

Improve Critical Business Outcomes With Data-Driven Insights

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The ability to make real-time decisions in critical business operations can help to remove friction from the making of operational decisions. Executive leaders can capitalize on this to reduce costs, improve employee and customer experience, and make sales efforts more targeted.

Overview

Key Challenges

- Custom-built applications for continuous intelligence are relatively expensive and time-consuming to develop because they require real-time data ingestion and real-time prescriptive analytics.
- Continuous intelligence solutions that share data across organizational and application system boundaries are more valuable than isolated systems. However, they are difficult to implement because they must be integrated with a variety of heterogeneous SaaS, legacy and packaged applications.
- Many organizations lack the skills necessary to develop their own custom-built, integrated continuous intelligence solutions.

Recommendations

In planning for ways to improve critical business operations, executive leaders should:

- Minimize the time and effort required to achieve real-time decision making in business operations by using off-the-shelf packaged applications, internet applications or devices that have embedded real-time intelligence capabilities.
- Implement custom-built, real-time, decision-making solutions in situations where no readily available off-the-shelf product is available, or where real time intelligence needs to be integrated with multiple applications and functions.

Introduction

Continuous intelligence is a design pattern in which real-time analytics are integrated into a business operation — processing current and historical data to prescribe actions in response to business moments and other events. Continuous intelligence provides real-time decision automation or decision support.

Analysis

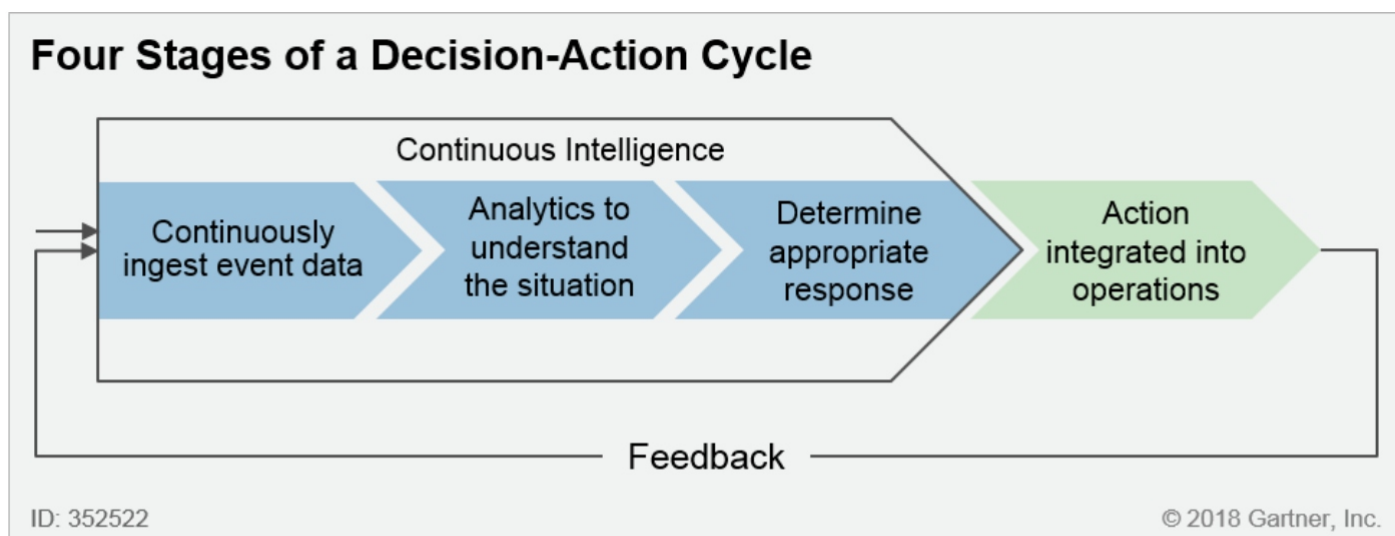
This research has been adapted from “[Innovation Insight for Continuous Intelligence](#),” in which data and analytics leaders are encouraged to look for opportunities to use continuous intelligence.

Minimize the Time and Effort Required to Achieve Real-Time Decision Making in Business Operations

Real-time decision making plays a major role in most digital business transformation projects. It fundamentally alters the design of business processes and the data and analytics used for making operational decisions. Real-time decision making brings dramatic and measurable benefits in terms of enhanced revenue generation, smart resource allocation, improved customer service and other metrics. It applies to situations in which real-time data from the last few seconds or minutes significantly improves the accuracy and effectiveness of business decisions.

Continuous intelligence capitalizes on the ability of a computer to always be on, collecting and processing detailed data at a faster rate than people can. It supports the first three stages of a four-stage decision-action cycle (see Figure 1).

