The Next 3 Years in Big Data Are Coming Into Focus

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Much investment in Big Data has been wasted, or has amounted to circling the data silo wagons so far. Based on recent research and practice, here is a look at key paradigms that will shape the coming years of Big Data success:

PART 1 will cover the flexible mix of technology and people skills needed.

PART 2 will spell out the need for highly relevant solutions, predicated on the very specific needs of decision makers within particular contexts.

PART 1
Data-Driven Business – Not so Fast

Unless you have the next years already figured out, you will be like just about everyone else meeting at events or avidly reading reports, confronted with much more uncertainty about how the current Big Data market phase is going to play out than reliable analysis. There remains a plethora of technologies, providers, architectures, business models, and plenty of opinions on each.

We all want the data-driven insights and clear predictions of the future, so why is it so hard to read the tealeaves on how the whole Big Data market is going to play out? Sure, there are the reliable subthemes visualization, Master Data Management, Data Lake and Cloud, but overall even after 7 years (going by the term being used more broadly) most predictions are still about as sharp as the oracles of the Greeks on Mt. Olympus. Fondly we can look back at "multimedia", "3-tier client server", "ERP", "e-commerce", "service-oriented architectures", "mobile" and of course "cloud" as having formative substance - at least these were clear-cut (hype) cycles, the good old days.

Now, finally, a series of reports from the industry analyst firm Forrester takes us far forward in understanding the near-term, perhaps even long-term journey, especially in view of large enterprises with their complex data and analytics needs – smaller companies can more easily follow the reigning paradigm, and adopt (and be stuck with) the one cloud, the one platform, the one provider. Large enterprises never had that luxury, they always knew that to differentiate themselves, to be able to leverage their scale, they would need to build out a diversity of IT system landscapes and architectures. They would also not be able to move with speed off of one platform and onto another – many still have systems that are decades old.

Why Does Big Data Remain So Hard?

It's not just the confluence of many larger trends at the same time, the simultaneous heterogeneity of IT adoption that is massively challenging large companies. Overall it's the need to accelerate to the speed of business, as business is forever unfolding and adjusting to environmental, regulatory or competitive shifts. The point is sufficiently made, it is greatly underscored by e.g. larger technology adoption trends as collated by Mary Meeker: consumers and businesses are on the move, the world is changing in front of our eyes, the dichotomy between using the new Big Data opportunities or missing out is extremely accentuated.

So it's not the issue whether you are on the cloud or not. Or whether you are engaging your audiences in an integrated way across devices and media. Or whether you are able to listen to your customers on social media, or learn from their behaviors through their movements through the store or internet. The issue really is empowering business imperatives with underlying technological complexity at speed:

- Even after much progress with applications and other capabilities provided as a service, much of business is still not sufficiently tied into the architecting and building of capability. Projects too often are driven by a singular new technology, whereas in the world we are living different novel questions will keep arising that will demand a combination of technologies to solve. You can't plan the next 5 years, so how can you tie yourself to one particular new technology?

- Big Data is not one technology, one platform, a set of new sources of data. It really is about the plumbing, about being able to construct the data supply chain from sourcing it, digesting it and combining it for the specific business context – at speed. Building out these capabilities goes back to age-old questions of storage, connections, performance, logical joins and data quality. Many business users never see any of this, but they readily understand that these topics are not trivial.

- Over the last 50 years many capabilities have been established that have to be brought along into the future.

So there is not the one silver bullet technology, the one large provider to solve this, which is not all that surprising, there wasn't one in the past either. The internalizing of new technologies will also as always happen at the speed of innovation that these kinds of organizations can digest. So what should the adoption of Big Data technologies look like?

The Right Way To Think of What is Needed

As mentioned, a great outline is now provided by Forrester in the report "Insight Platforms Accelerate Digital Transformation" (in the updated version of May 2nd 2016, earlier reports on "Systems of Insight" go back to April 2015). Here the important aspects of connecting data to action through an Insights Platform are addressed, and steps outlined to get there (a further companion report spells out the benefits of such an approach "The Insights-Driven Business", July 27th 2016). Key commonalities with Saama's approach of Fluid Analytics are the same sense of the challenge driven by large enterprise complexity exacerbated with the need for business speed, suggesting a flexible "information fabric" to connect data, insights and action.

Beyond the Forrester analysis and more generic observations, the following attempts to spell out the main tenets as we have learned them across thousands of advanced data and analytics engagements, to better move forward in the years ahead. It is a model that has evolved over the 19 years of Saama existence predicated on only focusing on data and analytics projects, while being responsible for the last mile success of each one.

No More Platforms

As above, Big Data success is not about one technology or one more project. As software died with SaaS, so the platforms have now died with the inherent openness and changing nature of Big Data – in some ways a term that has taken on the meaning of "changes needed now". Sure, large amounts of data need automation, but always with a focus on results, the business speed demands flexibility, and the flexibility can only be the result of an ongoing orchestration of people, data and processes. It can't be said strongly enough – any notion of a static approach to Big Data leads in the wrong directoin. Of course much can be done lower in the stack to acquire and manage all necessary data and data consolidations, but it is illusory to think that the right data pipes could be designed and implemented once for the next 5 years. No, the optimization today has to happen on the business, not the IT level. And it has to be continuous.

Separation of Design and Runtime

So large companies can't use one platform for all their needs, can't go onto one cloud (Salesforce, Birst etc), as the speed of change and complexity of the overall landscape is too high. Then how is it possible to build out an "information fabric" (Forrester) that provides the necessary plumbing with the requisite strength and flexibility needed? In working with customers through thousands of projects we have become attuned to needed to separate design from the runtime, allowing business to articulate and explore what data and analytics it needs without immediately being confronted with current IT realities. With this flexibility, often based on real data and interaction in Proof of Value implementations of 2-6 weeks, it is then possible to map desired business outcomes to data and analytics options, and continue with implementation and testing before something hits live status.

