

It's a Marathon, Not a Sprint:

A FOUR-PHASED APPROACH TO LONG-TERM VISUALIZATION PLANNING FOR HEALTHCARE DATA ANALYTICS

A WHITEPAPER FOR HEALTHCARE DATA PROFESSIONALS

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About Practical Data Solutions

We have one simple goal: to enable clients to use their data to continually improve performance and enhance the financial success of the organization. You can't manage what you can't measure. From turnkey cloud analytics to custom data mart design, our proven ROI methodologies have helped shape the healthcare data analytics industry for over 20 years.

Introduction

In a time of unprecedented data collection flowing through an invisible, online superhighway, technological advancement is driving rapid software upgrades and the ability to process billions of bits of data in fractions of a second. Folders and paper charts in medical exam rooms have long been replaced by laptops and tablets running state-of-the-art software that records your every sneeze. Now what?

Collecting data is a bit like collecting Lego blocks. You have containers full of the colorful pieces, but what would you prefer to look at, a mish-mash of plastic, or a beautifully crafted model built with those thoughtfully collected blocks? We all can agree that healthcare data, like building blocks, is best viewed and understood visually.

Those who are experienced in the hobby of building models with blocks will tell you that when you first begin, it is better to start with a project containing 50 pieces or less rather than going immediately for the 10,000-piece mega model. Over-eagerness tends to make the novice attempt a leap that is too great, and this can lead the builder down a road of frustration... that most likely ends at incompleteness.

Are Electronic Health Record and billing systems overpromising - and underdelivering - their built-in "State-of-the-Art" analytics solutions?

So why do healthcare organizations try to make giant leaps in the world of data analytics? Are Electronic Health Record and billing systems overpromising - and underdelivering - their built-in "State-of-the-Art" analytics packages and ease of data access, modeling, and visualization? Most major analytics vendors boast about building dashboards with just a few simple mouse clicks, but is this leading to unrealistic expectations and slowing down effective progress towards useful reporting, visualized insights, and solutions?

In the age of I want it, and I want it *now*, it is worth considering that when healthcare organizations begin to tackle analyzing their data through effective visualizations to improve performance and the bottom line, they may be starting with the following false assumptions:

1. We *need* access to all of our data...now.
2. We *can* access all of our data...now.
3. It is *simple* to combine data from our different software systems.
4. An enterprise data warehouse will solve *all* of our problems.
5. We do not have time to start where we are and grow towards our bigger goals; we want it all *now*.

In the world of healthcare data analytics, the need for modern, useful visualizations of collected data has never been greater, and embracing big picture, long-term goals, including building an enterprise data warehouse, is crucial. However, what is often missed is the opportunity to achieve financial and performance improvement *along the way* to those long-term goals. Thinking long-term does not mean we cannot get answers that produce positive results quickly *now*.

Our years of experience have shown us – over and over – that strategic reporting, analytics, and visualization efforts, done in incremental phases, can reveal return on investment (ROI) opportunities every step of the way. In this paper, we break down the process of long-term data visualization planning into a four-phased approach. This strategy encourages healthcare organizations to uncover useful, accessible answers quickly, and then to incrementally approach modeling the more complex data that will lead to deeper insights and sustainable results. Steady, continual progress is the goal.

Organizations that embrace this four-phased approach reap the benefits of Phases 1, 2, and 3 while paving the way financially to Phase 4 (robust data-modeling) - which becomes the next logical step, as opposed to a giant leap.



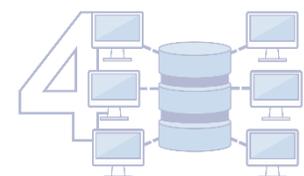
Phase 1: What is the business problem we are trying to solve?

A primary goal of data analytics is to answer critical questions to monitor or improve the performance and financial success of an organization. Reports and dashboards can visually track, analyze, and display Key Performance Indicators (KPIs), metrics, and critical data points to assist in focused improvement efforts. Phase 1 is the time to understand what the organization's specific challenges are and to identify the corresponding business questions needing answers to move forward successfully.

Without a clear set of intentions, it is not possible to begin putting the pieces together.

Effective reporting and visualizations can uncover opportunities to better a healthcare organization's bottom-line and efficiency in ways never imagined before the birth of analytics. There can be a rapid return on investment when analytics and visualizations are used to improve areas such as Revenue Cycle, Patient Access, and Provider Productivity. However, no matter what the area of focus, it is critical to define the relevant goals for improvement.

