

# OI – Execute Analytics in Real Time: (Operational Intelligence)

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**Abstract:** *The pace of change in modern business is skyrocketing and that the complexity of operations is increasing just as quickly. This paper introduces the concept of operational Intelligence which is an emerging class of analytics that provides visibility into business processes, events and operations as they are happening. This paper details the searching, alerting, reporting and application functionalities of OI. This paper also touches the capacity and security requirements when addressing sizable amounts of data across a large data infrastructure.*

**Keywords:** Operational Intelligence, Proactive Monitoring, Alerting, Reporting

## 1. Introduction

The fastest road to operational intelligence comes through creating business values from the explosion of machine data. This machine data is currently growing at a rate that for surpasses that of human generated data. Machine data is only cryptic numbers, encoded cookies, unrecognizable fields and the references to data that must be looked up elsewhere. It must make the data usable so that business staff can find the operational information that leads to valuable insights.

### A. Base of Operational Intelligence: The information explosion

The amount of information available to companies today is exploding, a trend frequently called big data. Information generated inside the company is increasing due to automated data collection, technologies such as GPS, email, Wikis and massive amounts of logs and other machine data generated by technologies located inside and outside of the enterprise. Adding to this data are other sources of information like watch lists, asset directories, customer data, shipping and web based feeds – like real time stock feeds, travel reservations data and popular searches. These internal and external sources can provide added context to what is happening in the business. It is practical now to use this real-time and historical data a broad set of applications. This is the basis of operational intelligence.

### B. Real-time business insights:

The pinnacle of operational intelligence comes when machine data is used to track & correlate activity in real time & to predict behaviors. At this stage the use can be broad across an organization – often with more business users. This level of operational intelligence provides the largest pay off.

### C. Proactive Monitoring:

It proactively monitors data for clues to help avoid risks they have identified. Simplified form can be created at this stage. At this point, IT usually understands machine data well enough to start proposing ways of helping the business.

### D. Time sensitivity business processes:

The pace of business continues to accelerate such that speedy decisions based on fresh information have become a competitive benefit. OI now support to process semi structured & unstructured data in the real time.

## 2. OI – Combination of Multiple Leading-Edge Technologies

Operational Intelligence is combination of multiple leading-edge technologies that provide unparalleled visibility into a business.

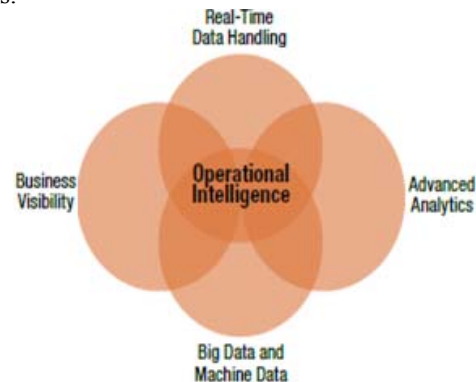


Figure 1.1: OI- Combination of multiple leading edge technologies

## 3. Operational Intelligence Need

It emerged in response to the rising value and amount of machine generated data.

- Transaction monitoring for online business providing 24 X 7 operations
- Web activities and web asset usage data to improve understanding of customers, any capacity implications, and tracking of digital assets.
- Service level monitoring information from managed service providers to help fulfil internal agreements with in the business.
- Call and event detail records to uncover keys to more profitable services for communication service providers.
- GPS & other data to better understand customer location & behaviors.

#### 4.OI – Dependence on Advanced Technologies to Enable Real – Time Analytics

##### a) Correlations across multiple data sets:

OI excels with multi data - source correlations, even when the sources are eclectic mix of new ones (such as Hadoop) & traditional enterprise sources (such as relational databases). OI also deals with data sets that are schema free, metadata free and evolving structurally.

##### b) Streaming data

As more organizations move deeper into monitoring operations in real time, there is growing need to quickly capture & process events expressed as messages or events in a stream that generates and deliver data almost continuously.

