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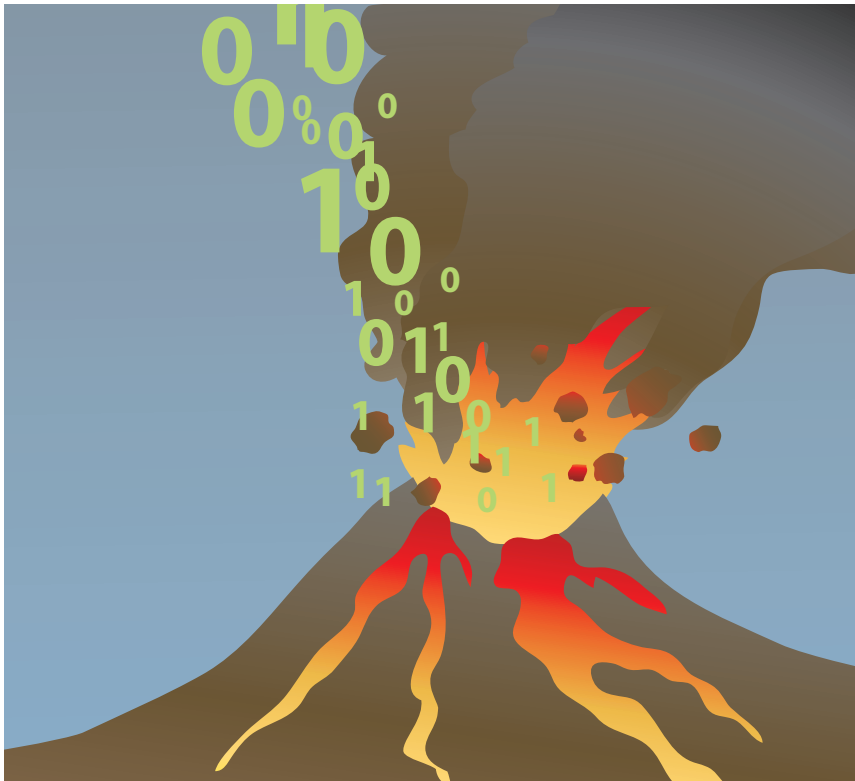
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 OpenBI

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# Open Source BI as Disruptive Technology

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In a 1995 *Harvard Business Review* article, Joseph Bower and Clayton Christensen presented an analysis of disruptive technologies that still resonates more than a decade after its publication.<sup>1</sup> The relevance of their work is especially remarkable given the recent successes of open source (OS) technologies. This article attempts to update Bower and Christensen's arguments to include the impact of the commercial open source (COS) business model, wherein for-profit companies support, enhance, integrate and indemnify OS software using various licensing options. Our focus is on business intelligence (COSBI), drawing on experiences with the two major platform vendors, Pentaho and JasperSoft, who

have demonstrated early success in the marketplace.

For Bower and Christensen, the differences between "disruptive" and "sustaining" technologies revolve on two major axes: 1) disruptive technologies address a market that is not very attractive to the mainstream or "sustaining" vendors, often because of unappealing growth or financial characteristics; 2) sustaining technologies concentrate on existing customer needs, which may ultimately stifle innovation. In addition, if both sustaining and disruptive technology firms are enhancing product performance at trajectories ahead of market demand, disruptors with early success have a better opportunity to invade established markets.

## Disruption Catalysts

Based on Bower and Christensen's conceptual foundation, and our own experiences with OS and BI, we believe the following dimensions are catalysts for the emergence of a disruptive business model such as COSBI:

- Unmet marketplace needs,
- An underserved market with willing early adopters,
- A compelling business model, and
- An innovation engine.

With unmet market needs, one or more underserved user communities and a more cost-effective approach to foster rapid technology innovation, chances are very high for a disruptive success. What follows considers each catalyst with respect to COSBI, relating experiences with the major COSBI vendors.

