Digital Performance Enablement

Data Science's Business Imperative

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September 2016

A research report prepared by:

ISG Insights™

Publication Sponsored by:

r4™ Data Science for Business™

Agenda

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The research and analysis presented in this report include findings from ongoing ISG Insights research programs, including our global survey and interview work with business and IT leaders, briefings with providers and analysis of publically available market information from multiple sources.

The publication of this report was funded by r4 Technologies.

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Introduction

Today's enterprises have more data, more technology and more automation than ever. They use highly functional and expansive enterprise applications for sales, marketing, customer services, finance, human resources, operations, logistics and more. So we should be seeing vast improvements in business outcomes, including productivity, revenue growth and cost optimization – but we are not. In fact, all the money spent on IT sometimes seems to hamper progress as enterprises grapple with how new tools can help identify business opportunities and generate profits.

Enter Digital Business, which requires enterprises to speed up operations and reduce overhead.

Business is mobile and impatient. Customers expect immediate service and response. Inventory is always moving. Prices fluctuate by the minute. Communication is rapid and transparent. The best decisions rely on data from multiple sources inside and outside the enterprise. Yet most enterprises remain hamstrung by dated organizational structures and supporting IT systems that prop up silos of data and expertise with business workflows that worked in yesterday's market realities but were not designed for today's.

This research report builds on work by ISG Insights to explain how and why Digital Performance Enablement (DPE) helps businesses find, understand and profit from the increasingly large and complex volume f data that may otherwise threaten to stall current operations and forestall future opportunities.

Business Improvement via Rapid Discovery and Action

What is needed – and is now emerging – is a new category of technology that focuses on finding opportunity from data to rapidly improve business outcomes. ISG Insights research indicates that enterprises can improve outcomes by discovering and pinpointing new opportunities and productivity improvements using the latest capabilities in data science. These capabilities learn about and discover business opportunity by exploring the data silos of the enterprise and publicly accessible market data.

DPE provides key capabilities for business leaders: opportunity discovery, prescriptive guidance and recommendations, with linkages to the IT systems of record to execute on market opportunity.

DPE operates across spectrums of data hidden within and across compartmentalized enterprise data stores, as well as external market data that too often is missing or not considered when making business decisions.

Enterprises using DPE automate business decision-making and business control across the operational functions, finding the elusive, unseen, and unknown segments of opportunity.

"When you're trying to solve business problems – not staring at data to see what it says – data science, Big Data, and analytics become tools for growth and profit."

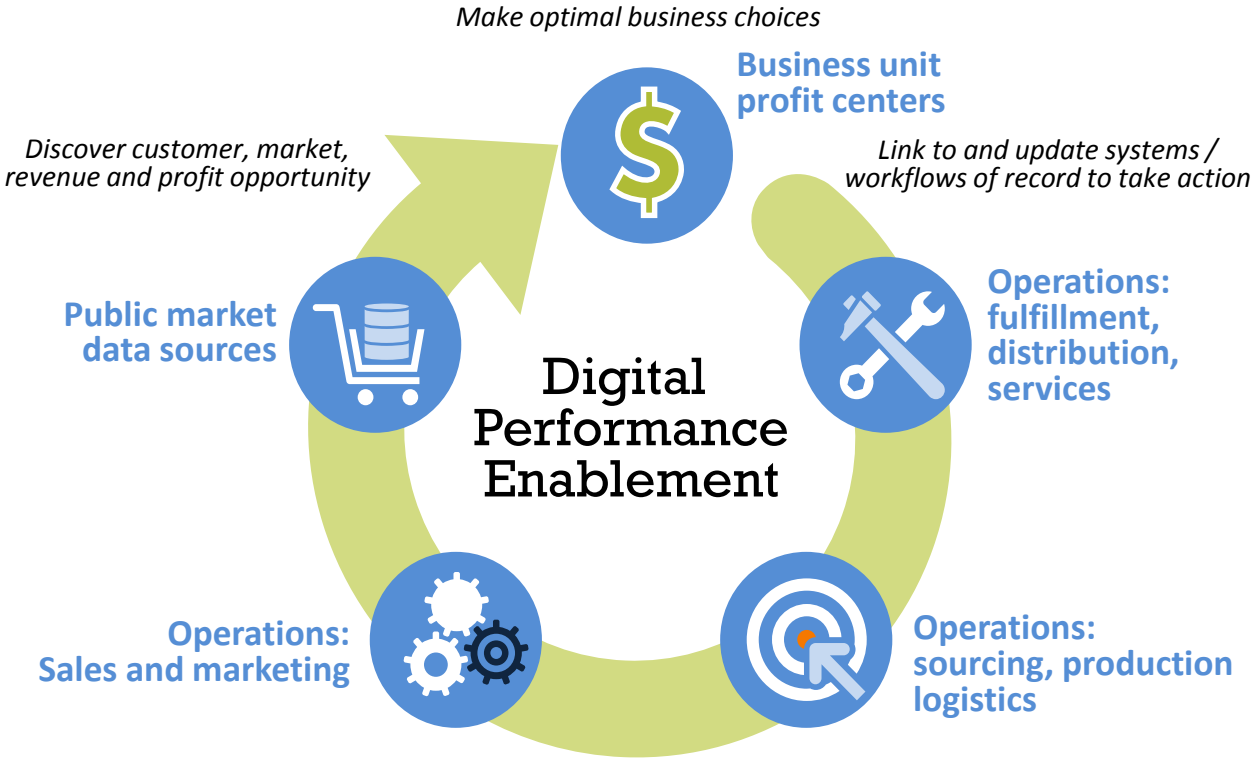
- Director of Global IT, Services Industry

