The Forrester Wave™: Hybrid² Integration, Q1 2014

by Stefan Ried, Ph.D., February 14, 2014

KEY TAKEAWAYS

The First Ingredient Of Hybrid² Integration: Interoperability Of Integration Capabilities

Many larger enterprises have a variety of different integration technologies based on deep integration requirements or simply because consolidation failed in past. Hybrid² integration capabilities improve the interoperability and coexistence of multiple integration tools in merged scenarios.

The Second Ingredient Of Hybrid² Integration: Consistent Cloud And On-Premises Integration

Software-as-a-service applications have become the norm, even in large enterprises. CIOs either extended the reach of existing integration technology into the cloud or acquired new cloud-based integration (CBI) to merge the cloud with applications, data, and processes on-premises.

Balance Deep And Wide Integration Scenarios

Individual tools such as an enterprise service bus can serve deep application integration duties. But, the sophisticated leaders in a single segment are not necessarily the most interoperable option combined with other integration tools and segments in wide hybrid scenarios.

The Forrester Wave™: Hybrid² Integration, Q1 2014

The 14 Providers Offering Four Or More Integration Technologies, Including Cloud-Based Integration

by Stefan Ried, Ph.D.
with Pascal Matzke and Joanna Clark

WHY READ THIS REPORT

In Forrester's 51-criteria evaluation of hybrid² integration vendors, we identified the 14 most significant middleware providers — Adeptia, Bosch Software Innovations (Bosch SI), Dell Boomi, IBM, Informatica, Liaison, Microsoft, MuleSoft, Red Hat, Seeburger, Software AG, Talend, Tibco Software, and WSO2. Instead of exploring only single products, we researched the functionality and interoperability of all relevant products from each vendor to understand their fit for hybrid scenarios between the cloud and on-premises as well as across the different traditional on-premises integration capabilities. This report details our findings about how well each vendor fulfills our criteria and where they stand in relation to each other to help CIOs select the right partner for their hybrid² integration endeavors.

Table Of Contents

Notes & Resources

Forrester conducted 14 integration portfolio evaluations with more than 40 integration products in October 2013 and interviewed 14 vendors — Adeptia, Bosch Software Innovations, Dell Boomi, IBM, Informatica, Liaison, Microsoft, MuleSoft, Red Hat, Seeburger, Software AG, Talend, Tibco Software, and WSO2 — and more than 28 user companies.

Related Research Documents

How Many Cloud Integration Technologies Do You Need?
November 12, 2013

The Forrester Wave™: Enterprise Public Cloud Platforms, Q2 2013
June 14, 2013

The Hybrid² Integration Challenge
May 1, 2013

CIOS' APPLICATION AND INTEGRATION STRATEGIES ARE AT AN INFLECTION POINT

Over the past decade, CIOs focused a lot of their strategic efforts and energy on consolidating their traditional application environments and infrastructure. As a result, many CIOs reduced the number of business application vendors to one major enterprise resource planning (ERP) vendor such as Oracle or SAP, or they tried to consolidate all middleware with a single vendor. Have these approaches delivered the expected benefits, or would they still make sense today? The answer is clearly no!

Meanwhile, a CIO's goals and role have changed dramatically, and as a result, a focus merely on consolidation appears highly questionable. Enforcing a consolidated application landscape simply slows down the agility and speed of business innovation in many cases. Lines of business (LOBs) subscribed to software-as-a-service (SaaS) applications — partly even against the will of the CIO — to get new systems of engagement in a best-of-breed sourcing style. Although most established enterprise application vendors have caught up either with their own SaaS products or via acquired SaaS application vendors, the freedom to source business applications out of the cloud is an experience most LOBs would not like to give up today. Finally, the consolidation of middleware has simply failed in many cases, as deep and complex capabilities for on-premises integration represent the exact opposite of the simplicity expected from cloud-based solutions.

Hybrid² Integration Represents The Stretch In Two Dimensions

The challenge of cloud-computing-related integration scenarios and the heterogeneous nature of on-premises integration tools are not two separate problems. They are closely related and connected to each other and the changing application landscape. Forrester introduced therefore the term "hybrid² integration," defined as:[1]

> *The concept of federated on-premises and cloud-based integration combined with the improved interoperability of existing and new middleware silos of application, business-to-business (B2B), business process management (BPM), business events, business rules, and data integration. Key capabilities of hybrid² integration platforms include metadata life-cycle management and runtime interoperability, which help CIOs orchestrate a well-governed but also rapidly changing agile integration platform from multiple integration products.*

In many conversations with CIOs and enterprise architects, we found that metadata is one of the biggest investments in real integration platforms. The time and effort for all metadata assets such as service definitions, routing, mediation, process models, landscape and infrastructure models, data mappings, adapter configurations, data models or B2B contracts, and electronic data interchange (EDI) configuration matter even more than the license or operations cost in many cases. As different tools interoperate and digest each other's metadata better, integration-related costs fall and the whole landscape of integration tools is more agile and can react to fast-changing applications landscapes, be they on-premises and in the cloud (see Figure 1).

While the on-premises integration or middleware tools became very mature, the cloud brought up three new categories of integration tools:

- **Cloud-based integration (CBI) impresses with simplicity.** CBI offerings are addressing the needs of tech-savvy businesspeople who can subscribe to a SaaS application without (much) help from the CIO's organization. These people can now establish basic integration such as initial data load or ongoing data synchronization. Not much more than the login credential to a SaaS solution and, for example, a local ERP system is needed. To achieve good performance or comply with firewall policies, usually a small, headless agent runs locally.[2] CBI solutions are really cloud services, where users can sign in and immediately begin to work.[3]

- **Integration-centric platform-as-a-service (iPaaS) merges CBI and PaaS.** The first vendors merged their CBI service with a platform-as-a-service (PaaS) offering. This usually requires slightly higher skill sets than the simplified CBI solutions but allows creating general-purpose business applications. For example, enterprises can realize B2B and SaaS integration scenarios in the cloud but can also develop on the same platform a composite application asking for a manual completion of missing data.

- **API management solutions help to expose enterprise APIs/services externally.** Many enterprises have internally a lot of data and business logic that, once shared with customers, can improve the customer experience and increase engagement. A retailer might expose, for example, an API of the order status to an external developer creating a mobile app with this data. API management tools make these APIs visible to external developers securely and with high performance.[4]

Figure 1 Hybrid² Integration Platforms Build On The Interoperability Of Multiple Products Or Suites
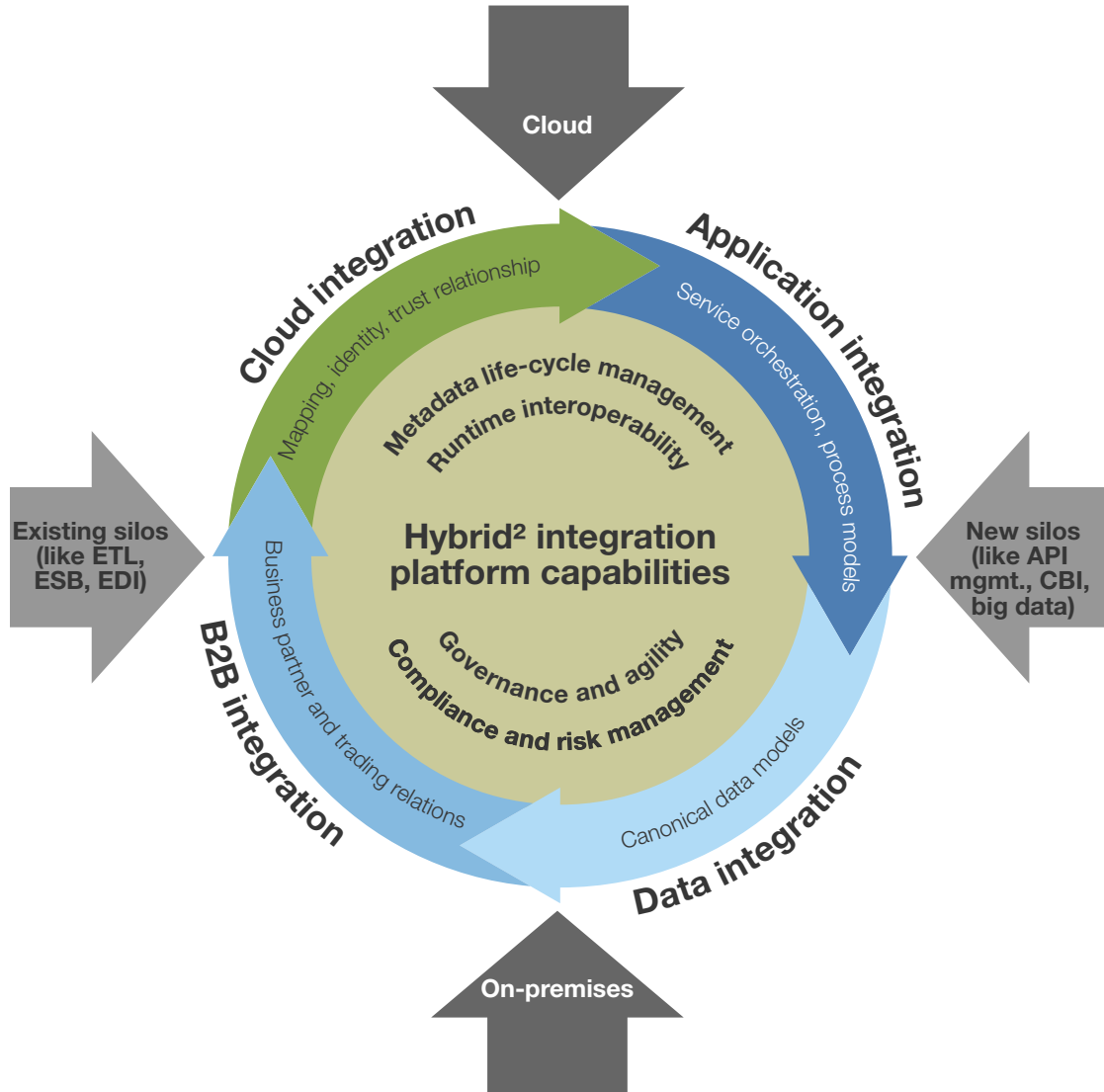
Source: May 1, 2013, "The Hybrid² Integration Challenge" Forrester report

