Operational BI

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Abstract

Business Intelligence is moving from providing strategic and tactical decision support to the heart of operational processes. So-called operational BI offers immediate return on investment and competitive advantages.

This white paper reviews the current understanding and usage characteristics of operational BI. It highlights the fundamental differences between operational BI and the more classical strategic and tactical usage of business intelligence.

To this end, the article first investigates the meaning of the term "operational BI". Afterwards, it looks at the current state of the art and uses surveys to demonstrate that operational BI is only beginning to be widely deployed. The challenges that need to be addressed in order to make operational BI successful are discussed in detail. This is put into perspective by comparing it with classical BI systems.

Finally, we examine future trends in operational BI. Here, performance management systems and service oriented architectures come into play.

Introduction

For many managers, Operational Business Intelligence (operational BI) became the catchphrase of 2006. Yet the industry has no clear definition of what operational BI means, something essential for examining how solutions will evolve in upcoming years. This white paper reviews the current understanding and investigates future trends.

First, let us try to describe operational BI. Despite frequent usage of the term "operational business intelligence" – a Google search returns more than 150,000 hits – most often vendors drive what operational BI means. Not surprisingly, such definitions encompass the strengths and skills of the specific vendor, but do not give a general sense of how operational BI works.

Operational BI employs business intelligence methods to manage and optimize daily business operations. So, with the classic trichotomy of strategic, tactical and operational management, operational BI is geared towards the operational business processes whereas classical BI mainly supports strategic and tactical management decisions.

The term "process" becomes an important notion in this context. Operational BI tries to improve or even steer an operational process while the process is still ongoing. Based on the data gathered up to a certain point in a business process, operational BI tools make predictions and suggestions for future steps. In order to support this, these tools have to know the respective process and the possible next steps within it.

This differs from classical BI, which usually analyzes data after the fact, i.e. once a process is completed. Oftentimes, the knowledge of the process design is not required in classical BI, namely in those cases when the outcome of a process – and not the intra-process details – is all that matters for the strategic or tactical decision making (although in some cases the knowledge of the process design is required in classical BI as well, in particular if it is supposed to support a root cause analysis).

An example from express logistics: in express logistics, packages are shipped from A to B via a network of hubs. These hubs are connected by transportation units, e.g. planes or trucks, that go back and forth on a regular schedule. That means, any package from A to B will pass through a chain of hubs along the way, possibly being transferred from one carrier to another in each of the intermediate hubs. If a transportation unit arrives late in an intermediate hub, the packages on the transportation unit might miss the connection to the next hub because the following carrier already left.

Classical BI tools might produce scorecards at the end of a month showing how many of the transportation units arrived late at a certain hub. Operational BI tools, on the other hand, can catch late arrivals while the transportation is still carried out: a note of a late departing transportation unit or of delays along the way could be passed to the next hub in the chain. Analyzing the final destinations of the packages on such a late unit, the operational BI tools could give advice to hold the next departing truck for e.g. 15 minutes, so that the packages might still get the connection.

This is why BI specialists often demand that operational BI be process centric instead of data centric, as are most classical BI applications.

Current State of Operational BI

While operational BI has captured the interest of managers, it has not yet come into widespread use at companies which plan to deploy it. A survey by the Economist Intelligent Unit shows that within the respondents' companies, less than 30 percent of frontline personnel have access to business intelligence data, as opposed to 89 percent of senior executives (Economist Intelligent Unit, 2006). What is more, in the opinion of the respondents, only 29 percent deem it very important that frontline personnel receive timely business intelligence, as opposed to 77 percent for senior executives.

In an actual operational BI environment, the above prioritization would seem ill-conceived. In order to support the operational processes of a business, operational BI generally needs to address a much wider audience than classical BI. Operational BI tools are employed by frontline workers on shop floor level. This is in contrast to classical BI, which usually addresses middle and senior management.

Thus, operational BI needs to focus on getting employees timely information rather than worrying about mid-level managers. When operational BI is tightly integrated into the operational processes, then any delay or failure in delivering its information has a direct impact on the company's operational performance. On the other hand, most operational processes are not affected when middle and upper management receive their reports with minor delays.

Another survey from about the same time conducted by The Data Warehousing Institute underpins the sparse use of business intelligence on shop floor level: According to TDWI, only about 20 percent of front-line workers currently use dashboards or scorecards to support their business (Eckerson, 2006).

Operational BI has not been deployed much more widely due to fundamental differences in the user requirements for operational and classical BI. This is not yet broadly understood. It is still a common perception that the concepts and techniques discussed for classical BI apply

equally well to operational BI and that the difference is just the frequency and granularity of data capture and report production. However, this understanding does not do justice to the very different requirements of operational and tactical BI:

- Firstly, tactical BI usually presents data for analysts and managers to analyze and in turn make decisions. In contrast, operational BI presents automated decisions to frontline personnel. The line-of-business users need to get the work done – they cannot afford to analyze data in detail and to play around with metrics and dimensions. To put this in other terms: tactical BI delivers data to support decisions, operational BI delivers decisions and guidance to help improve operational efficiency.

- Secondly, as mentioned before, operational BI targets a much wider audience than tactical BI. It is very costly to provide this broad user base with the same in-depth training many middle managers receive in using BI tools. Therefore, the front-end through which operational BI is delivered has to be easier and more intuitive to use than front-ends for tactical BI. In many cases, slice-and-dice mechanisms, such as changing dimensions and metrics, are not required at all. Instead, the right information has to be displayed in the right way – simplicity, not flexibility, is key. However, operational BI tools often require drill-down functionality to detail level. Frontline personnel need detailed information for later follow up. This is in contrast with tactical BI, where drilling to detail level is often unnecessary.

