



**Hewlett Packard**  
Enterprise

Business white paper

# Discover your Big Data potential

Leverage a low-cost, low-risk analytic lab environment to realize Big Data benefits





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Innovation and differentiation are the keys to success across virtually all industries and segments. To drive innovation, organizations must accelerate their crucial time-to-insight cycle. Yet for many, the sheer volume and complexity of data and analytics—along with risk and cost of experimentation—may hinder the critical pursuit of innovation.

### **Data challenges are mounting**

Organizations and how they use technology are challenged to balance two opposing forces—those using technology to innovate and solve problems, and those in IT tasked to mind policies, security protocols, data governance, and industry compliance.

The motivations of each camp are equally valid; however, conflicts can have negative outcomes. For example, business units introduce technology platforms to support local teams because they perceive IT would take too long to facilitate requests.

It is essential to enable rapid innovative solutions across the organization—all while managing technology spend, reducing security risks, and minimizing data proliferation. And, to do this while meeting the organization's compliance and governance standards.

The benefits of a centralized approach to innovative, agile analytics go beyond risk and cost reduction. They result in knowledge sharing across the organization's units, which traditionally don't have much contact. Sharing data sets and analytical techniques can add value to solutions developed by other groups, creating collaborative environments, opportunities for innovation and lateral thought, and product and services improvement. All components positively affect your competitive positioning and company performance.

And, these opportunities are increasing with advancements in Big Data—with new data types available for analysis and new technologies, giving more functionality.

### **Enterprise experimental challenges**

Innovation is important and valuable, and forward-looking organizations naturally seek positive change. Yet, while many internally developed Big Data programs are successful, others may fail to deliver the results needed in competitive environments. Traditional IT environments aren't designed to manage the volume or complexity of Big Data, and few can handle the rapid idea-test-insight-innovation cycle.

Internal test departments may experiment with one or two test and analytic technologies, or various business units may run their own test environment. These ad hoc models lack a comprehensive lab-oriented platform or proactive management structure.

Less formal test environments can use various tools and methods that are inconsistently used, get different results, or are poorly optimized. And because they may be scattered around the organization, those assets are difficult to leverage and hard to control. Key personnel may be working in silos—hindering cross-pollination, knowledge sharing, and skill levels.



The bottom line: Big Data and analytics drive competitive advantages. To be a leader, organizations must find rapid, cost-effective ways to monetize their Big Data opportunities.

CIOs and other business leaders have specific data and analytic requirements. In discussions with key managers over the past year, Hewlett Packard Enterprise (HPE) learned most struggle to make the business case for Big Data analytic projects.

Company leaders want to enable business exploration and product innovations without added risk and costs. They seek to accelerate time-to-insights and leverage advanced data and analytic tools, with methods enabling them to propose and evaluate test cases relevant to their businesses.

Project barriers include finding skilled resources and selecting and deploying necessary technology to pursue innovation-oriented projects. Other usual obstacles are extended project time frames and costs.

With these challenges, more organizations now prefer service solutions for their data and analytic requirements over investing in traditional hardware and software infrastructure.

## A lab-based solution

Making better decisions—for products, services, and strategies—will separate the winners from the also-rans in a competitive environment.

For better decision-making, your organization must collect and manage vast amounts and varieties of data. Quickly and efficiently distilling it into meaningful insights. And transforming that intelligence into actions that yield positive and measurable outcomes.

This logical progression is recognized and understood by executive leaders. However, it's daunting to establish systems and capabilities to support this crucial process. Few organizations possess the specialized skills or technologies needed to explore and implement groundbreaking analytic and data projects.

The solution is an enterprise-class analytics and data laboratory environment. HPE created such a model—we call it the analytic lab.

## The analytic lab

The HPE analytic laboratory concept creates a center of excellence for analytic- and data-oriented projects, leveraging expertise and advanced technologies that reduce time, cost, and risk of experimentation.

The robust analytic lab environment is a platform with a mix of hardware and software technologies that can support an array of use-case scenarios. Our enterprise-class lab incorporates advanced analytic and database management capabilities, business intelligence (BI), Big Data analytics, and open source frameworks for distributed storage and processing of large data sets.

From experiences, the best way to gain value from the lab is to test high-value use cases in pilot projects. To do this, we assemble small teams of data scientists, data engineers, and industry subject-matter experts to work with various parts of an organization to identify high-value use cases for our pilot projects.

Our end-to-end methodology guides rapid exploration and value discovery from data-and analytics-related opportunities. This enables quicker successes and helps disqualify nonvalue oriented cases, reducing unnecessary investment in long-term projects. Figure 1 depicts a model for analytic discovery.