111881

Source: Forrester Research, Inc.

YOUR INTEGRATION STRATEGY STARTS WITH YOUR APPLICATION LANDSCAPE

Hybrid² integration capabilities are not simply exposed by new CBI or iPaaS products. There is also an increasing capability set of established and traditional integration tools. The wide variety of different products may help in implementing a hybrid² integration platform, but it doesn't make the choice easier. We recommend screening the market based on your future application landscape and the resulting integration focus:

- *Wide integration* **is needed with heterogeneous application landscapes.** If your LOBs are demanding many SaaS applications, your integration scenarios will be complex across many different integration tools. While some SaaS applications are fast-evolving systems of engagement, many systems of record still remain on-premises, which drives the complexity you can best address with a wide integration approach.

- *Deep integration* **is needed with traditional on-premises application landscapes.** If the majority of your business applications remain on-premises, and, for example, the application integration responsibility is with a different team than the data integration responsibility, a deep understanding of each tool independently matters most. However, some interoperability such as the consistent usage of canonical data models by all tools helps to establish successful corporate governance.

- *Cloud integration* **is needed if the cloud becomes the main home of your business applications.** If the majority of business applications will be replaced by SaaS applications, new CBI and iPaaS solutions need to become the center of your integration strategy. Some of the metadata of your existing on-premises integration platforms may be reused in such scenarios.

- *Internet-of-Things integration* **is still niche but can support differentiating business models.** If you are, for example, a utility company, the traditional integration tasks have been very similar to any large enterprise — until now. Future business models can differentiate around a consumer or energy-trading value proposition based on millions of smart meters connected to your core systems. This requires either new tools or new capabilities in existing integration tooling.

Beyond the shape of your future application landscape, there are some other considerations in picking the right tools. Forrester discussed in the recent "The Hybrid² Integration Challenge" report, for example, the reuse of existing skills or the problem of siloed development teams for application versus data versus B2B integration.[5]

HYBRID² INTEGRATION EVALUATION "À LA CARTE"

After monitoring inquiries of Forrester clients and vendor announcements about middleware, cloud integration, PaaS, and service-oriented architecture (SOA) over the past six years, we came to the conclusion that most established integration tools are really mature and differentiate only marginally

within the criteria set of their original product segment. If you look at the segment of the enterprise service bus (ESB), for example, basically all ESBs are good enough for most customers compared with the criteria we used in our last dedicated Forrester Wave for ESBs.[6] This is also the case for traditional B2B tooling such as EDI gateways. However, examining user-needs assessments, surveys, and vendor and expert interviews unveiled that the ability to support hybrid integration scenarios is beyond the original ESB or B2B criteria and does really differentiate even these mature tools today.

The Current Offerings Balance Traditional And New Hybrid Integration Criteria

We developed for the first time a comprehensive set of 51 selection criteria that balance all major traditional integration capabilities with how these integration tools or suites work together across single segments. The current offering criteria include the following four sections.

- **Interoperability scenarios among the participating integration tools or capabilities.** This is a well-known spectrum of criteria, which we evaluated as a standalone offering in "The Forrester Wave™: Integrated SOA Governance, Q1 2012."[7] Now, we apply the well-known principles of the SOA world such as metadata life-cycle management or metadata federation to all integration capabilities holistically. We asked vendors, for example, how the change to a custom EDI message type propagates from a B2B gateway, across a connected ESB, to a data integration tool.[8] The less manual effort it takes to translate an EDI schema into a web service definition or data model definition, the higher the scores are. Hence, this section evaluates the wide interoperability across suites of tools.[9]

- **Integration capability.** We consider the following seven traditional or new integration capabilities in this report: application integration (mainly ESB), B2B integration (mainly EDI), business process management (BPM), data integration, cloud-based integration (CBI), API management, and Internet of Things (IoT) supporting capabilities. Each single criterion in this section basically represents the condensed set of current offering criteria from previous Forrester Waves focused on the corresponding integration capability. For BPM and API management, we published very recently a detailed Forrester Wave and could bring over the consistent scoring. Only for IoT support did we develop new criteria in this section. The deeper the independent integration capabilities are, the higher the scores are — even if they do not support any interoperability with each other.[10]

- **Hybrid integration value.** The third section evaluates a balanced value of each integration capability, based on the depth of the capability, the interoperability, and a tooling index, which is related to ease of use and simplicity as explained below.[11]

- **Hybrid cloud capabilities.** The fourth section of criteria deals specifically with the integration *with* and *in* the cloud.[12] This is a newly developed set of criteria to evaluate both new CBI offerings and the ability of traditional integration tools to integrate with SaaS applications in the cloud.[13]
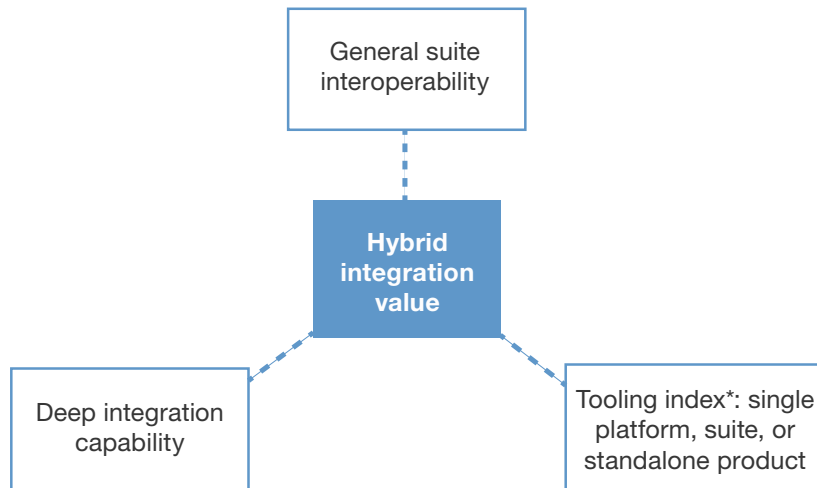
The Most Complex Product May Not Provide The Best Hybrid Integration Value

CIOs and enterprise architects from midsize and some large enterprises told us frequently that some of the most mature and leading integration products may solve "every IT integration problem on the planet," but the tools are simply "total overkill," "too complex," or "require a consultant from the vendor to configure average scenarios." We realized that a Forrester Wave, which simply scores capabilities, may recommend the usage of the most capable, but maybe also the most complex, integration platform. Furthermore, we understand that some enterprises have good success with single tools that support all required integration capabilities basically out of a single runtime engine and a single design-time tool and not out of a suite or portfolio of multiple tools of a larger software vendor. We consider therefore the "hybrid integration value" of each integration capability, as a balance of these three strengths (see Figure 2):

- **General suite interoperability.** This is simply the sum of all scores of the interoperability scenarios as explained above (sum of lines 15 to 24 in the Excel model).

- **Deep integration capability.** This is the score of the corresponding integration capability (e.g., the score in line 26 if we look for the hybrid integration value of application integration).