As such Saama has persisted key elements of this design, transition and live system into what we call the Fluid Analytics Engine, as a well-oiled combination of connecting and orchestrating data assets with a runtime engine. Beyond this infrastructure, industry- and scenario specific data & query models and visualizations are added as needed to fill in any gaps and complete the customer-specific systems of insight. The digital transformation flows from there, as then the business demand side can shape the data supply side over time to optimize impact.

Healthy Mix of Technology and Expertise

The key feature of this approach is the flexible combination of technology and human expertise – which will look very different depending on the project phase. At any time ideally it's taking the best that technology has to offer to maximize scale and minimize cost, and using people skills to work with the business to evolve the right questions, priorities and options. At the end everything needs to be integrated seamlessly, and needs to comply to enterprise-class benchmarks. Over time the entire company, starting from senior management, evolves into a top-heavy insights company, in the sense that business comes first, and has a consistent and continuous way to articulate demand.

Summary Part 1:
Pragmatism Rules

Digitally native companies had it easy, they could build their Big Data infrastructures from scratch to suit their specific value proposition. Just about all other large companies have much more legacy investments to leverage to establish their system(s) of insight – in other words: lots of hard work. The days of static platforms are over. Key industry analysts are embracing the power of the type of hybrid services and solutions approach that Saama is delivering to the market, as Saama is one of only four service providers included in the Forrester Insight Platforms Accelerate Digital Transformation report, "helping to build systems of insight, the business discipline and technology to harness insights and consistently turn data into action."

The Need for Highly Relevant Solutions

As was argued in the first part of this whitepaper, much of the effort invested into Big Data solutions has introduced new technology and new terminology, but has had little business impact to show for it. Here we continue to lay out how to this can be changed – not just that business comes first, but just how much more the necessary focus needs to reflect particular business roles that are tasked to win out any kind of analytics advantage. And with this focus, how this can point us to a golden age of data & analytics (Gartner: "plateau of productivity") through the next years.

For too long, the business model of the software companies has ruled the day, generalizing business and decision processes into what could be repeated for the largest number of customers. As Big Data asks for openness and an exploratory approach (data scientists!) while faced with an incredible complexity of systems and needs, standard business software and platforms are over. The move to the cloud has played a positive role by alleviating the need to run and maintain software or worry about storage, but essentially still provides standard scenarios and tools – which will always need to be the lowest common denominator so that the software companies can be profitable.

Relevance is Highly Subjective When Making Decisions

Human decision-making is subjective. Professionals are solving problems, or innovating processes or goods, or serving customers on a new basis every day. No two professionals are alike, so wouldn't the ideal data & analytics solution seek to be as personalized as possible? And be ready to change on a daily basis? It should, as part of an overall company framework that highlights this solution specificity while providing for data quality, security and governance. Here are the key dimensions by which each business role will always differ to the next:

Industry: People, processes and technologies obviously vary by industry, a look at the Standard Industrial Classification suffices, there are many, and they are quite different. Enough said.

Company: Unless they are start-ups, today's companies have years of IT investment to work with. Each organization is differently structured, and established processes and competitive advantages will always be unique.

Time: Seasonality has given way to notions of real-time business, with the speed of change reflecting as the economist von Hayek the "catalaxy" of constantly unfolding market conditions.

Market: Each region and audience comes with its own regulatory environment, partners, and competitors. We should now add the weather and environment as relevant parameters to the mix.

Business unit: Focus here is that business unit or the role performing a particular analysis or activity, which could be one person or a team, with a dynamic motivation, composition and skills. The resources and data available will vary along with objectives set. The ability to collaborate and assimilate and process information will likely be very unique.

What we are looking at then is supplying data & analytics solutions to micro-markets of users, with a granularity that goes way beyond what we would have called "customization" or "localization".

Bring the Technology Into the Realm of the Business Role

One-stop shop solutions have to be passé. If the age we are living in is not obviously moving so fast to negate the idea of a safe bet platform or software that will last more than a number of years, then the understanding of human decision-making should remove any hopes left. Highlighting the self-service abilities of some visualization platforms points in the right direction, but words like "democratization" are too broad to get to the bottom of the issue. Solutions and insights need to scale for sure, but the point made here is that going forward the quality of enablement of each business role will be the deciding factor in building out competitive edges going forward.

How? Involve Each Business Role

Each business role is it's own micro-market, and each one needs to be first understood and then served. As such the often employed Proof-of-Values (PoVs) or sandboxes need to be broken down to size. Often they come along as one scenario, e.g. fraud analytics in insurance. Now there should be multiple PoVs per region or business area.

Also, business needs will continue to evolve quickly, so processes should be in place to be able to reconfigure the available environment on an at least yearly basis – new data sources may be available, new correlations and insights possible.

The ongoing management of this demand and supply of data and analytics solutions may seem daunting, but many companies have started out creating Chief Digital Officer or Chief Data Officer positions and organizations, along with data & analytics Centers of Excellence. These roles can build out what are essentially innovation procedures that can help propel companies to completely new levels of continuous learning and business impact.

Summary Part 2:
Balance Between Framework and Specificity

Forrester's described Systems of Insight can strike the balance between the structure needed and the flexibility demanded by modern business. Platforms are out, orchestration is the order of the day. Speed and flexibility will win, as innovation cycles continue to be compressed. The winner will take all in our global access economy. Companies need to recognize that the right level to approach success is on that of each business role. They can establish organizational structures and processes to build in ongoing learning and innovation based on whatever data and analytics are available – starting now.

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