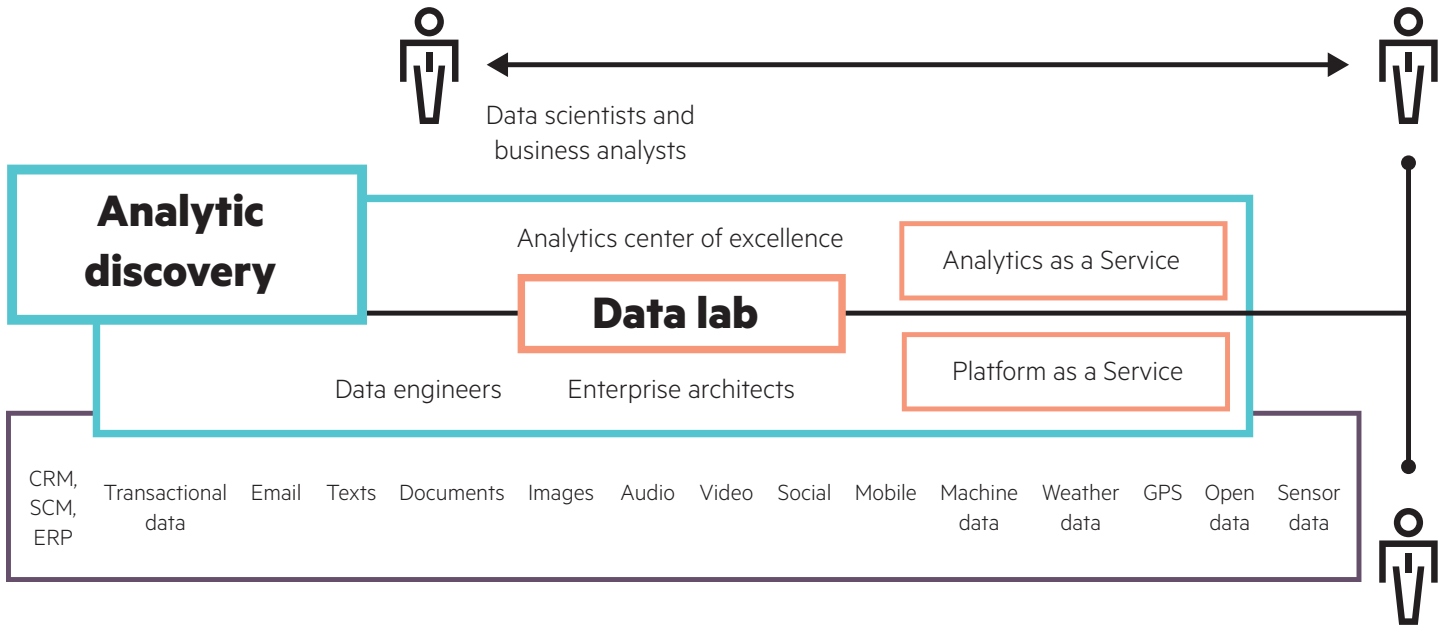


Figure 1: The analytic discovery approach

This approach provides a Big Data and analytics experimental center of excellence (COE) with a centralized location. This centralized location lets investigations happen from anywhere, and it's designed to drive innovation and value linked to key targets and performance objectives. Figure 1 depicts the basic elements of an enterprise-class analytical lab.

Proven methods for rapid solution piloting are used to reduce time-to-value for every analytics use case tested. This more formal, centralized-yet-agile model for using analytics and Big Data meets many challenges cited by CIOs and other leaders.

It encourages rapid and efficient identification, validation, and prioritization of outcome-based use cases. An analytic lab provides the skilled expertise needed to build use cases and leverages expertise across the entire organization.

This COE lab model also provides a formal structure for selecting and implementing a technology platform optimized for data and analytics research. Depending on budget and security needs, an environment like this could be deployed on-premises or as a cloud-based service.

When used correctly, this comprehensive analytics lab approach enables organizations to discover value, accelerate insights through rapid use-case pilots, and monetize Big Data opportunities.

### The analytic lab

Consider key analytic, Big Data, and delivery capabilities, including:

- Big Data software capable of handling the majority of possible business case scenarios
- A powerful, centralized analytics platform
- Flexible deployment alternatives—virtual private cloud, on-premises, and a Service for infrastructure, software, and platforms
- A technology-agnostic approach that protects existing investments in software licenses and infrastructure, and supports flexibility for future IT initiatives
- An existing and readily available library of use cases reflecting industry-specific and functional business scenarios
- The ability to handle huge volumes of data from a range of sources, including transactional data, logs and sensors, traditional software systems, images, audio and video, email, texts and messages, office productivity systems, social media, clickstream data, and more
- Workshop-style introductory methods to introduce business and IT leaders to the analytic lab environment
- A guided, end-to-end process designed to facilitate the exploration and discovery experience
- Clear steps to operationalize and monetize analytic and Big Data insights within the enterprise

## Analytic laboratory process

As envisioned by HPE, the analytic lab supports a logical process of discovery that spans the entire spectrum of experimental activities, from exploration to operational implementation.