Benefits of DPE include:

- **Accelerating** revenue opportunities, setting priorities and providing real-time recommendations. For example, businesses can determine micro-clusters of customers and target these cohorts with timely offers, attractive pricing and product recommendations.
- **Accelerating** cost reductions by rapidly finding the best logistics or distribution mix. For example, enterprises route delivery trucks differently each day while dynamically rerouting based on real-time updates.
- **Accelerating** profit by optimizing cross-business unit financial results and resources. For example, businesses find hidden profit opportunities by applying data science to their data streams.
- **Aligning** the organization around customer and market demand by better identifying opportunities and pinpointing offers with the right price to the right customer at the right time. For example, enterprises adjust the mix of sales and marketing to target inventory to customers most likely to purchase.
- **Aligning** expenses and capital that drive maximum value by evaluating and comparing P&L performance across business units. For example, businesses can find the common practices that show success and implement those across other departments.
- **Aligning** IT uses of data that drive the most business value by bridging data silos in enterprises and using the latest capabilities in data science. For example, DPE solutions might address data quality via machine learning at the time of analytics rather than executing a time-consuming data quality initiative.

DPE enables business leaders to find unseen business opportunity, prioritize what to pursue, and take action to build winning business coalitions and results (see Figure 1).

Figure 1: Digital Performance Enablement



Source: ISG Insights

Digital Performance Enablement enables business leaders to find unseen business opportunity, prioritize what to pursue, and take action to build winning business coalitions and results.

Making It Work

At its heart, the core of DPE is discovering opportunity, making choices and taking action. Although strategy directs activity and the governance activities related to assessing results are critical, it is the day-to-day and week-to-week tactics that DPE most often automates.

Digital performance discovery. Most enterprises are drowning in data but lack information about the business. Without the right information at the right time to make decisions, business owners and managers struggle with where to refocus efforts to yield better results, and whether they are choosing the best market, pricing, revenue and profit opportunities to achieve business objectives. Part of the problem is that business decision-making is accelerating faster, partly due to the use of digital business processes.

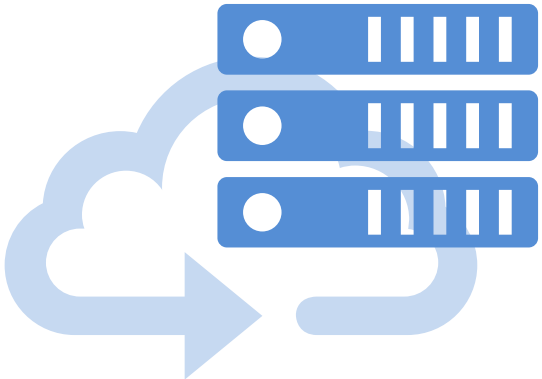
Business decision-makers often do the best they can with the information at hand, using their instincts and sometimes even guesswork. IT systems of record often fail to help drive market profitability and revenue decisions; while they may solve departmental and teamwork procedural inefficiencies, they don't always address hyper-paced digital business line growth questions and answers.