- **Tooling index.** This index favors easy-to-use and compact integration tools over large suites of products or even standalone tools for the specific integration capability. The index is scored between 1 and 5 on lines 33 to 39 in each vendor's evaluation page of the associated Excel models. The score is the maximum if multiple integration capabilities are exposed out of a single tool or low if vendors leverage poorly integrated tools or partner solutions to achieve the functionality at all.[14]

The final score for the hybrid integration value (lines 33 to 39 in the associated Excel model) is calculated by the normalized product of these three strengths. Obviously it is very hard for a vendor to appear strong in all three areas at the same time. For example, a large software vendor could have achieved a great score for one of the seven deep integration capabilities through an acquisition of another product. Hence, its final hybrid integration value for the corresponding capability is only medium (based on the low tooling index) if it was not brought into the user interface and runtime concepts of a suite or the vendor has not invested enough in the general interoperability at all. On the other hand, even smaller vendors of compact integration products that expose all capabilities out of a single tool can achieve at least an average hybrid integration value based on their maximum tooling index, even if the integration capability itself is not as deep as possible.

Figure 2 Hybrid Integration Value Is The Balance Of Three Strengths

```
                    ┌─────────────────┐
                    │  General suite  │
                    │ interoperability│
                    └─────────────────┘
                             ┆
                    ┌─────────────────┐
                    │     Hybrid      │
                    │   integration   │
                    │     value       │
                    └─────────────────┘
                    ┆               ┆
    ┌─────────────────┐       ┌──────────────────────┐
    │ Deep integration│       │ Tooling index*: single│
    │    capability   │       │  platform, suite, or  │
    └─────────────────┘       │  standalone product   │
                              └──────────────────────┘
```

*Note: The tooling index is scored the following way:
5 = Integration capabilities are exposed with others out of a single tool.
4 = A suite of tools with unified design-time tools and a single container-based runtime concept.
3 = The integration capability is very well integrated in a suite of tools.
2 = The integration capability is well integrated in a suite.
1 = The capability is a standalone tool or recently acquired or a partner solution with limited integration.

111881   Source: Forrester Research, Inc.

Strategy And Market Presence Complete The Final Picture

About a year ago, most of the incumbents of traditional middleware were far behind not only in terms of addressing the new requirements but also in the strategic understanding of the cloud integration market. We therefore evaluated the vendor strategy at the detailed level of 15 criteria. While the scoring of the current offering includes only products and cloud services generally available by August 1, 2013, the strategy scores also include our rating of partly confidential forward-looking statements.

- **Strategy.** To assess vendors' strategies, we interviewed executives at each firm and evaluated the strength of the vendors' product strategy and vision, looking at the ways in which vendors intend to differentiate in the hybrid integration market.

- **Market presence.** This section helped gauge the size of vendors' customer and user base and evaluated the depth of resources — human and financial — available to help enhance vendors' products and serve their customers.

There is no magic! The associated Excel model for this Forrester Wave evaluation includes explanations of all criteria in detail. We'd like to encourage you to download this tool and get familiar with the details. Each of the 51 criteria is evaluated for each of the 14 participating vendors. All of these 700-plus single scores are explained additionally with brief text. Given the fact that many of the current offering criteria are a condensed score of an integration capability that we used to evaluate or continue to evaluate with a dedicated Forrester Wave, the current report is one of Forrester's most comprehensive and extensive Forrester Waves ever.

It Was Tough To Participate

All participating vendors had to offer at least four of the following seven integration capabilities directly to enterprises in a traditional sales model or via a self-service cloud subscription:

1. Application integration based on an enterprise service bus (ESB) as defined in "The Forrester Wave™: Enterprise Service Bus, Q2 2011" or low-latency messaging based on JMS, for example, with latency equal to or lower than 1 millisecond.[15]

2. B2B integration based on a B2B service as defined in "The Forrester Wave™: B2B Service Providers, Q4 2009" or a licensed B2B technology handling major EDI formats.[16]

3. Business process management (BPM) or business rules management (BRM). BPM is defined as support for dynamic case management, human workflow, and straight-through processing in the "The Forrester Wave™: BPM Suites, Q1 2013."[17] BRM can be either a business rules platform or a business rules suite as defined in the report "The Standalone Business Rules Platform Market Segment Should Be Growing Faster."[18]

4. Data integration with at least three of the data integration technologies introduced in the "Forrester TechRadar™: Enterprise Data Integration, Q1 2010" (except an ESB).[19]

5. Cloud-based integration (CBI), which is defined as a multitenant integration service running in the cloud and providing data mapping and synchronization between cloud and cloud or cloud and on-premises business applications.

6. API management as defined in "The Forrester Wave™: API Management Platforms, Q1 2013."[20]

7. Integration with the Internet of Things or physical computing. Product offerings need to offer a packaged approach to integrate embedded devices or industrial manufacturing infrastructures like robots. The context between technical sensor data and upper-level business processes such as predictive maintenance or energy management is the focus here.

All evaluated solutions needed to have additionally at least some basic market visibility in terms of Forrester's client inquiry conversations and surveys. Some of the 24 screened vendors did not meet this inclusion requirement. Some had the development of a hybrid² integration platform on their strategic planning road map but were simply not ready. Others focus more on an indirect go-to-market strategy and their products appear to be bundled with SaaS applications. Enterprises have little choice to change this if they decide to use the corresponding SaaS solution. We have therefore excluded these vendors from our evaluation as well.

The Forrester Wave process was a tough path for most vendors. Some vendors started the evaluation and dropped out when they saw that they could not create the requested demo scenarios; others were not able to answer the 51-criteria questionnaire.

At the end, these 14 vendors passed the assessment: Adeptia, Bosch Software Innovations, Dell Boomi, IBM, Informatica, Liaison, Microsoft, MuleSoft, Red Hat, Seeburger, Software AG, Talend, Tibco Software, and WSO2. Each of these vendors has at least four of the seven integration capabilities (see Figure 3). In many cases, these integration capabilities were spread over a range of different products (see Figure 4).

Figure 3 Evaluated Vendors: Vendor Information And Selection Criterion

Vendor	App integration	B2B integration	Business process management (BPM)	Data integration	Cloud-based integration (CBI)	API management	Internet-of-Things integration
Adeptia	■	■	■	■		■	
Bosch SI	■	■		■			■
Dell Boomi	■	■		■	■	■	
IBM	■	■	■	■	■	■	■
Informatica	■	■	■	■	■	■	■
Liaison	■	■	■	■	■		
Microsoft	■	■	■	■	■	■	■
MuleSoft	■	■	■	■	■	■	■
Red Hat	■	■	■	■	■	■	■
Seeburger	■	■	■	■	■		■
Software AG	■	■	■	■		■	■
Talend	■	■	■	■		■	■
Tibco Software	■	■	■	■	■	■	■
WSO2	■		■	■	■	■	■
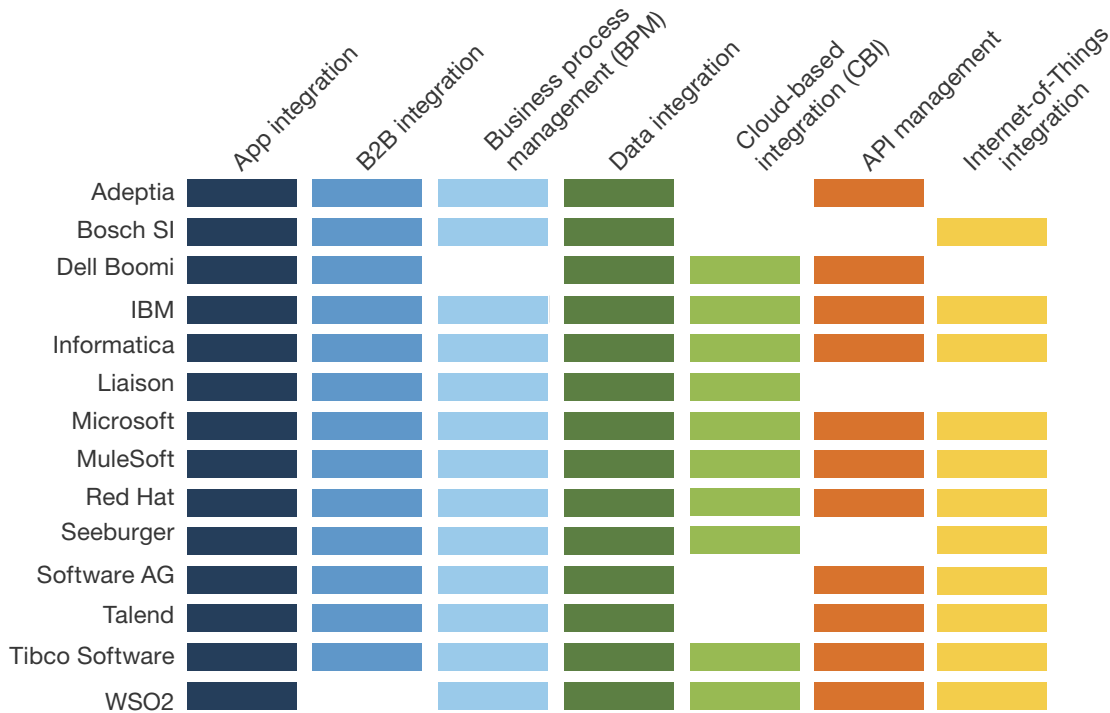
Note: To participate, vendors were required to offer at least four of the seven integration capabilities.

