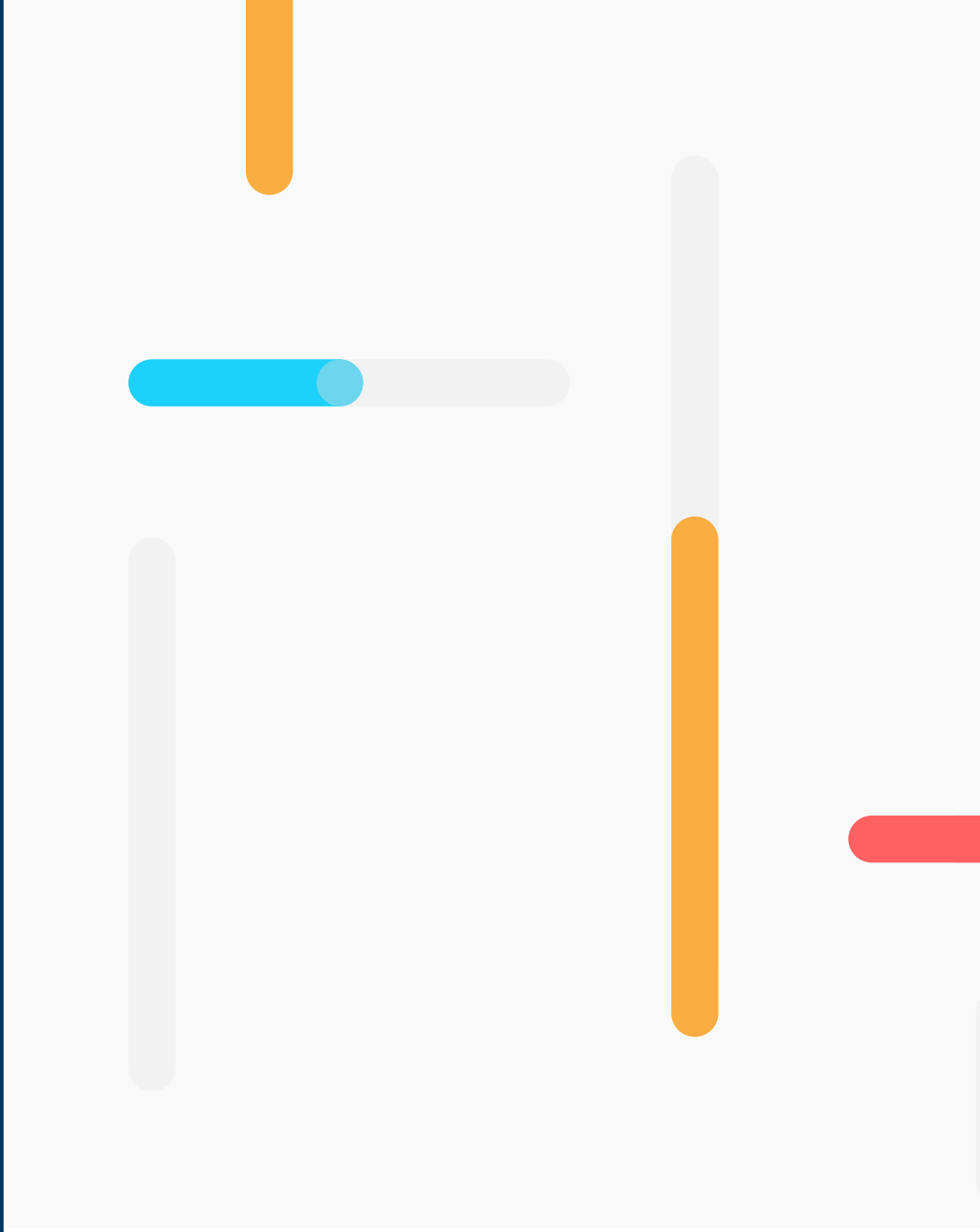
Organizations can also maintain employee engagement by offering more sophisticated programs that allow them to become more proficient in tools. Training and certification programs incentivize team members to grow in core competencies and encourage learning. This cuts down in process inefficiencies. By continuing to train your people on tools and processes, you're building a stronger and more effective team.

Questions to consider

1. Are you challenged with finding enough analysts for the insights demand?
2. Do your current tools allow for seamless collaboration and communication across the organization?
3. Are you getting the return on investment you want for your data spend?

CONCLUSION

An optimized analytics function in an organization is efficient, maintains accuracy, harnesses and leverages new kinds of technology and remains forward-thinking. By leveraging the right tools for current data sources, implementing an effective tool strategy and streamlining communications across teams, you can begin to optimize your analytics and make your data analytics more efficient.



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Panalgo provides software that streamlines healthcare data analytics by removing complex programming from the equation. Our Instant Health Data (IHD) platform empowers teams to generate and share trustworthy results faster, enabling more impactful decisions. To learn more visit us at www.panalgo.com

IHD can help optimize your analytics capabilities while allowing you to seamlessly integrate machine learning into your workflow.

To schedule a demo click here.