1. Business understanding
2. Data understanding
3. Data preparation
4. Analytics modeling
5. Evaluation and reporting
6. Deployment

### Outcomes

Subsequent activities, including implementation of successful cases, are the natural continuation, and lab staffers will have in-depth experience.

### Ingestion

Structured and unstructured data is captured from a variety of organizational sources, including traditional enterprise application data, machine data, web content, telemetrics, intelligent networks, and elsewhere.

### Discovery

Results-oriented use cases are used to process data through robust analytics engines. This key step reveals patterns and insights, and often raises additional questions or experimental pathways. The discovery process is iterative and may continue for days or weeks, until all workable possibilities are exhausted and conclusions are reached.

### Results

This lab model is designed to:

- Implement wins rapidly, without heavy investments, and usually with adjustments in the process or business policy
- Validate use cases with a clear path to value; invite additional analysis and planning to develop and fund a resulting business case
- Reject use cases with a false hypothesis or poor value; prevent unnecessary investments

### Implement

Quick wins and validated use cases can enter a phased roadmap for deployment in the enterprise. When positive test outcomes yield promising results, formal methods are used to implement analytic and data projects in a production environment. A robust platform includes standardized processes, tools, and accelerators to support full deployment. And, the processes ensure complex business intelligence programs are implemented in a logical and structured way.

Efforts are supported by technical- and solution-based accelerators, including best practices and shared knowledge for faster deployments, better integration, and more seamless implementation processes.

## Benefits of this approach

Properly established and used, an analytic laboratory can provide a rapid, cost- and risk-effective means to conceive, test, and commercialize data-oriented initiatives. This lab-based approach can improve your business performance, speed time-to-innovation, and reduce the cost of experimentation.

**Modernizing**—Discovery-driven models encourage organizations to explore new BI and analytic possibilities and gain hands-on experience with potential new functions. By establishing a solid platform for experimentation, a lab invites creative thinking and problem-solving. This COE method can be closely integrated with existing enterprise systems, feeding various data sets directly into the lab or even virtually accessed from the lab platform.

**Speed-to-value**—Rapid plotting of use cases reduces pilot cycle times to as little as four to six weeks, streamlining the discovery process and accelerating project return on investment. Advanced analytic tools drive innovation, which supports competitive differentiation in product development, cost optimization, customer relationship management (CRM), predictive maintenance, and more.

**Reduced cost/risk**—Pilots with short sprint-oriented bursts and iterations demonstrate the success or failure of proposed initiatives. They separate weak prospects from strong project opportunities. That efficient process reduces time, cost, and risk of exploring analytics and data opportunities. Cloud-based analytic services provide subscription-based, operating expense lab services, reducing capital investment requirements. And, it makes the economics of experimentation more affordable and predictable.

The centralized approach lets organizations leverage lab-based skills and assets across various departments and business units. The analytic lab is advantageous for companies not fully using Big Data; it creates a standardized and proven platform for proposing, assessing, and monetizing first-time opportunities.

A shared, as-a-Service model provides access to the latest data and analytic tools, methods, and expertise at a fraction of the cost to build an internal lab environment. Leveraging a managed services model along with cloud deployment enables companies to scale experimentation up or down, quickly and easily, based on changing conditions.

This approach gives organizations multiple experimentation variations to its business units, while gaining expertise and economies of a centralized, permanent, or semi-permanent infrastructure. Forward-looking companies can leverage the analytic lab model to quickly solve complex problems, improve analytic performance, and outpace their competition in the vital race to innovation.

## Partner considerations

When you evaluate potential analytic lab partners, seek allies that support strong alignment between business needs and IT capabilities. Any possible solution should incorporate rich analytic and data management functions, strong BI, and established frameworks for storing and processing exceptionally large, complex data sets.

An ideal lab solution enables rapid start-up for experienced Big Data users and those still learning. The environment must incorporate a mature platform, advanced tools and methods, and the expertise needed to deliver measurable results. And, it should support new, innovative technologies that support specific cases from the organization, remaining flexible for hosted technologies, such as on-premises or from Cloud as a Service.

Look for an approach that encourages the introduction of additional technologies preferred by business units using the lab, or to support specific new functional requirements. Designed to let groups from across the organization or their third-party partners execute projects on the platform, which is supported by the lab team.

## The time is now

Innovation drives success, or failure, in the enterprise marketplace. And for many organizations, their ability to innovate will depend on how well they understand and use analytics and Big Data.

A well-structured lab provides your organization with a proven, low-risk way to explore, assess, and monetize data-oriented innovations.

## About the author

Gareth Martin, HPE, Big Data Analytics Lead, has 10-plus years of experience working in the BI and analytics space. Gareth leads a portfolio with substantial data science and advanced analytics capabilities, including analytic advisory consulting. His team is focused on cutting-edge use of analytics to change how clients drive innovation, efficiency, customer engagement, risk reduction, and more. And as one of industry's best practices leaders, we embed solutions in client operations—moving from investigative analytics to real, embedded analytics that drive businesses forward.



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