

The Third Epoch in Data Analysis

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The goal of analysis is to see more data from more places, and understand it so you can socialize a holistic view across the business. The organizations that do this execute on better ideas to tackle business problems and maximize opportunities.

For analytics to thrive and grow across an organization, decision-makers must gain confidence in the data before they take action and should be able to actively socialize their opinions with their peers. Once they see the data and analysis in a way that reconciles with their first-hand experience of the situation, then they can trust in the insights uncovered.

In the past, confidence in an analysis meant wrangling data from different sources into shape, applying fancy predictive models, and spending weeks or even months to obtain an answer. Ultimately it meant access to and trust in experts. The new world of analytics for everyone will bring together different teams, each carrying different perspectives on the business and empower them to use big data and analysis to revolutionize how organizations are run.

The push towards data-driven decisions means that executives, managers and employees across all skill levels need to be able to quickly access their data and insights. These are smart people, but analytics is not their full-time focus. As consumers, they have used data-driven recommendations on Google, Amazon, and Netflix. They wonder "Why can't I understand or even answer a new business question in just a few minutes?" The answer is that they should be able to use more data from more sources to easily investigate and begin finding answers to their questions.

Easy access to more data, quick answers to questions and rapid sharing of information

Today's business users are baffled as to why direct access to organizational and external data is still so difficult and time-consuming, and would like to access their data pain-free. They want to analyze their data iteratively and on the spot to explain the ever-changing dynamics of their business. They want to better interact with advanced analyst teams and domain experts that are knowledgeable about their own lines of business.

Unfortunately, data scientists and business intelligence teams are overloaded, backlogged and understaffed relative to the standard number of questions that arise every day in the real world. The real-world of business and diverse data sources is messy and confusing. It's even more so without the business experience and institutional knowledge of your colleagues. Most of you have seen how data, even of high quality, can lead you astray without contextual knowledge of the business.

This is crucial: Analysis is more than just data and statistics. A constantly changing world affects business data. New vendors, systems, customers, products, competitors and more all create more data and change how data is most effectively used in decision-making. Using more sources of data to confirm assumptions from multiple angles and comparing the story that the data is telling with business intuition from leaders in the business, creates confidence in decisions and achieves results through a common data-driven language for decision making. This proves invaluable to the quality and confidence of analytic findings.

Seeing what's important, sharing it, and involving others in discovery

Seeing what's important quickly enough to be relevant, communicating with others and sharing a common experience as a group is what makes us unique... and human. These activities have been critical to society and our ability to describe new possibilities. When things get complex, as is the case with ever-increasing volume and variety of data, these activities become even more critical. Understanding how past communication technologies have evolved can inform us about what the future of analytic conversations could look like.

Effective analytics should incorporate each of these core human activities as a natural part of the process. Analytic communication requires creating a clear picture your data, sharing results in writing and becoming confident enough to discuss the latest findings and recommendations. The evolution of products that support this common language of analysis is likely to be similar to the evolution of other communications technologies- technologies that have evolved through three major waves of refinement or epochs.

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The first epoch –

Although the first version of an original invention opens a whole new world of possibilities by the very nature of the innovation, it is often expensive, prone to failure, high-maintenance, slow, bulky and requires extensive training or intervention. A key trait of first epoch inventions is the necessity of expert attention to properly operate the system. Without them, the system is inoperable or delivers extremely poor results.

The second epoch –

Each invention eventually evolves into a friendlier, more reliable form that transformed how these tools were used. The second wave is often characterized by greater reliability, improved portability, convenience and higher quality in shorter time. Often, these systems were convenient enough for regular people with adequate training and access to reference materials.

The third epoch –

The invention becomes simple to operate, fast, friendly and affordable on a per person basis. Third epoch products become embedded into everyday life and often enable entirely new applications that are unforeseen by the original first epoch inventors. They are used daily, center on ease and convenience while delivering higher value, utility and excitement to the typical user.

Application diversity, made simple - So everyone can use it

First



Invented in 1876, early phones were simply about making a connection. Access was of modest reliability and low quality over long distances. Early phones required the constant intervention of operators, and frequent assistance was necessary for the next 100 years.

Second



The inventor shows the relative meaning of "mobile" as he holds the first handheld mobile phone from 1973. The age of portable communications was starting! In 1989, the Motorola Micro Tac 9800 was only \$5,600 (today's dollars). Able to fit in a pocket or purse, handheld demand skyrocketed.

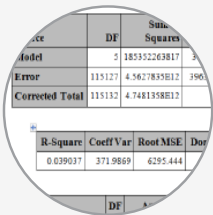
Third



Emphasizing simplicity and a diversity of applications, the 2007 iPhone from Apple inspired regular consumers to switch from a cell to a smart phone. The iPhone made a diverse set of applications work on a single device, and to do so they had to evolve a new platform to seamlessly present a simple interface to the user.