Furthermore, most legacy IT systems automate the business process workflows of selling, producing and delivering products and services, but they are seldom as capable of optimizing business results as they need to be. This is true whether the systems are legacy sales, marketing, procurement, production, logistics or customer service systems of record, or modern customer relationship management (CRM), enterprise resource planning (ERP), and supply chain management (SCM) application systems and databases.

In contrast, DPE supports the business unit managers, telling them where to maximize opportunity. It does this by ingesting data from both systems of record and market data sources. Using new data science methods – data mining, classification, clustering – it learns about and finds opportunity hiding in data, and discovers opportunity to pursue the best tactical and strategic choices of visible and unseen business opportunities.

Digital Performance Recommendations

Many of today's resources for decision-making are business intelligence (BI) tools dating from the 1990s. These legacy analytic tools include business dashboards with Key Performance Indicators, spreadsheet pivot tables, and multidimensional OLAP analytics operating on data stored in everything from PC-based spreadsheets to server-based data warehouses. Such tools are antiques compared with modern, current tools that learn from data, and go far beyond descriptive characterizations of markets and customers to provide increasingly accurate predictive and prescriptive guidance. The data sciences of today, using collaborative filtering, hybrid-recommender systems, preference elicitation, and knowledge-based recommender systems result in fast-tracked guidance about the optimal choices available.



When mated with the discovery of business opportunity across enterprise data silos and external market data, DPE makes "working smarter" a reality for any business intent on growing its share of market, revenue and profit.

Taking digital action. In addition to discovering opportunity from systems of record, DPE must seamlessly update IT systems of record automatically. The connections and data flow from DPE systems may consist of one-to-many in the case of one line of business communicating with many systems of record. More realistically, businesses have the case of many-to-many, in which many different lines of business are communicating with many different systems of record. Executing at all stages of the value chain requires the ability to update individual systems of record and data silos while working at different time scales, from sub-second, to hours, days and weeks. DPE digitally connects decisions made by business unit managers and owners with the rest of the enterprise and its systems of record to enact change, take action, respond to market change, manage prices, increase profits and optimize opportunity for the enterprise.

Overcoming the Business Challenges of Data Silos

The silos of today – CRM, ERP and SCM application systems and databases – are built on decades of market and technology consolidations that occurred to better serve three distinct operations of every enterprise: selling, producing and delivering. Typically, each of the three operations centers has its own way of using, storing, managing and valuing data.

The business challenges of data silos include:

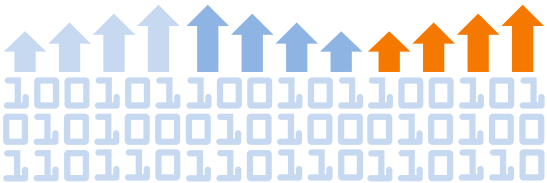
- Inability to respond to market demand in a timely enough manner
- Lower revenue and profit
- Lower market share
- Lower public market valuation
- Higher cost and less efficient operations
- Inadequate internal and external communications.

Among possible worst-case scenarios, the enterprise may be selling one thing, while the market is asking for something else. Or the enterprise believes its own marketing and advertising, while customers go elsewhere. Data silos in marketing and sales are matched by those in production in which the same suppliers and delivery terms are ratified year in and year out, despite competitors finding 10- or 20-point basis advantages and stealing away initial orders that then turn into a competitor's lifetime customers. Data silos in customer service and distribution impose what the enterprise wants on its customers, rather than following the profit opportunity.

DPE shatters the data and process workflow silos of the enterprise to:

- Identify the most profitable market opportunities
- Gain insight into optimal uses / allocations of resources
- Speed growth in market share, revenue and profit

DPE – the intelligence needed for finding opportunity, recommending the best business choices and coordinating action – is missing from the IT data silos that support the enterprise today. Rather than being focused on optimizing business results, data and applications used by these departmental silos serve to automate workflows that may or may not help generate revenue, reduce costs or increase profits. DPE realigns the organization around optimizing revenue, market share and profit growth through line managers, business owners, and profit managers – and by extension – the operational activities of selling, producing and delivering.