111881　　　　　　　　　　　　　　　　　　　　　　Source: Forrester Research, Inc.

Figure 4 Evaluated Vendors: Product Information

Vendor	Product(s) evaluated*
Adeptia	Adeptia Enterprise Business Integration Management (EBIM) Suite, Adeptia Business Process Management (BPM) Suite, Adeptia B2B Integration Suite, Adeptia ESB Suite, Adeptia ETL Suite
Bosch Software Innovations	Bosch Software Suite, including BPM, BRM, M2M; Internet of Things and Services IoTS Edition
Dell Boomi	Dell Boomi AtomSphere Enterprise Plus Edition
IBM	WebSphere DatePower, IBM Integration Bus, IBM Business Process Manager, InfoSphere Information Server, Cast Iron
Informatica	Informatica PowerCenter, Informatica Cloud
Liaison	Liaison Contivo Suite, Liaison Cloud Integration Platform, Liaison ECS
Microsoft	BizTalk Server, BizTalk Server on Azure, Azure Service Bus, Azure BizTalk Services, SQL Server (for data integration capabilities), BizTalk Adapter Pack; partner products: Sentinet by Nevatech as a repository and metadata life-cycle management solution, BizTalk360 by Kovai for runtime management
MuleSoft	MuleSoft Anypoint Platform including: MuleESB, Mule Enterprise Management, Mule Studio, Anypoint Connectors, CloudHub, Anypoint API Manager, Anypoint API Portal
Red Hat	Red Hat JBoss A-MQ, Red Hat JBoss Fuse, Red Hat JBoss SOA Platform, Red Hat JBoss Data Services Platform, Red Hat JBoss BRMS, Red Hat JBoss Developer Studio; for public PaaS, OpenShift Online by Red Hat; for private PaaS, Red Hat's OpenShift Enterprise
Seeburger	Business Integration Suite (BIS)
Software AG	webMethods Suite, AgileApps Live
Talend	Talend platform for Enterprise Integration (includes data integration, ESB, and BPM, which is an OEM from partner Bonitasoft)
Tibco Software	Active Matrix BusinessWorks, Tibco Adapters, BusinessConnect, Foresight, API Exchange Gateway, ActiveMatrix BPM, Tibco Cloud Bus
WSO2	Carbon Middleware Platform, WS02 Developer Studio, WSO2 AppFactory and Private PaaS, WSO2 AppCloud, Integration Cloud, and API Cloud

*All products evaluated were the versions generally available as of August 2013.

Source: Forrester Research, Inc.

FOUR SCENARIOS OF HYBRID² INTEGRATION MATCH APPLICATION LANDSCAPES

We introduced above four typical application landscapes. To recommend the best choice of an integration platform, tools, and cloud-based integration or iPaaS services, we developed the following four weighting schemes:

■ *Wide* **integration focuses on the hybrid integration value.** Integration with or in the cloud is weighted just like any other integration capability. The weighting of the strategy and market presence details is the default as in a standard Forrester Wave.

■ *Deep* **integration focuses on integration capability first and interoperability second.** The combined scores of hybrid integration value, including the tooling index, are not considered at all. Complex integration platforms appear stronger, as simplicity matters less. Vendors that have an ideal balance between deep and wide integration appear at about the same location as in the previous scenario.

■ *Cloud integration* **focuses on all kinds of integration with and in the cloud.** But, it still balances the weighting with all the traditional integration capabilities at about 45%. We believe looking at a 100% cloud integration weighting will lead the tool selection to another silo. Also the weightings in the market presence are adapted, for example, based on daily transaction volumes of cloud-based integration services rather than a vendor's revenue.

■ *Internet-of-Things* **integration is built on dedicated capabilities.** The major priority in the current offering sections is on IoT-related integration capabilities. This includes, for example, the support of typical protocols such as MQTT, a lightweight deployment of the integration tools that can run on embedded devices, and IoT-specific industry scenarios such as predictive maintenance.

Forrester strongly encourages you to download the associated models and use the built-in "Your Custom Weightings" feature. This would also allow you to generate, for example, a more ESB-centric Forrester Wave evaluation if you are looking mainly at the replacement of an existing ESB and do not embrace the concept of hybrid² integration. In principle, the same applies for the space of B2B integration, but please keep in mind that some B2B-focused vendors did not meet the inclusion criteria of this Forrester Wave. We mentioned many of them in the vendor profiles of non-participating vendors for your convenience.

Different Market Leaders, Strong Performers, And Contenders Emerge

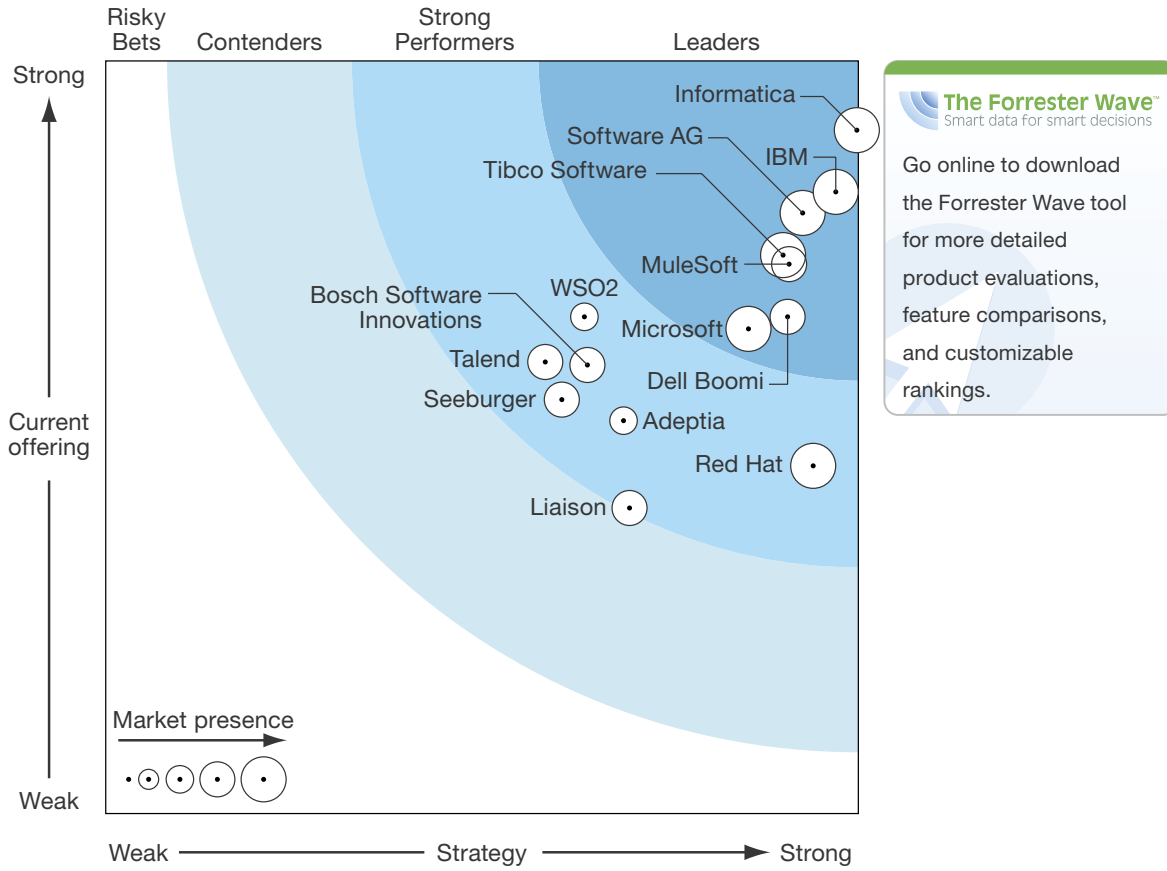The evaluation uncovered a highly dynamic market in which:

■ **Dell Boomi, IBM, Informatica, Microsoft, MuleSoft, Software AG, and Tibco are leading the wide and deep integration scenarios.** Their positions vary within the Leader camp based on the scenario, but these vendors are an excellent choice for a variety future of application

landscapes, both on-premises and in the cloud (see Figure 5 and see Figure 6). Especially Dell Boomi is a surprise. Although very few customers use its CBI offering to implement on-premises-to-on-premises integration scenarios, the solution is capable of delivering this in a lightweight style.