**Unmet needs.** Organizations have invested in BI for decades. Most BI implementations are now built on data warehouses and reporting databases that at a minimum support managed query and reporting, along with slice-and-dice analysis using online analytical processing (OLAP) technologies. The more sophisticated publish dashboards to measure business performance and provide an advanced analytics capability for statistical modeling. Unfortunately for today's increasingly demanding users, most of these deployments are both siloed from business operations and passive - requiring users to switch context from operations to analysis and back to operations to analyze data, make decisions and act. As a consequence, many organizations are now searching for quantum improvements in the efficiency and intelligence of their day-to-day processes, spawning new requirements to make the connection from analysis to action transparent - to seamlessly "operationalize" BI.

Operational BI has many definitions, but most include real-time reporting on operational data, transparency between transactional and analytical end-user contexts and automated decision-making driven from analytics. New requirements distilled from operational BI, however, pose problems for mainstream BI software vendors who followed the same enterprise application approach as enterprise resource planning (ERP) and customer relationship management (CRM) vendors and architected holistic, self-contained BI tools and applications. This black-box approach does not fit the new, extended architectural mantra of operational BI: componentize and embed.

COSBI vendors have seized on the opportunities surrounding operational BI. They espouse a fresh design perspective, shifting from enterprise applications to a service-oriented architecture (SOA) BI platform that delivers embeddable, intelligent components. Leveraging open technologies such as XML and J2EE, COSBI directly addresses the new needs of operational BI, enabling reports, OLAP views, analytical models and other intelligent components to be embedded in almost any standards-based application. In addition, these technologies change the way BI components are developed. Deeply rooted in SOA, the COSBI platforms introduce advanced modularity and a process orientation, enabling the creation and embedding of advanced composite BI components.


**Underserved markets and early adopters.** Historically, significant communities have been shut out of BI by excessive product costs and lack of accessibility. With the traditional BI architecture requiring database, extract, transform and load (ETL), reporting and OLAP software, the initial licensing fees from sustaining vendors can easily extend into six figures for a basic environment. For many businesses, this is simply a nonstarter. Instead, they have been relegated to the limited BI capabilities of office productivity software or the inflexible reporting modules of their core transactional applications. Now, though, these organizations can quickly download freely available OSBI report development, ETL and OLAP tools. The access to product is customer-driven, instantaneous and global. When the companies are ready for pro-

duction, they can contract with the vendors for support subscriptions.

As newer OS technology, COSBI benefits from those OS siblings who preceded and succeeded. The adoption of established products, such as Linux, Apache, JBoss, Perl, Python, Ruby, MySQL and PostgreSQL, ensures an audience for

impact of COSBI is no different.

COSBI relies on distribution that dramatically increases the accessibility of vendor software while simultaneously eliminating significant expenditures from sales and marketing - thus reducing cost and directing a higher percentage of revenue to R&D. Indeed, revenue, generally the



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COSBI in many IT departments. Having a senior-level OS champion in IT is considered a coup by vendors. Indeed, "has adopted other open source platforms" is often a preliminary deal qualifier for COSBI vendors. Fortunately for COSBI, OS technologies of many types have preceded into companies both large and small.

The ISV/OEM developer segment has made significant investments with COSBI for the architectural flexibilities that encourage embedded applications with reduced royalty payouts. The small to midsized business (SMB) market, long a BI nonplayer, is making enthusiastic overtures to COSBI. Emerging geographies, deprived by both price and access, are also establishing a presence with COSBI vendors. Finally, many mature, Fortune 2000-scale BI veterans are finding that projects which extend BI to their customers and partners are now feasible given favorable licensing provisions and the ease of embedding COSBI into existing extranet portals.

**Business model.** COSBI disrupts the mainstream BI software market by introducing a completely new customer value proposition and distribution model. Analysts have long noted that OS software has a commoditizing effect on proprietary vendor pricing. OS JBoss upended the mainstream application server marketplace, causing then-leading vendors to either change their overall product strategy (e.g., BEA) or bundle their software and application stacks (e.g., IBM and Oracle). The

first metric used to calibrate proprietary competitors, is not nearly as important with COSBI, because profits are made at lower cost. And because OSBI software is freely downloadable, a potential customer, regardless of location, can obtain a copy of the product at any time. There is no haggling over evaluation licenses and trial support. There is no minimum deal size required to get the attention of a quota-carrying, commission-incented software sales rep. There are no geographic restrictions limited by the reach of a field sales force. Instead, the customer is in control of the relationship.