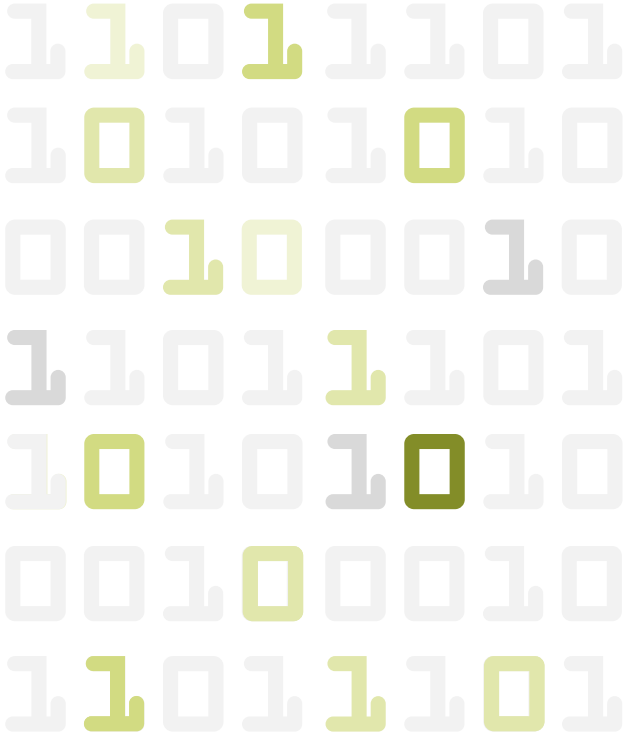
Critical Considerations

"This – data science – is going to challenge some of the sacred cows in the business like never before, so be prepared for some resistance."

- Director of Strategy, Healthcare Industry

DPE redefines a data-driven business in the era of digital business, but only if several must-have capabilities are present. These "must-haves" include:

- **Completeness.** DPE must be capable of finding hidden opportunity, recommending the best possible choices and connecting with the enterprise's IT systems of record to take action.
- **Business customization.** DPE must fit like a glove. It must use elastic underlying market models, business metrics, and Key Performance Indicators that are definable and relevant to the enterprise. Furthermore, DPE must make it easy and simple to adjust critical business performance metrics and to find, uncover and leverage emerging business opportunity ahead of market change.
- **Timeliness and scale.** DPE must work in market environments from sub-second real-time to queuing for tomorrow's market day action. Whether the business decision relates to online or overnight market price optimization, inventory, rapid delivery to market, minimizing cost of goods sold, forward / reverse market integration strategies, customer referrals, or any number of hundreds of other factors, DPE must scale from local and regional to national and global markets.
- **Pragmatism and extensibility.** DPE is NOT a data-science experiment – its utility must be demonstrable within 90 days and it must work with any data source. The effectiveness of DPE relies on the data fueling it. And it must work on and with any enterprise and market data to find and recommend the optimal business



alternatives for the enterprise. DPE is not an end in and of itself – it works seamlessly with existing business workflows and procedures.

- **Seamless digital interoperability with IT systems of record.** DPE must interact with and provide direction to existing IT systems of record to take action and seize identified business opportunity without getting in the way and without requiring substantive modifications to existing CRM, ERP or SCM systems, applications or databases. DPE works with internal data silos, external market data, on-premises and Cloud-based IT systems to empower and accelerate business decisions.
- **Digital market responsiveness that are timely and at scale.** Market responsiveness is a critical dimension for any organization and its supporting IT systems. Digital market responsiveness means decisions and execution must support wildly different scale and time dimensions of the business, from massive scale to markets of one, and from sub-second to longer. Variations in time and scale may range from sub-second decisions about optimal pricing for a single order and customer, to many millions of simultaneous transactions, or for long sales cycles involving complex equipment and parts for industrial systems and processes and tens of market segments and hundreds of customers.

  Digital market responsiveness requires automated and instantaneous decision-making, in-line decision-making guided by a single person, and longer-scaled and collaborative decision-making appropriate to pricing, profit, revenue, cost and market metrics.

Call to Action

Digital Performance Enablement fast tracks business and market results for business owners charged with finding and accelerating growth. It finds hidden business growth opportunities in enterprise and market data to generate revenue and profit-line growth and direct or redirect the resources of the enterprise to achieve more productive market responses.

ISG Insights research reveals that some of the key attributes and capabilities of DPE – but not quite all – are being tested and, in some cases, are underway among some Global 500 business. The missing capabilities may be available shortly in the market, probably this year.

Global 2000 businesses not yet on the DPE track must learn about it now, test it and promote its use in the enterprise. Enterprises that fail to embrace DPE will face an onslaught of competitors using it as a disruptive force to take market share and redefine markets using digital business.