■ **Adeptia, Bosch SI, Liaison, Talend, and WSO2 are Strong Performers for the wide and deep integration scenarios.** Their positions vary within the Strong Performer camp based on the scenario, but these vendors offer clearly strong solutions for a variety of future mixed application landscapes both on-premises and in the cloud.

■ **Red Hat is in the Leader camp for the deep integration scenario and among Strong Performers for wide integration.** Red Hat's integration offering provides deep capabilities in most integration categories. Its offering is a bit less sophisticated in the wide integration scenario, but it is still in the Strong Performer camp. Red Hat's integration offerings are therefore an excellent choice for traditional enterprise integration and might be part of an excellent hybrid² integration platform if complemented with other vendors' metadata life-cycle and governance tools.

■ **Dell Boomi, IBM, Informatica, Microsoft, MuleSoft, Red Hat, Tibco, and WSO2 are leading the cloud integration scenario.** All of these vendors have a sophisticated CBI or iPaaS offering available as a cloud service, and they also address well enough on-premises-to-on-premises integration scenarios (see Figure 7).

■ **Liaison and Software AG are Strong Performers in the cloud integration scenario.** Software AG has announced its iPaaS offering, but it was not generally available by August 1, 2013. Nevertheless, there is already a PaaS offering (Software AG AgileApps Live) and an option to integrate with the cloud out of the existing webMethods suite. Given its Leader position in deep and wide integration, it is already a good choice for hybrid application landscapes. Liaison demonstrated good interoperability, but the powerful CBI offering out of its Hubspan acquisition is not yet interoperable enough with the rest of Liaison to get to the Leader camp in the cloud integration scenario, which still requires a lot of on-premises interoperability.

■ **Adeptia, Bosch SI, Seeburger, and Talend are Contenders in the cloud integration scenario.** Although Seeburger is a major and leading B2B integration service, it struggles a bit with the CBI scenarios and the variety of required SaaS applications that need to be connected out of the box. Adeptia, Bosch SI, and Talend are not ready for a CBI or iPaaS service. Customers can for sure take these software packages and host them on an IaaS service of their choice such as AWS EC2, but then the maintenance of the software installation and all operational issues are the customer's responsibility and do not come as a service. We recommend evaluating the benefits of this service level and other cloud-typical values such as metadata sharing or crowdsourcing before you pass on these features with vendors out of this camp.

- **Bosch SI, IBM, Informatica, MuleSoft, Red Hat, and Software AG make the Leader camp for the Internet-of-Things integration scenario.** Every vendor found a different way to differentiate in this space (see Figure 8). Bosch SI packages industry-specific scenarios around the Internet of Things (IoT) like predictive maintenance processes. IBM differentiates mainly with its good mix of all options, leading support of IoT-centric protocols, industry-specific scenarios such as IBM's smart city initiatives, and industry solutions for the embedded software development and software life-cycle management. Informatica invented a data virtualization concept (Vibe), which allows developers and architects to reuse data mappings or data models in general on any device. MuleSoft also supports all three of these aspects and impressed even with a lightweight version that runs on the Java Embedded Edition. Parts of Software AG's engines also run on Java Embedded Edition. While MuleSoft was able to show very strong partnerships supporting industry-specific scenarios around IoT, this was a slight weakness with Red Hat and Software AG.

- **Microsoft, Seeburger, Tibco Software, and WSO2 are Strong Performers for IoT integration.** All of these vendors showed great examples implemented with their integration platform around the Internet of Things. However, most vendors did not turn these projects into packaged capabilities or developed significant capabilities in their integration platforms to address the IoT needs.

- **Dell Boomi And Talend are Contenders for IoT integration.** This does not mean that you can't connect smart devices via these platforms to an enterprise back end. Skilled developers will manage this, but there are simply more challenges than with the other options. These can be either the support of protocols or the ability to run these integration tools on multiple levels of the hardware topology down to low-power devices themselves.

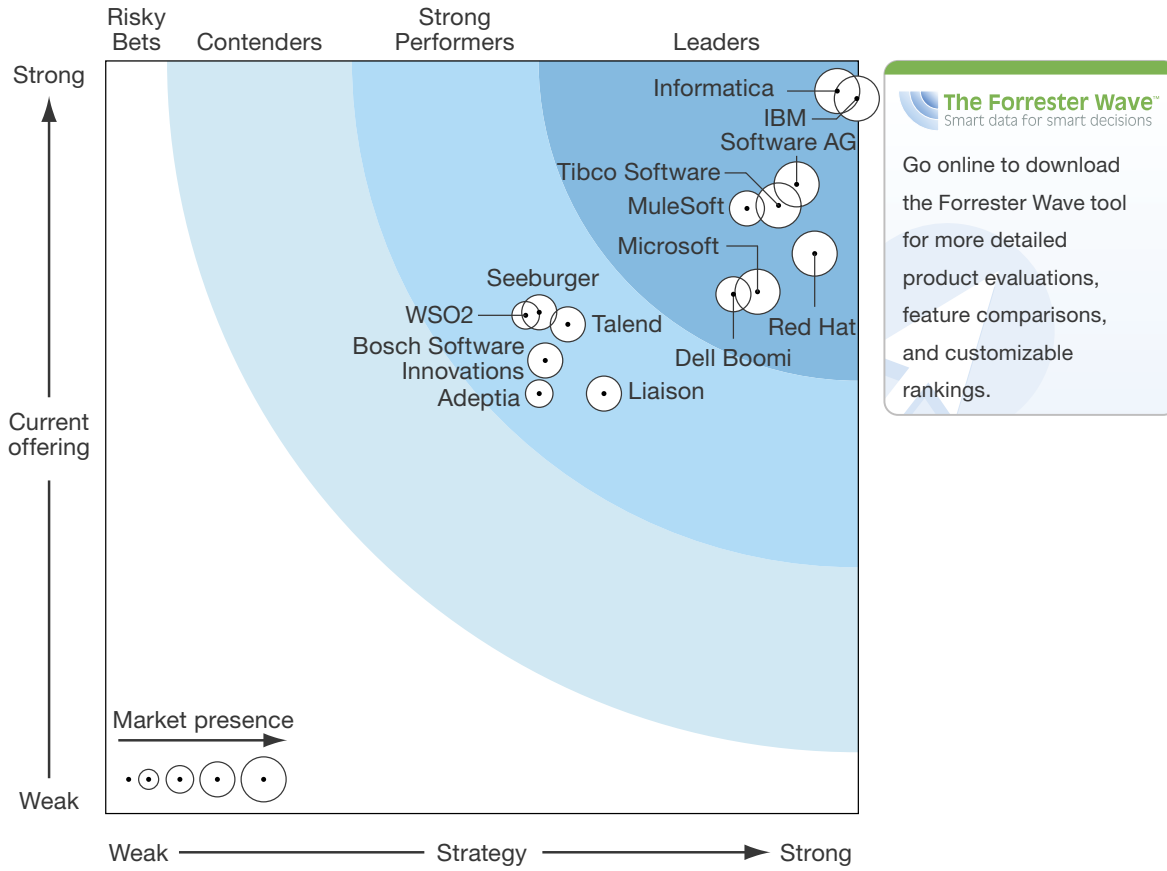*Figure 5* Forrester Wave™: Hybrid² Integration: Wide Integration, Q1 '14

Figure 5 Forrester Wave™: Hybrid² Integration: Wide Integration, Q1 '14 (Cont.)