##### c) Event processing

Operational Intelligence creates a more unified view that correlates events from multiple streams and other information sources, arming business with better insights.

#### 5. Common Scenarios

- Perform capacity planning for mobile networks as new high bandwidth services as introduced. IT improves customer experience.
- New feeds of real-time data representing consumer behavior and operational activity can be analyzed to detect problems and opportunities. An increase in online shopping could indicate an application performance problem, a database issue and many more.
- Social media sentiments or pattern. Direct it or correct it as it evolves.
- Understand customer behavior in real time across channels –mobile and social.
- Correction of events from myriad data source can be made so that a deeper understanding of business activity can be developed in time to take effective action.

#### 6. OI Solutions-For Exploring a Wide Range of Enterprise Data

**A. High ease of use of user productivity** This is critical because some users are business people who need to see the data from themselves but through business friendly view. Ease of use increases technical developer productivity also.

##### B. Data Exploration

It should be as easy as Google.

#### 7. Demand from Customers

IT leaders face constant demand to meet customer needs, demand to lower operation cost, to deliver services and uptime that meet SLA and to lower no. of outages and events. There are new projects, virtualization, and pressure to improve asset utilization that makes infrastructure leaders to feel that there is no way out of firefighting situation and to align IT with strategic priority of organization, This is where IT operational-intelligence provides values in providing access to not just data from multiple sources, but analyses information that will assist in accurate demand prioritization.

#### 8. Critical Features & Functions

##### • True real-time operation, in milliseconds:

After all, this differentiates OI from similar technologies and it's the leading value proposition for OI

##### • Analytics that correlates events from multiple events and other data sources:

Analytics correlation across multiple real-time streams and latent data sets is the epitome of OI.

##### • Fluency from machine data and other forms of steaming data:

In many ways, machine data is the killer app for OI, but only when OI technology can ingest data from multiple sources and combines that data with relational data and other enterprise data.

##### • Flexible data acquisition:

An OI tool integrates with multiple systems of diverse types, so it can quickly bring on board and acquire traditional structured data, as well as more forms of big data, streaming data, unstructured data, schema free data, and data within evolving structure.

##### • Proven scalability and high performance:

Most OI tools, being fairly new, were built for external environment, dominated by big data and streaming data. Be sure to check a vendor's reference to confirm a tool scales and performs as advertised.

#### 9. IT Operations Analytics Values

Enterprise operations produce unstructured data as a byproduct. This operation data is just not a record of what a machine did but a record of event logs, sampled metrics as process usage and I/O statics, diagnostics records and real time information for IT infrastructure components. This data was originally to use for debugging failure analysis and other operational concerns but today organizations are using this strategically for predictive modelling that can help overcome various challenges by improving service levels, investigations severity incidents quickly using single tool of OI.

#### 10. Conclusion

There are multiple ways to create business value from pile of infrastructure and applications data and bring operational intelligence practice to enterprise. To leverage this enterprises need to be more pragmatic about expectations and should focus more on strategy to adopt IT operational intelligence enables organization to collect, index, analyses and harness data from any source such as network traffic, servers performance and monitoring tools, existing structured databases and custom applications. The advent of analytical tools and reducing cost of computing and storage is helping enterprise to decipher the cryptic language of technology data to overcome challenges of managing IT operations. Operational intelligence is an operational area with in enterprise IT that leverage existing investments in business service management, monitoring solutions and other such tools and help organization transition from reactive IT support function to a well informed and intelligence business partner. The IT leadership team needs to develop a strategy roadmap towards OI in order to reap the benefits of greater efficiency, reduced risks and proactive of challenges.

## 11. Acknowledgement

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## Author Profile

**Shivani Grover:** Shivani is pursuing masters of technology in computer science and technology from MIET Mohri, Shahbad. She has developed her interest in researching on upcoming and current market trends. She has selected "Operational Intelligence" an emerging scenario and must required area in IT, as a part of dissertation for M-Tech.

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