2017 Edition

Embedded Business Intelligence Market Study Summary

Wisdom of Crowds' Series

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Executive Summary

- Users rank embedded BI technology 12th among 33 topics under our study in 2017. Over time, the perceived overall importance of embedded BI increased rapidly. Vendor sentiment is at an all-time high in 2017.
- The most important objective for embedded BI is "in-context insights and analysis." Broadening access internally is the next most important.
- We characterize adoption of embedded BI as strong and increasing year over year. More than half of respondents already use embedded BI, sharply up year over year. R&D, BICC, and IT are likely early adopters.
- Users seek and prefer lightweight embedded BI architecture, most often through HTML and web services. Other architectures are not growing in 2017. Industry support for embedded BI architecture closely mirrors user requirements.
- Users most want features in embedded BI that can manipulate non-static BI objects through drill-down and filtering. Single sign-on is also important. Industry support for user feature requirements is strongly supported.
- Internally developed apps and web portals are the most likely application targets for embedded BI, and most app targets are for internal users.
- Central IT is the most likely integration resource for embedded BI, but business analysts increasingly take hands-on integration roles.
Analysis and Trends: Business Intelligence Users

Importance of Embedded Business Intelligence
Among the 33 strategic business intelligence topics we currently study, embedded BI technology ranks 12th (fig. 1). This finding (identical to 2016), places embedded BI near the top third of all technologies and initiatives strategic to business intelligence, behind the most mainstream BI practices (reporting, dashboards, and end-user self-service) but ahead of other widely discussed initiatives including cloud, big data, and Internet of Things. This reflects continuing high demand for embedded technologies and an anticipation of future deepening business intelligence/analytics penetration.

**Figure 1 – Technologies and initiatives strategic to business intelligence**

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Across five years of study, the overall importance of embedded BI generally increases over time, either in perceived measures or actual usage (fig. 2). In 2017, "critical" scores slip from 28 percent to 24 percent, while most other measures improve slightly. Less than 1 percent say embedded BI is "not important," an all-time low for our study. As we note in fig. 5, adjusted mean importance by technologies ranked did not change. We continue to observe that embedded BI is very much in the mix of important strategic initiatives at organizations.

**Importance of Embedded BI 2013-2017**
Objectives for Embedded BI

Beginning in 2016, we asked organizations about their objectives for embedded BI and offered them a choice of four responses. Most important to respondents is the ability to provide "in-context insights and analysis" (fig. 3). This finding along with respondents' second choice ("broaden access to internal users") supports our belief that early-stage embedded BI is most often likely to be an internal exercise to deploy and provide analytic context and more immediate insight. Providing external users with complimentary access is considerably less popular, while strategies for monetizing embedded BI receives the most "not important" scores.

Figure 3 – Objectives for embedded BI
Adoption of Embedded Business Intelligence
As a relatively new technology, we characterize adoption of embedded BI as strong and increasing year over year (fig. 4). More than half of respondents (53 percent) currently use the technology, up strongly from 38 percent in 2016. This uptake more than offsets lesser declines in 12- and 24-month time frames, during which another 41 percent of organizations will adopt embedded BI. Only 6 percent of organizations currently have no adoption plans.

Figure 4 – Adoption of embedded business intelligence 2016-2017
Embedded Business Intelligence Architecture

We asked organizations to describe their interest in a variety of embedded BI architectures (fig. 5). Respondents in 2017 continue to seek and prefer lightweight integration, as shown in the drop-off that follows HTML/iframe and web services/RESTful. JSON, REST API, and Javascript API lead the next tier of most interest. .NET, Python, and frameworks fall into a third tier of interest, after which attitudes are only "somewhat important" toward support for a mix of legacy architectures that still require support. Over time, we expect lightweight methods will bring the greatest adoption as older applications migrate and sunset.

Figure 5 – Embedded BI architecture
Since we began our embedded BI study in 2013, we can see the net four-year migration of sentiment that brings us to 2017 (fig. 6). The use of lightweight integration formats (HTML, web services) has accelerated noticeably while most other frameworks and platforms are flat or in decline. Sorted by 2017 data, HTML and web services share an adjusted mean score of 3.7 (approaching “very important”), followed by above-important scores for JSON and Javascript API. All remaining architectures we tracked in the last four years are in decline. (Python, Github, and Docker are newly added in 2017).

**Embedded BI Architecture 2013-2017**

![Embedded BI Architecture 2013-2017](image-url)

Figure 6 – Embedded BI architecture 2013-2017
Embedded Business Intelligence Feature Requirements
We asked respondents to prioritize embedded BI features in order of their importance to their roles and organizations. Their top choice, the ability to interact, represents a desire to manipulate non-static BI objects through drill-down and filtering (fig. 7). Their second choice, single sign-on, supports the ability to access embedded BI objects seamlessly across applications and servers. Other pedestrian tasks (open/view, refresh, browse/select) rank ahead of more advanced features (modify/create, apply analytics), reflecting the desire for lightweight, informative, and task-oriented embedded capabilities.

![Embedded BI Feature Priorities](image)

Figure 7 – Embedded BI feature priorities
Across our three most recent years of study, embedded BI capability preferences are in a somewhat steady state by ranking, though 2017 sentiment declines somewhat across several feature choices (fig. 8). Only one feature ("apply analytical algorithms, mining, predictive") gains momentum year over year. Overall, the top five features retain adjusted mean importance greater than 3.5, toward "very important." (We added "Run invisibly...", "workflow support" and "write-back support" in 2017.)