	Forrester's Weighting	Adeptia	Bosch SI	Dell Boomi	IBM	Informatica	Liaison	Microsoft	MuleSoft	Red Hat	Seeburger	Software AG	Talend	Tibco Software	WSO2
CURRENT OFFERING	50%	2.61	2.98	3.30	4.13	4.54	2.03	3.22	3.65	2.31	2.75	3.99	3.00	3.71	3.30
SECTION 1: Integration tool scenarios with at least some of the participating integration tools	10%	3.10	3.40	3.00	4.80	4.70	2.00	3.60	4.40	3.70	2.20	4.60	3.60	4.40	3.30
SECTION 2: Integration technologies offered as a packaged product	10%	2.90	3.00	3.45	5.00	4.75	3.15	3.42	3.77	3.90	3.90	4.15	3.20	4.00	3.25
SECTION 3: Availability of integrated scenarios by integration tool category	70%	2.70	3.08	3.11	3.99	4.44	1.74	3.11	3.42	1.82	2.58	4.01	2.96	3.65	3.25
SECTION 4: Hybrid cloud capabilities	10%	1.25	1.90	4.84	3.58	4.92	3.00	3.44	4.41	2.75	3.31	3.05	2.52	3.18	3.69
STRATEGY	50%	3.44	3.20	4.53	4.85	4.99	3.48	4.27	4.54	4.70	3.03	4.63	2.92	4.50	3.18
Product strategy	25%	4.75	3.10	4.75	5.00	4.95	4.75	4.43	5.00	4.95	3.00	4.95	2.00	4.75	4.90
Partner strategy	15%	1.60	2.60	3.70	4.90	5.00	2.70	4.10	5.00	4.80	1.90	4.50	3.80	4.05	1.30
Corporate strategy	30%	3.80	3.60	4.70	4.90	5.00	3.00	3.80	4.70	5.00	3.00	4.70	2.60	4.70	3.10
Financial strength	20%	3.00	3.40	4.60	5.00	5.00	3.60	5.00	3.60	4.20	3.20	4.60	4.00	4.20	2.60
Go-to-market model	10%	2.70	2.70	4.60	3.90	5.00	2.70	4.10	4.10	4.00	4.50	3.90	2.70	4.50	3.10
MARKET PRESENCE	0%	2.30	3.30	3.65	4.85	4.63	3.13	4.38	3.10	4.28	3.20	4.30	3.15	4.38	2.38
Revenue	25%	2.00	5.00	5.00	5.00	5.00	3.00	5.00	2.00	5.00	3.00	5.00	3.00	5.00	2.00
Current usage	25%	2.70	2.70	4.10	4.90	5.00	4.50	5.00	4.90	3.60	4.80	4.70	3.60	4.50	3.00
Employees	25%	2.50	3.50	3.50	5.00	4.50	3.00	5.00	3.50	4.50	3.00	4.50	4.00	4.00	2.50
Distribution channels	25%	2.00	2.00	2.00	4.50	4.00	2.00	2.50	2.00	4.00	2.00	3.00	2.00	4.00	2.00

All scores are based on a scale of 0 (weak) to 5 (strong).

Source: Forrester Research, Inc.

Figure 6 Forrester Wave™: Hybrid² Integration: Deep Integration, Q1 '14
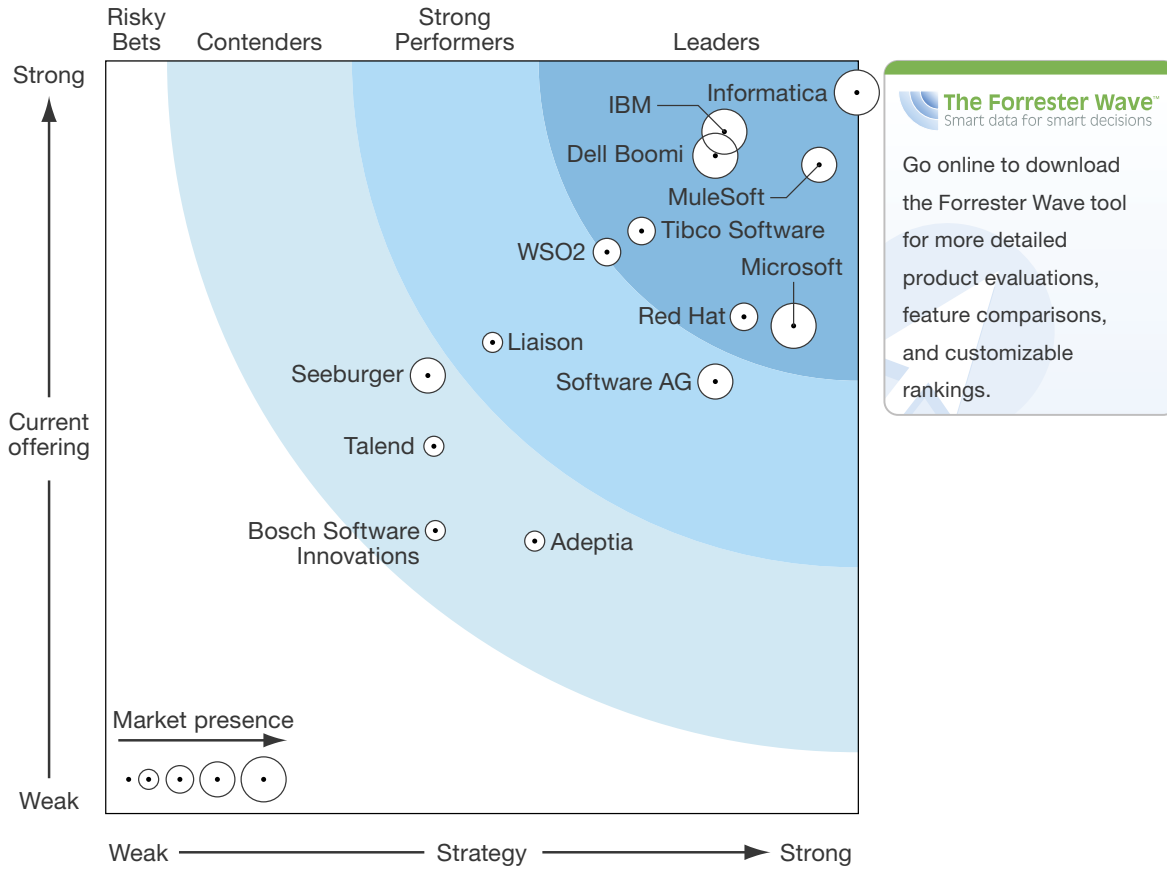

Source: Forrester Research, Inc.

Figure 6 Forrester Wave™: Hybrid² Integration: Deep Integration, Q1 '14 (Cont.)

	Forrester's Weighting	Adeptia	Bosch SI	Dell Boomi	IBM	Informatica	Liaison	Microsoft	MuleSoft	Red Hat	Seeburger	Software AG	Talend	Tibco Software	WSO2
CURRENT OFFERING	50%	2.79	3.01	3.45	4.80	4.75	2.79	3.47	4.02	3.72	3.33	4.18	3.25	4.04	3.31
SECTION 1: Integration tool scenarios with at least some of the participating integration tools	30%	3.10	3.40	3.00	4.80	4.70	2.00	3.60	4.40	3.70	2.20	4.60	3.60	4.40	3.30
SECTION 2: Integration technologies offered as a packaged product	60%	2.90	3.00	3.45	5.00	4.75	3.15	3.42	3.77	3.90	3.90	4.15	3.20	4.00	3.25
SECTION 3: Availability of integrated scenarios by integration tool category	0%	2.70	3.08	3.11	3.99	4.44	1.74	3.11	3.42	1.82	2.58	4.01	2.96	3.65	3.25
SECTION 4: Hybrid cloud capabilities	10%	1.25	1.90	4.84	3.58	4.92	3.00	3.44	4.41	2.75	3.31	3.05	2.52	3.18	3.69
STRATEGY	50%	2.88	2.92	4.17	4.86	4.99	3.31	4.35	4.26	4.71	2.88	4.59	3.07	4.47	2.79
Product strategy	15%	4.75	3.10	4.75	5.00	4.95	4.75	4.43	5.00	4.95	3.00	4.95	2.00	4.75	4.90
Partner strategy	25%	1.50	2.75	3.50	4.95	5.00	2.80	4.30	5.00	4.90	1.70	4.70	4.10	4.40	1.35
Corporate strategy	30%	3.60	3.80	4.55	4.95	5.00	3.30	4.00	4.55	5.00	3.30	4.55	2.50	4.55	2.95
Financial strength	20%	2.20	1.80	3.80	5.00	5.00	3.20	5.00	2.40	4.20	2.80	4.60	3.60	4.20	2.60
Go-to-market model	10%	2.70	2.70	4.60	3.90	5.00	2.70	4.10	4.10	4.00	4.50	3.90	2.70	4.50	3.10
MARKET PRESENCE	0%	2.30	3.30	3.65	4.85	4.63	3.13	4.38	3.10	4.28	3.20	4.30	3.15	4.38	2.38
Revenue	25%	2.00	5.00	5.00	5.00	5.00	3.00	5.00	2.00	5.00	3.00	5.00	3.00	5.00	2.00
Current usage	25%	2.70	2.70	4.10	4.90	5.00	4.50	5.00	4.90	3.60	4.80	4.70	3.60	4.50	3.00
Employees	25%	2.50	3.50	3.50	5.00	4.50	3.00	5.00	3.50	4.50	3.00	4.50	4.00	4.00	2.50
Distribution channels	25%	2.00	2.00	2.00	4.50	4.00	2.00	2.50	2.00	4.00	2.00	3.00	2.00	4.00	2.00

All scores are based on a scale of 0 (weak) to 5 (strong).