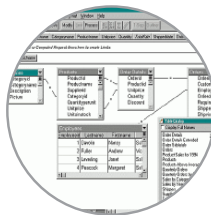
Data diversity, made simple – So everyone can participate

First



Aimed at statisticians and scientists in the 1960's, analytic software pioneers allowed users to obtain analysis results in weeks rather than months or years. These powerful tools have kept up with the times and are used extensively today.

Second



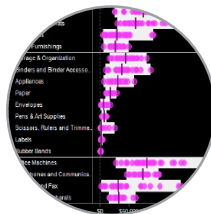
In 1990, data became more accessible to business analysts due to the incorporation of the visual data interface, the invention of pivot tables and ad-hoc reporting of complex data sources.

Third

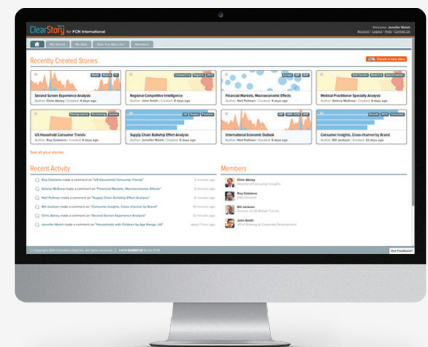
"Data is dispersed across many sources. Why can't I just easily access these disparate sources, explore trends across this data in minutes? Why can't I discover more valuable data in the process? This epoch should complement first and second epoch products."



Early on these tools required a massive financial investment as well as teams of technologists and were built on mainframes.



Later in the 2000s, interactive graphs became the primary means of seeing data, rather than reports. This epoch resulted in the exploding field of visual analytics.



Profound insights spring from rapid socialization and interaction to allow for iteration of team insights. Sharing findings and incorporating responses is integral.

All the data, immediate insights and the power of sharing

As new technologies arise, the first epoch often requires in-depth knowledge of the topic, product, and/or direct assistance from people with this knowledge. In the case of analytic tools, this means extensive data expertise. This is not surprising. However, as wider audiences seek to take advantage of first wave products, an evolution occurs with improvements in flexibility, direct access without expert help and applications across a broader range of situations— and this becomes the second epoch. The third epoch arrives to include regular people to utilize the product within their daily lives, often becoming a natural part of the day. Third epoch products can be used with minimal planning in modest amounts of time. The resulting productivity is higher, and using the product is enjoyable, exciting and even addictive.

Third-epoch analytic technologies won't be a replacement for technologies in the first or second epochs—we still use them on a daily basis and find them powerful and invaluable. Rather, they act as a vital supplement to these tools and techniques. Most agree that easy access to business data is critical to better decision-making, yet many organizations are faced with an overloaded IT department, a shortage of experienced analysts and a desire for immediate access to a wide variety of data sources for rapid review and guidance. The third epoch of analytics will reshape how quickly data is used and understood in organizations, and will enable faster data-driven decisions.

Third epoch analytic technologies will enable immediate access to all the relevant data sources for a question. With minimal intervention from expert teams, business people will be able to rapidly explore these sources using simple techniques and share their experiences in near real-time. Third epoch technologies will enhance the effectiveness of analytic teams as business context about the data, the insight and the conclusions will be widely disseminated, debated and socialized across the organization. Interpretation of outcomes becomes easier. Data analysis becomes a continuous cycle with new information quickly added. And the strategic nature of work by advanced analyst teams should improve as they are freed from frequent, repeated requests that aren't necessarily the core focus of these expert teams.

The dawn of these newer capabilities will radically improve and expand the scope of data usage, likely in ways not yet anticipated. Big data becomes easily consumed and leveraged faster to improve the business. The third wave of access to data and speed of insights will likely change the demands made on analytic teams as a wider range of people will value these results and offer valuable context about the data to these teams. The third epoch, in short, will greatly expand the shared experience of diverse data and faster answers through every part of an organization.

The third epoch of analytics will reshape how quickly data is used and understood in organizations, and will enable faster data-driven decisions.

About the authors

Stephen McDaniel is Chief Data Officer Advisor at Freakalytics, LLC. He advises Chief Data Officers and CIO's on how to develop and implement successful strategies for all aspects of data utilization, from collection to integration to storage to effective analytics that lead to greater profits and happier customers. Stephen also is an experienced author and educator, teaching thousands of students around the world how to leverage valuable insights from their data, offering public and on-site training workshops.

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Please visit Stephen and Eileen at Freakalytics.com

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