Nowhere is this control better illustrated than in a typical subscription contract for COSBI software. Unlike the traditional up-front license fee plus annual maintenance contracts of mainstream BI vendors, COSBI software is most often distributed via an annual subscription that includes support, indemnification and, perhaps, proprietary extensions and commercial licensing. Generally, subscriptions for COSBI are no more than the annual maintenance fees of proprietary vendors - sometimes considerably less - starkly illustrating the magnitude of the savings. (Note that training, implementation services and administration costs should not be noticeably different.) Consider a proprietary software license fee of \$100,000 with 20 percent annual maintenance. If a COSBI annual charge is equal to the proprietary annual maintenance, a five-year subscription is just 50 percent of proprietary fees. The savings are even greater considering that proprietary licenses are paid up-

front, perhaps before an application is ever deployed to production.

Finally, because the COSBI licensing model is subscription-based, the customer can make purchase decisions annually, no longer burdened by lock-in from their vendor for a specified period of time to recoup a front-loaded licensing investment. For example, if a customer became disenchanted with the proprietary software before the five-year period, there would be substantial switching costs. Conversely, the COSBI contract puts pressure on the vendors to continually add value to retain customers - using the OS innovation engine efficiently to generate better software and improve the level of customer service.

**Technology innovation.** At the heart of the COSBI-led disruption is technology innovation, which is occurring on a larger scale and in ways not experienced by the traditional proprietary software market. COSBI leverages a worldwide community of volunteer development talent stewarded by professional R&D teams to create a global innovation engine. This combination is critical to COSBI success because the magnitude of community development effort enables a high trajectory of product improvement, while core vendor-employee R&D teams are free to focus on marketable innovations. In addition, the backing of a COSBI vendor provides greater assurances to community volunteers that the software they develop will be used - a tremendous incentive to ensure continued contributions.

COSBI vendors have benefited from this symbiotic vendor-community relationship. Through the stewardship of core R&D teams, their communities provide significant contributions that include fea-

ture extensions, bug identification, platform integrations and ports, documentation and internationalization. Each vendor has also found ways to leverage related OSBI project communities to the benefit of its core platform, further amplifying the impact of this global innovation engine. Mondrian OS technology is a good example. The Mondrian development community continues to improve its core software while users benefit.

As Bower and Christensen indicated, disrupting technologies that endure are those that generate early success, with functionality and a performance trajectory that eventually intersects the mainstream market. By that account and the assessment of the catalysts just articulated, we feel that COSBI is tracking for growth in the BI marketplace.

So what about projections for COSBI? We have four, and each should benefit customers of BI software. First, the functionality of COSBI and mainstream market demand will converge. Proprietary vendors will invest in operational BI solutions and demand the attendant, embeddable architectural components. At the same time, COSBI vendors will improve the usability of their solutions so that traditional BI applications can be easily generated and deployed with their next generation software.

Second, in acknowledgement of the growing influence of OS, more proprietary vendors will transition to COS. The recent open sourcing of the 20-year-old Ingres database is a case in point. Though these vendors start with the considerable advantage of existing customers, the transition from proprietary to OS may create new challenges, not the least of which is

building a willing, volunteer development community to maintain a mature code base.

Third, many sustaining vendors will simply attempt to accommodate OS adoption. Options include open sourcing designated modules, developing a more engaged and enabled user community, creating integration mechanisms for third-party COS components, switching to subscription licensing models, providing low-cost product versions and even acquiring COS vendors. The success of these tactics will vary by time, market and vendor circumstances.

Fourth, the SMB market promises to be a lively venue for BI in the next five years as COSBI squares off against the Microsoft ecosystem and ERP vendors that serve the midmarket. In reaction, the sustaining BI vendors are making a significant push to offer new product suites or repackaging existing technologies to meet SMB BI demand without damaging their large enterprise franchise. This spirited competition can only help consumers, improving product quality while driving down costs. 

*Reference:*

1. Joseph L. Bower and Clayton M. Christensen. "Disruptive Technologies: Catching the Wave." *Harvard Business Review*. January-February 1995.

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