Source: Forrester Research, Inc.

Figure 7 Forrester Wave™: Hybrid² Integration: Cloud Integration, Q1 '14
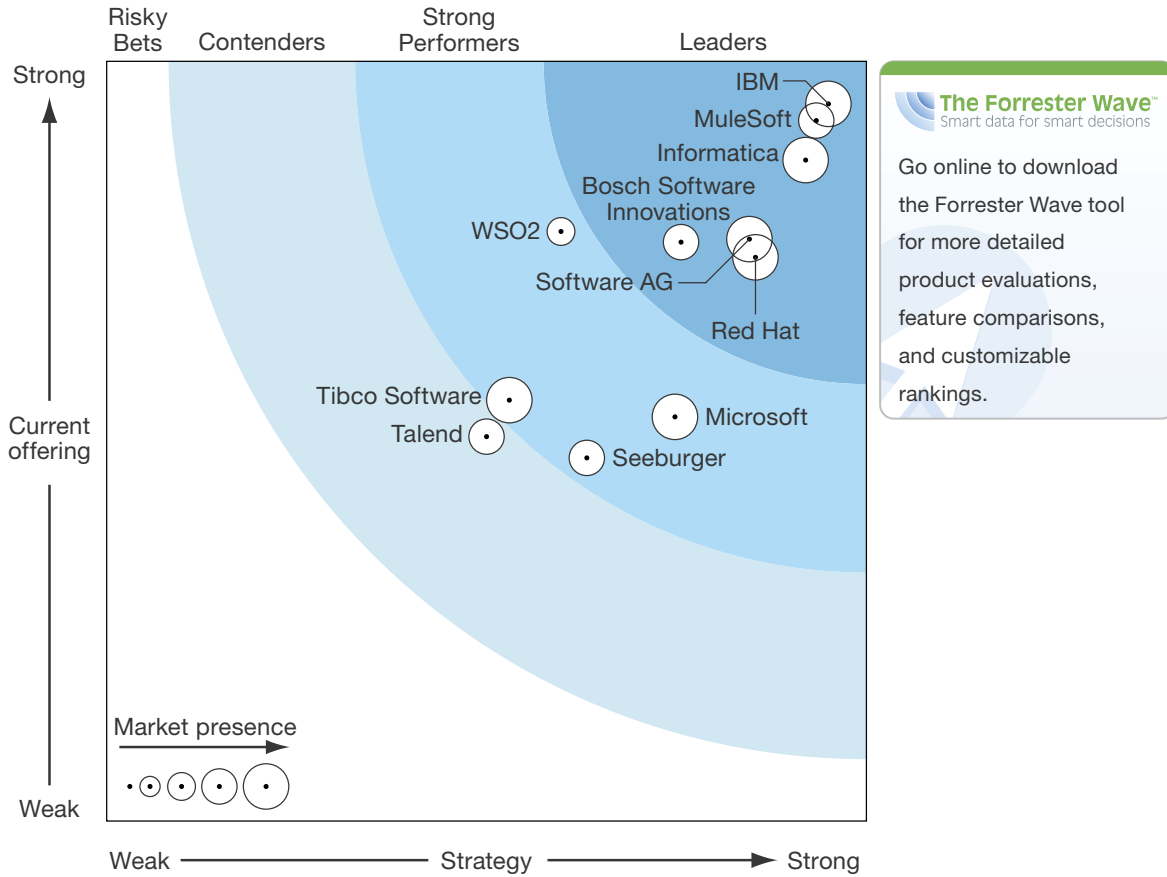
Figure 7 Forrester Wave™: Hybrid² Integration: Cloud Integration, Q1 '14 (Cont.)

	Forrester's Weighting	Adeptia	Bosch SI	Dell Boomi	IBM	Informatica	Liaison	Microsoft	MuleSoft	Red Hat	Seeburger	Software AG	Talend	Tibco Software	WSO2
CURRENT OFFERING	50%	1.81	1.88	4.37	4.53	4.79	3.13	3.24	4.31	3.30	2.91	2.87	2.44	3.87	3.73
SECTION 1: Integration tool scenarios with at least some of the participating integration tools	20%	3.35	3.45	3.40	4.65	4.55	2.05	3.45	4.50	3.95	2.25	4.40	3.85	4.30	3.45
SECTION 2: Integration technologies offered as a packaged product	50%	1.38	1.20	4.40	5.00	4.85	3.40	2.95	4.26	3.30	3.15	2.10	1.50	4.00	3.70
SECTION 3: Availability of integrated scenarios by integration tool category	0%	1.28	1.23	3.96	3.15	4.68	1.49	2.53	4.01	1.83	2.09	2.07	1.39	4.28	3.70
SECTION 4: Hybrid cloud capabilities	30%	1.50	1.95	4.95	3.65	4.85	3.40	3.60	4.25	2.85	2.95	3.13	3.05	3.35	3.95
STRATEGY	50%	2.85	2.19	4.05	4.11	4.99	2.57	4.57	4.74	4.24	2.14	4.05	2.18	3.56	3.33
Product strategy	25%	4.75	3.10	4.75	5.00	4.95	4.75	4.43	5.00	4.95	3.00	4.95	2.00	4.75	4.90
Partner strategy	15%	1.50	2.75	3.50	4.95	5.00	2.80	4.30	5.00	4.90	1.70	4.70	4.10	4.40	1.35
Corporate strategy	30%	3.20	1.60	4.80	3.20	5.00	1.40	4.60	4.80	3.50	1.70	3.30	1.60	3.30	3.00
Financial strength	10%	3.00	3.40	4.60	5.00	5.00	3.60	5.00	3.60	4.20	3.20	4.60	4.00	4.20	2.60
Go-to-market model	20%	0.90	0.90	2.20	3.30	5.00	0.90	4.70	4.70	4.00	1.50	3.30	0.90	1.50	3.70
MARKET PRESENCE	0%	1.21	1.61	4.13	4.42	4.75	1.60	4.50	3.47	2.23	3.04	3.11	1.58	2.30	2.65
Revenue	10%	2.00	5.00	5.00	5.00	5.00	3.00	5.00	2.00	5.00	3.00	5.00	3.00	5.00	2.00
Current usage	60%	0.60	0.60	4.80	4.20	5.00	1.00	5.00	4.20	0.80	3.40	2.60	0.80	1.00	3.00
Employees	10%	2.50	3.50	3.50	5.00	4.50	3.00	5.00	3.50	4.50	3.00	4.50	4.00	4.00	2.50
Distribution channels	20%	2.00	2.00	2.00	4.50	4.00	2.00	2.50	2.00	4.00	2.00	3.00	2.00	4.00	2.00

All scores are based on a scale of 0 (weak) to 5 (strong).

Source: Forrester Research, Inc.

Figure 8 Forrester Wave™: Hybrid² Integration: Internet-Of-Things Integration, Q1 '14

Source: Forrester Research, Inc.

Figure 8 Forrester Wave™: Hybrid² Integration: Internet-Of-Things Integration, Q1 '14 (Cont.)

	Forrester's Weighting	Bosch SI	IBM	Informatica	Microsoft	MuleSoft	Red Hat	Seeburger	Software AG	Talend	Tibco Software	WSO2
CURRENT OFFERING	50%	3.81	4.72	4.35	2.66	4.61	3.71	2.39	3.83	2.53	2.77	3.88
SECTION 1: Integration tool scenarios with at least some of the participating integration tools	10%	3.40	4.85	4.75	3.60	4.35	3.75	2.25	4.70	3.75	4.55	3.25
SECTION 2: Integration technologies offered as a packaged product	70%	4.40	5.00	4.15	2.25	4.75	3.95	2.25	3.90	2.20	2.35	3.95
SECTION 3: Availability of integrated scenarios by integration tool category	0%	2.67	3.99	4.28	2.75	3.47	1.82	2.25	3.95	3.00	3.47	3.45
SECTION 4: Hybrid cloud capabilities	20%	1.95	3.65	4.85	3.60	4.25	2.85	2.95	3.13	3.05	3.35	3.95
STRATEGY	50%	3.78	4.75	4.60	3.74	4.67	4.27	3.16	4.23	2.50	2.65	2.99
Product strategy	50%	4.60	5.00	4.20	3.30	5.00	4.20	3.00	4.20	2.00	1.00	3.40
Partner strategy	10%	2.50	4.70	5.00	3.60	5.00	4.40	2.40	4.20	3.40	3.90	1.30
Corporate strategy	15%	3.20	4.60	5.00	4.10	4.65	4.75	2.80	4.40	2.35	4.40	2.90
Financial strength	10%	3.40	5.00	5.00	5.00	3.60	4.20	3.20	4.60	4.00	4.20	2.60
Go-to-market model	15%	2.70	3.90	5.00	4.10	4.10	4.00	4.50	3.90	2.70	4.50	3.10
MARKET PRESENCE	0%	3.38	4.88	4.63	4.38	3.13	4.38	3.25	4.38	3.25	4.50	2.38
Revenue	25%	5.00	5.00	5.00	5.00	2.00	5.00	3.00	5.00	3.00	5.00	2.00
Current usage	25%	3.00	5.00	5.00	5.00	5.00	4.00	5.00	5.00	4.00	5.00	3.00
Employees	25%	3.50	5.00	4.50	5.00	3.50	4.50	3.00	4.50	4.00	4.00	2.50
Distribution channels	25%	2.00	4.50	4.00	2.50	2.00	4.00	2.00	3.00	2.00	4.00	2.00

All scores are based on a scale of 0 (weak) to 5 (strong).