It is time to learn about what DPE can do – who can best use it, when and how quickly. Learning is easy by reaching out to market advisors and analysts such as ISG, and to providers of DPE, by asking for briefings, demonstrations and customer references.

Testing of DPE should be broken into a proof of concept (POC) that should last for no more than 90 days, and a longer production pilot that should last no more than six months. In many situations, these two timelines can be cut in half.

A POC trial of DPE should focus first on discovery and recommendations, for a core business segment with an established set of

success metrics. This POC should include finding a new unknown opportunity or identifying new opportunities to increase revenue, reduce costs, increase profit, improve customer responsiveness, etc. The POC should use relevant business metrics and key performance indicators, data from production IT systems and publicly accessible market data to discover and recommend alternatives. The POC should use mock database and application linkages on non-production systems to test the ability to take action and change workflows.

Any pilot test focusing on the practical integration of DPE into the business cycle and IT systems of record should run in parallel with existing IT systems or processes of record. The cycle time for such a pilot might consist of a month, a quarter or longer, depending on the nature of the test. Its impact on functions and workflows will likely include selling, producing and delivering goods and services to customers. Once beyond the pilot, the enterprise can move its use of DPE from experimental to production purposes and join existing business IT systems – CRM, ERP, SCM, etc. – as the enabler of high growth digital business.

The emergence of DPE is a watershed event in the industry. DPE enables business leaders to discover the best opportunities, make choices about which to pursue, and then direct, deploy and efficiently allocate resources to respond to market conditions in real-time, within minutes, hours or overnight.

The opportunity to grow the business is within reach for most enterprises by simply identifying the business opportunities lying in data already being collected. While it may take courage to try something different, those who find and build on these opportunities will take more share of the market, create more revenue and enjoy more profit.

*

"We've tried a lot of different approaches to using analytics and data science, but nothing worked. This approach is producing results for our business."

- Division President, Services Industry

Sponsor Perspective: r4 Technologies

For many business leaders, there is widespread recognition that business process automation, like CRM, ERP, or SCM, meant to increase efficiency and effectiveness of organizations, lacks the flexibility and agility to identify opportunity, profit or revenue across the enterprise. As leaders we know there's a big data opportunity, but it's trapped within system silos. The traditional approach of multi-million-dollar data lakes or rip and replace multi-year solution implementations is both distasteful and cost prohibitive. As we all try to do more with less, and operate in a world of fixed resources how can we capture the benefits of "Big Data" when too often Big Data leads to Big Nothing?

r4 is an industry-first Cloud service bringing data science to P&L owners and managers to unlock revenue and cost reduction opportunities buried in the silos of operating data. Created by the founders of priceline.com, r4 helps business leaders to identify, prioritize and then take automated action to achieve new revenue, profit, and efficiency opportunities that lie hidden and unseen within operational data silos.

The r4 platform identifies the profit, revenue, and efficiency opportunities and then helps P&L owners by driving recommendations, action and execution through automated APIs to existing systems of record, including CRM, SCM, ERP, HCM, and marketing automation. The solution enables business leaders to achieve more value from multi-million dollar investments and drive unparalleled levels of operating results.

In addition, r4's clients are able to maximize their most important resource, people, by fusing human and computer intelligence to identify and execute against new revenue and profit with low disruption and high value.

r4 customers achieve double-digit improvements in revenue and cost reduction efficiencies across multi-billion dollar lines of businesses. r4's clients include consumer goods, retail, financial services, healthcare and life sciences, and media and entertainment companies. Contact us at info@r4.co to find the opportunity hidden within your enterprise.

About the Authors:

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Prior to ISG, Jim directed software lines of business for smart grid utility providers, headed a benchmark research consortium for Symantec, spearheaded the information security and risk research practice at Aberdeen Group, among other experiences. Jim is a graduate of Boston University and a CISSP.

Ron Exler is a Research Director at ISG with a focus on the disruptive and progressive influences on businesses of the Internet of Things (IoT), advanced analytics, location-based services, and Smart Cities. Ron also brings the perspective of implementing technology inside large enterprises, including a recent experience at Nielsen Audio (formerly Arbitron).

Ron holds a Master of Science degree in Cartography from the University of Wisconsin as well as a Bachelor of Science degree from Oregon State University.

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