**Figure 8 – Embedded BI feature priorities 2015-2017**
Targeted Applications for Embedded Business Intelligence

We asked respondents to describe specific applications they would target for embedded BI (fig. 9). In 2017, internally developed applications and web portals stand out most strongly. We would expect most usage to be internal; either of these features could easily extend outside the organization to customers and other third parties. Most remaining features, including financial management, ERP, salesforce management, and marketing automation, are more plainly internally focused. It is notable that embedded BI is not yet considered a deliverable for Electronic Medical Records, call centers, supply chain management, or personal productivity.

Figure 9 – Targeted applications for embedded BI
Interest in multiple targeted applications for embedding BI decreased year over year compared to 2016, most notably in areas of financial management, salesforce management, workforce management, and call center management (fig. 10). While internally developed applications (newly added in 2017) rank highest, no application targets gain ground this year, though momentum remains most strong in the area of web portals.

![Application Targets for Embedded BI 2013-2017](http://www.dresneradvisory.com)

Figure 10 – Application targets for embedded BI 2013-2017
Integration Resources for Embedded Business Intelligence

In 2017, central IT remains the top integration resource for embedded BI (fig. 11). The business analyst was the second most cited resource as subject matter (integration) resource, ahead of departmental IT. After this, preferred/prioritized integration resources falls across BICC, BI software vendors, app software providers, and other third parties, indicating that embedded BI integration mostly remains a compartmentalized internal exercise.

Figure 11 – Prioritized integration resources for embedded BI
We observe some shifting among prioritized integration resources for embedded BI between 2013-2017 (fig. 12). While central IT remains the most likely integration resource, business analysts gain the most ground and move ahead of departmental IT to become the second most likely integration point. We expect this change results from analyst demand for self-service and improving desktop tools fit for the purpose. During the same period, vendor integration is flat or decreases, and customer integration is most unlikely.

Figure 12 – Prioritized integration resources for embedded BI 2013-2017
Industry and Vendor Analysis

We reached out to the vendor community and asked questions about their capabilities and plans for embedded BI, including its perceived importance to their strategies.

Industry respondents grew a dramatically stronger view of the importance of embedded BI over time (fig. 13). In 2017, 84 percent of vendors say embedded BI is "critical," a year-over-year increase of 17 percent. Another 13 percent of vendors say embedded BI is "very important," leaving just 3 percent of the industry indifferent. By comparison, a combined 57 percent of users say embedded BI is "critical" or "very important, though another 24 percent of users consider it "important".

![Industry Importance of Embedded BI 2013-2017](image)

*Figure 13 – Industry importance of embedded BI 2013-2017*
Industry support for embedded BI architecture (fig. 14) is high and strongly supports user preferences shown earlier. HTML/iframes are 100 percent supported, web services/RESTful has 87 percent support and is expected to reach 94 percent in 12 months. Twelve-month industry investment is expected for all features except Flash and will be greatest in areas of Docker support, JSON, and Github.

Figure 14 – Industry support for embedded BI architecture
Industry support for most embedded architecture technologies increased in 2017 compared to the previous year (fig. 15). This was especially the case for Python (which also shows the strongest four-year gains), as well as portlets, gadgets, Java API, frameworks, and JSON. Web services growth is down slightly, though 12-month plans will increase penetration. (In 2017, we added Docker support and Github to embedded architectures under study.)

Industry Support for Embedded Architecture
2013-2017

Figure 15 – Industry support for embedded BI architecture 2013-2017
There is very strong industry support for the full range of embedded BI features in 2017 (fig. 16). At minimum, the top eight categories, led by “interact with objects” and “browse/select,” can be considered fully supported in 2017. Twelve-month investment will be strongest in "workflow support" and "introduce user-supplied data for mashups." Industry support is well ahead of customer feature priorities, indicating that the vendor industry expects ongoing and increasing adoption of embedded BI.

**Industry Support for Embedded BI Features**

![Industry Support for Embedded BI Features](image)

*Figure 16 – Industry support for embedded BI features*
Across four years of study data, industry support for embedded BI features has, for the most part, grown or held steady (fig. 17). 2017 support for "browse/select," open/view objects," "single sign-on," and "alerts" made gains. (We added two new features, "workflow support" and "write-back support" in 2017.)

**Industry Support for Embedded BI Features 2013-2017**

Figure 17 – Industry support for embedded BI features 2013-2017
Embedded Business Intelligence Vendor Ratings

In rating the vendors, we considered embedded BI features/capabilities and embedded architecture. A score of at least 50 percent is required to be ranked (fig. 18). Weightings are based upon user prioritizations of functionality. Top-rated vendors include Logi Analytics (1st), JReport (2nd), MicroStrategy (3rd), Information Builders (4th), and Infor/Birst, Hitachi Vantara (Pentaho), OpenText, and TIBCO tied for 5th place.

Figure 18 – Embedded BI vendor ratings
Vendor Ratings Detail
Often, groupings of scores are tight with small percentages separating one vendor from another. To help readers understand which vendors offer key capabilities, we identified top-rated vendors by categories of functionality, specifically “architecture” and “features.”

Top Vendors for Embedded BI Architecture
With scores ranging from 15.25 to 16.25 (maximum score of 17.25), top vendors for embedded BI architecture include Logi Analytics, JReport, and TIBCO.

Top Vendors for Embedded BI Features
With scores ranging from 16.25 to 16.75 (maximum score of 16.75), top vendors for embedded BI features includes Dundas, Information Builders, JReport, Logi Analytics, MicroStrategy, OpenText, Salesforce, SAP, and Sisense.
Other Dresner Advisory Services Research Reports

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