It may not be evident in this phase whether the data that answers the most challenging of concerns is accessible now. Nevertheless, without a clear set of intentions, it is not possible to begin putting the pieces together.



Phase 2: What data can we realistically access and analyze *now*?

Once you understand what you are trying to accomplish, it is time to seek out the data and metrics that will give the organization the greatest ROI *now*, being wise not to reach for the proverbial 10,000-piece model at this point.

Organizations today utilize a variety of electronic systems, from health records to billing and scheduling applications, to accounting and payroll, which all contain key data. In a perfect world, these systems would communicate seamlessly, with data effortlessly flowing from one vendor's system to another. But in the real world, data from different applications is staged in a variety of ways – and in most cases – not all of a healthcare organization's data is easily accessible or able to be analyzed early in the process.

Because of this issue, an important part of Phase 2 is finding useful metrics that line up with data that *can* be accessed in the short-term. This allows the organization to take affordable, incremental steps towards an ROI – rather than using a vast amount of resources that try and do it "all" on the first try. It's a marathon, not a sprint.

With valuable metrics identified, it is time to model an attainable set of real data in a software tool like Microsoft Excel. Prototyping with real data means you can test your reporting and dashboards on a subset of actual end-users, creating an atmosphere of collaboration and the potential for enhanced creativity.

It is critical to take the time to test and refine the perspective you are taking with your data.

Gaining access to data, however, is only part of the solution. During this phase, it is critical to take the time to test and refine the *perspective* you are taking with your data – are you asking appropriate questions, and are they producing actionable results? By using live data and involving the end-user, the opportunity is there to access practical knowledge and assistance in the fine-tuning of your analysis, reporting, and dashboard visualizations.



Phase 3: Ready for enhanced visualization tools and data modeling

Much like creating a great piece of art, data visualization – although scientific and information-driven – is a creative process and, by its nature, iterative. Phase 3 is the period where an organization has had repeated success with Phases 1 and 2 and is prepared to make enhanced improvements. Fundamental BI questions have been answered and expanded upon, and beneficial results are apparent, including streamlined Excel reporting with measurable financial returns and efficiency improvements.

It is about hitting the mark for what is genuinely needed by information consumers.

In Phase 3, although the organization is not at the stage of a full-blown drill-to-detail data warehouse, it is prepared to grow beyond the pilot programs and provide automation to its analytics process within the limitations of time, data access abilities, and fiscal budget. The organization can now provide key metrics to a wider audience using more advanced visualization and analytics tools such as Tableau, PowerBI, Qlik, or MicroStrategy.

With the introduction of automation with more powerful tools, testing can ensure that you are getting the *actionable* results you need before making additional investments in software, training, and time. Phase 3 is an opportunity to make sure you are hitting the mark for what is genuinely needed by information consumers.

Once the organization is receiving the performance improvements and financial benefits from its incremental approach to data analytics and long-term visualization planning, you are ready to move on to an even more complex data-warehouse design.



Phase 4: Ready for robust data modeling and drill-down analytics

When a healthcare organization follows an incremental, phased approach to visualization planning – and benefits from each phase – an enterprise data warehouse will be the ultimate logical and affordable next step for the business.

A robust data warehouse built from the ground up will support a long-term strategy for continual growth and improvement.

Although you will be using enterprise tools for enhanced visualization and analysis in Phase 3, summarized and non-blended data can only get an organization so far. Phase 4 will support building a robust data warehouse from the ground up to support a long-term strategy for continual growth and improvement.

Database expert Ralph Kimball's "data mart" approach is ideal for this stage of an organization's data modeling and analytics efforts. Data mart design promotes the user's ability to slice, dice, and drill-down to the detailed data instead of only having access to summarized or non-blended data. It is the drill-down that fosters the ability to find solutions – in a few clicks – to important business questions that could not be answered previously or understood at the granular level. In this phase, your metrics and KPIs will be extendable to all your future reports and visualizations – not just the basic projects you started during Phase 1.



Conclusion

The longest of journeys begins with a single step. Reporting and visualizations created using a four-phased approach encourages collaboration, iteration, and continual improvement, which is at the heart of our data visualization philosophy. Our client success stories inspire us. Using a phased approach to long-term visualization planning and success is just one-way healthcare organizations can benefit from practical methodologies and best-practice management techniques.

For more information about Practical Data Solutions, or to request an online demo of our tools, visit our website at www.pds-online.com.



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