  The above characteristics of operational BI front-ends represent a big challenge to the BI vendor community. In the past, many vendors put their emphasis on delivering flexible tools that allow data viewing from every angle. Ease-of-use has not always been the top priority. What is more, all the BI tools that rely on cubes to present their data and that have been very successful in tactical BI OLAP environments have difficulties in providing drill-down to detailed data – because data in the cubes is already aggregated to a certain degree. These challenges, and the general difficulty of designing a generic tool set to match the distinct requirements of a specific operational business, have led to many custom-built operational BI solutions. In many environments where operational BI has been deployed, self-coded solutions seem to out-do vendor built BI tools.

- Thirdly, with BI integrated into the operational processes, BI environments have to be much more stable and robust than in most classical BI scenarios. This is a new step and challenge in implementing BI, because in former times solutions could afford to offer slightly less strict service level agreements than most operational IT systems. Relying on comparatively new techniques and research, BI has trouble achieving these strict service levels.

- The fourth and final point that hampers operational BI deployment stems from operational BI being process centric instead of data centric. Operational BI provides value when it can advise line-of-business workers on how to proceed with the next steps in an ongoing process. In order to provide sensible advice, the process has to be well understood. This is often not the case. In many cases where a business process is supposed to be improved, it is difficult to find any one business person that knows the full details of the overall operational process and how individual sub-processes interact. Tactical BI can help gaining insight into operational processes and a mature tactical BI environment is often a pre-requisite for deploying operational BI.

Future of Operational BI

In 2006, companies have shown a growing interest in operational BI. This trend is likely to continue. “Although BI is still mostly a technological luxury restricted to the boardroom and executive suite or to technology-savvy analysts, the future of BI, as forecast by our survey respondents, indicates a flowering in coming years of so-called operational BI [...]”, according to the Economist Intelligent Unit (Economist Intelligent Unit, 2006).

Operational BI has the potential to provide huge additional value when it can successfully improve operational processes. Improved operational processes almost always result in either reduced costs or better customer service. Thus, it offers an immediate competitive advantage for companies that successfully deploy operational BI over those who do not. The return on investment (ROI) is, in many cases, much more immediate and evident than the ROI of strategic or tactical decisions.

This is one of the reasons why managers who have previously invested in business intelligence solutions and platforms are now interested in implementing operational BI. In the past, the ROI of classical business intelligence has in many cases not held up to the initial expectations. The BI community has to justify its value towards the executive managers. Operational BI promises good arguments because the value of improving operational processes can easily be presented.

The development of operational BI is frequently tightly coupled with the introduction of an operations performance management system. Performance management is about monitoring and improving business operations. It relies on operational BI in order to identify critical parts in daily operations. In such an environment, operational BI is coupled with corrective action tracking tools that record remedies for detected problems and monitor the improvements over time.

With the rapid acceleration that many operational processes undergo in order to stay competitive, predictions of what will happen during a day become increasingly important in order to be prepared for daily operations. In the past, predictions have predominantly been based on statistical analysis from historical data. Operational BI can provide great benefit in this field by making forecasts earlier in a process on the basis of operational data. Coming back to express logistics: handling of packages in the terminals of an express logistics business relies heavily on temp workers. The more packages go through a terminal on a specific day, the more temp workers are required. Predictions on the amount of packages that go through a terminal help managers to plan the amount of manpower that they need to order from temp agencies. Traditionally, these predictions are based on the amount of packages that went through the terminal in previous years, taking holidays, week-ends, etc. into consideration. Operational BI offers another means to help making the daily forecasts. From the operational data, it can deduct how many packages are currently heading towards a specific terminal and will arrive there on the next day. Thus, predictions can be based on current data instead of historical data, potentially improving the accuracy of the predictions.

An enabler of operational BI are service oriented architectures (SOA). When operational BI tools for specific sub-steps of a process are developed as SOA services, then one can achieve the same loose coupling for operational BI solutions as for the underlying operational processes themselves. In the same way, as sub-steps of an operational process can be combined to form a complete process – and probably re-combined to form a different process

– so can the corresponding BI solutions. This is important for operational BI because it needs to address detailed data. These massive data amounts can, in general, not be easily reshuffled into new data stores for new BI systems. Therefore, it is important that the detailed data can be accessed from anywhere without having to build new storage structures within an enterprise data warehouse.

With broader availability of technical solutions for operational BI demands, a stronger focus needs to be put on the deployment of these solutions. While the user interface of an operational BI solution should be much simpler and intuitive than the user interfaces for strategic or tactical reporting, it still requires training of its future users: the front-line personnel. The training is usually less about how the system works than about why it provides benefit. Successful deployment of operational BI depends on the buy-in of frontline workers. If frontline personnel cannot be convinced that operational BI solutions help them to better run their business, then the solutions will not get used. The usage characteristic of operational BI solutions should be closely followed even after deployment, in order to detect deficiencies in the solution itself or in the training provided.

Conclusion

Operational BI systems are becoming more common and widespread, and this trend is going to continue. Operational BI fundamentally differs from strategic and tactical BI. These differences need to be addressed in order to have successful deployments of operational BI solutions.

References

- Eckerson, Wayne W. “Deploying Dashboards and Scorecards”, TDWI Best Practices Report (July 2006).
- Economist Intelligence Unit. “Business intelligence: Putting information to work”, Economist Intelligence Unit white paper (July 2006).

How BusinessCoDe can help

BusinessCoDe has been a leading innovator in the field of operational performance management systems for many years. BusinessCoDe software solutions always focus on the underlying operational processes. If you are planning to install operational BI or operational performance management systems at your company, you can profit from the years of experience of BusinessCoDe’s employees, its unique software solutions and its network of partners.

For further information please contact

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