Figure 1. Four Stages of a Decision-Action Cycle



Source: Gartner

The four stages of a decision-action cycle work as follows:

1. The system continuously uses real-time event data, typically from multiple sources. "Real time" in this context includes "business real time" or "near real time," meaning any data about events that have occurred within the past 15 minutes. Virtually all continuous intelligence processes also use historical data to complement the real-time data.
2. Always-on analytics software applies logic and math to data to derive insights from trends, deviation from normal behavior, or other patterns that signify or predict business moments and other events.
3. The system generates advice to people on what to do (decision support), or fully offloads the decision from people and triggers an appropriate response (decision automation).
4. A software system, physical device or person carries out the action.

In many cases, the system operates in a closed loop by collecting feedback on the outcome of the action. Feedback becomes input to Stage 1 in a subsequent iteration of the cycle.

Implement Custom-Built, Real-Time, Decision-Making Solutions

A feature-rich implementation of continuous intelligence goes beyond other kinds of real-time analytics in two respects:

1. It processes context data (observational events), such as sensor data, other machine data, clickstreams, social media data, location data about people or objects, system logs, news and weather feeds, or other streaming event data. Context data originates outside of an application system or business operation that it may affect – in contrast to transaction data, which is generated within the company’s business applications. Context data can improve the quality of certain business decisions considerably. Many continuous intelligence solutions use both context and transaction data.
2. It implements decision management to determine an appropriate response to the situation. This goes beyond the ordinary situation awareness provided by dashboards or alerts.

Many sales reporting dashboards and business process monitoring systems only provide situation awareness without giving advice on how to respond. Such systems are appropriate and beneficial for the many business scenarios in which a person can easily decide what to do without the help of decision management technology. However, decision management is required in scenarios where the decisions on what to do involve many different factors and trade-offs, or where the decision is automated.

For example, a real-time dashboard that reports customer contact center metrics – such as today’s phone call volume, average wait time and call duration – provides basic intelligence using internal transaction data. However, it can provide more value if it correlates externally sourced context data (such as tweets, Facebook posts and clickstreams from the corporate website) on customer inquiries to understand customer problems and predict upcoming call volume. It is even more feature-rich if the system provides decision management to calculate changes to call-routing strategies or staffing adjustments, or recommends cutovers to alternative call-handling scripts.

Benefits and Uses

The benefits and uses of continuous intelligence include:

- Continuous intelligence is already used by many companies in various operations (including contact center monitoring, supply chain visibility, truck fleet management, credit card fraud detection, social media tracking, procurement process tracking, warehouse management and other systems).
- More than 90% of processes that employ continuous intelligence get the insight from readily available off-the-shelf solutions, packaged applications or internet applications that support a single business function. For example, GPS-based navigation software on mobile devices provides advice on what route to take to avoid traffic based on real-time context data. This is feature-rich, prescriptive continuous intelligence.

- Condition-based equipment maintenance is a quintessential example of feature-rich, real-time operational intelligence. It is a rapidly growing type of Internet of Things (IoT) application that can supersede traditional machine maintenance practices.
- Traditional practices and operational decisions that don't use any data-based intelligence have various drawbacks including increased maintenance costs, downtimes and increased inefficiencies.

Most companies have long known how to benefit from real-time decision making through packaged applications or internet applications. However, the complexity of real-time continuous intelligence systems deterred most companies from developing their own customized solutions from scratch until recently. Early examples of customized real-time continuous intelligence (such as the high-frequency trading systems in financial markets that first emerged in the 1990s) were painstakingly built by big banks with teams of experts and at great expense.

Risks

All companies have the capability to use readily available, off-the-shelf, real-time continuous intelligence. However, many lack the necessary capabilities (including the software and analytics skills) necessary to develop customized continuous intelligence solutions.

Even readily available, off-the-shelf, real-time continuous intelligence solutions can be problematic for companies with limited experience. Systems that implement decision automation can cause extensive damage quickly if the decision-making algorithms are not well-designed and continuously monitored for accuracy. Bad algorithms played a major role in the 2010 Flash Crash,¹ the mispriced \$24 million Amazon book,² and countless other business problems. Companies that deploy systems with automated decisions should implement facilities for human oversight and other guard rails to reduce the number and severity of errors.

Evidence

¹ "The 2010 'Flash Crash': How It Unfolded."

² "How a Book About Flies Came to Be Priced \$24 Million on Amazon."

Recommended by the Author

Building Your Continuous Intelligence Capability for Digital Transformation

Digital Businesses Will Compete and Seek Opportunity in the Span of a Business Moment

How to Move Analytics to Real Time

Recommended For You

Keynote Insights: Lead With Purpose to Achieve Clarity in a World of Ambiguity

Leverage Data and Analytics Efficiently to Improve Digital Business Outcomes

Rationales for the Idealist Imperative in Business

Toolkit: Crafting a CDO Narrative That Aligns, Informs and Inspire

Use Gartner's ROAR Model for Strategic Cost Optimization

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