Source: Forrester Research, Inc.

VENDOR PROFILES

Below are profiles of each of the evaluated vendors, their integration portfolios, and their hybrid strategies. Vendors are presented in alphabetical order:

- **Adeptia is representing an all-in-one integration product.** All major integration capabilities except CBI and the Internet of Things integration are provided basically out of a single engine and user experience. B2B integration including EDI is a traditional strength of Adeptia. The single-tool approach brings an outstanding simplicity to hybrid integration tasks and simply does not require sophisticated metadata management. Adeptia's development environment is exclusively and fully web-based and does not require a developer tool such as Eclipse. However, the depth of some integration capabilities and the exchange of metadata with other vendors' tools are limited.

- **Bosch Software Innovations (Bosch SI) leverages the synergies with the Bosch Group.** After the acquisition of the German BPM and integration expert inubit in October 2011, Bosch SI, which is fully owned by the Bosch Group, developed an interesting profile around the Internet of Things (IoT) and Germany's "Industrie 4.0" initiative.[21] While Bosch SI does not offer CBI service yet, the vendor is one of the very few that packaged IoT business scenarios such as predictive maintenance for automated manufacturing such as in the automotive industry.[22]

- **Dell Boomi started as a CBI pure-play and tries to expand into enterprise integration.** The lightweight agent concept started with basic data loader and synchronization tasks around SaaS applications. Meanwhile, Dell Boomi extended into five different integration capabilities and can even be used for on-premises integration scenarios. The vendor keeps innovating, especially in crowdsourced metadata management and issue resolution.

- **IBM invested in the interoperability across its various integration products.** With its WebSphere and InfoSphere family of products, IBM traditionally is one of the biggest and most function-rich application- and data-integration vendors. Further acquisitions brought deep functionality in many integration categories. However, some Forrester clients, especially those on older IBM releases, report little pre-integration and high efforts and skill investments to integrate different IBM integration products. Therefore, we looked into many interoperability scenarios between traditional IBM products and newer acquisitions such as the CBI product IBM Cast Iron. In addition, we were surprised by IBM's effort and achievements in simplifying hybrid² integration scenarios in heterogeneous application and middleware landscapes.

- **Informatica's roots are in enterprise data integration, but it has become a credible cloud player.** Founded in 1993, the California-headquartered software vendor focused on data integration for very large enterprises. The acquisition of 29West brought an ultra-low-latency messaging capability and helped to bridge the traditional gap between data integration and application integration. Similar can said about its CBI service, Informatica Cloud, which has a

very high market share of the everyday integration scenarios between salesforce.com and on-premises ERP systems. On the one hand, it is a simple-to-use, modern CBI-agent architecture; on the other, it has full bidirectional interoperability with metadata and data out of its enterprise tooling (PowerCenter) and on-premises data integration or B2B integration.

■ **Liaison has still not fully leveraged its acquisition of Hubspan.** Liaison is an established vendor of integration services and products. In August 2012, Liaison acquired Hubspan, which is a CBI service provider, and earlier had merged the simplicity of cloud-based integration with traditional B2B integration requirements such as traditional EDI data exchange. The evaluation in this Forrester Wave is mainly based on Liaison's traditional capabilities, but once Hubspan integrates more with Liaison's existing products and services, Forrester expects a stronger performance in all hybrid² integration scenarios.

■ **Microsoft added Windows Azure BizTalk Services and Service Bus to the BizTalk Server.** As part of this Forrester Wave, we considered multiple combinations of Microsoft's on-premises and Azure-based products. Microsoft provides on-premises application and B2B integration mainly with Microsoft's BizTalk Server, which is also available as a managed service offering on Azure Infrastructure Services. In contrast to this, Windows Azure BizTalk Services and Windows Azure Service Bus represent new native cloud implementations providing lightweight integration and messaging services. Combined with Microsoft's own PaaS capabilities on Azure, the Microsoft cloud services qualify beyond CBI into the more challenging iPaaS segment. Unfortunately, most data integration capabilities are provided out of Microsoft's SQL Server product, which makes the Microsoft integration portfolio only attractive for Microsoft shops and represents a handicap for enterprises working with other databases.

■ **MuleSoft is fully competing with major commercial middleware vendors.** Founded in 2006, the California-headquartered software vendor focused for many years on the ESB space with its MuleESB open source product connected to large enterprise applications such as SAP. MuleSoft's CloudHub was the first ESB, which was available as a multitenant cloud service in early 2013 before Software AG and Tibco announced their corresponding next generation of cloud services. Combined with a managed Tomcat environment, MuleSoft's cloud service qualifies as an iPaaS offering and represents a compelling option for federated ESBs — on-premises and in the cloud — running the same service orchestrations or other metadata.

■ **Red Hat acquired FuseSource and leverages many Apache open source projects.** The Fuse ESB basically became Red Hat's ESB in 2013 and merged with the other JBoss capabilities into one integration stack. Combined with Red Hat's OpenShift PaaS service or technology stack, the same iPaaS environment is available on-premises or as a cloud service. While Red Hat's strategy is compelling, its focus on skilled developers brings a legacy of complex interoperability between multiple Red Hat products and makes it difficult to attract tech-savvy businesspeople for CBI scenarios.

- **Seeburger offers application, B2B, and data integration as well as BPM out of a single tool.** Seeburger's business integration suite is appealing to enterprises that are looking for multiple integration scenarios but would like to limit effort and skill investments. As Seeburger traditionally not only provides software tools but also offers managed services such as B2B-EDI services, the extension of its business model into CBI service is a continuous evolution.

- **Software AG provides good interoperability between original webMethods products and multiple acquisitions.** Software AG's webMethods suite was complemented by multiple acquisitions in the area of messaging, in-memory and complex event processing, modeling, and enterprise architecture. The webMethods and the Terracotta product families today form the basis for application and (big) data integration. Although the recently acquired products cannot hide their different roots, the registry/repository CentraSite, which is part of the webMethods suite, has been helpful in establishing a sophisticated metadata life-cycle management across multiple products. This ensures a good balance between hybrid integration scenarios across multiple products and deep focused capabilities of a single product. Software AG's CloudStreams is delivering basic integration with the cloud. To also offer integration in the cloud, Software AG has to leverage the spirit of the recently acquired PaaS vendor LongJump and launch a new CBI and iPaaS service in 2014.

- **Talend merged open source data and application integration into one approach.** The US- and France-headquartered open source data integration expert Talend acquired the German open source ESB vendor Sopera at the end of 2010. After three years, both parts appear well interoperable. Similar to Red Hat, Talend leverages multiple Apache projects such as the routing and mediation engine Camel. Talend has not yet launched a CBI or iPaaS service but is expected to do so in 2014.

- **Tibco Software took lessons learned from its first cloud service, Tibco Silver.** Similar to IBM or Software AG, Tibco has a comprehensive integration portfolio. In mid-2009, the California-headquartered vendor launched Tibco Silver, a scalable hosted service of its traditional integration tools. In contrast to other mature middleware vendors, including Oracle, Tibco realized that a cloud architecture needs to go beyond an IaaS-based rehosting and that a cloud service requires fundamental innovation on the business/license model. This led to the announcement of Tibco's iPaaS service, Tibco Cloud Bus, in 2013. Similar to MuleSoft's CloudHub, Tibco's Cloud Bus can fully run any integration scenario developed for a Tibco on-premises deployment. This resonates well with Tibco-skilled in-house developers looking for SaaS integration. However, the simplicity and resonance with tech-savvy businesspeople is still behind native CBI products such as Informatica Cloud or Dell Boomi.

- **WSO2 has a balanced middleware product and cloud service strategy.** Founded in 2006, the integration expert WSO2 invested in its middleware platform Carbon, the PaaS foundation WSO2 Stratos (now WSO2 Private PaaS), the cloud management framework WSO2 AppFactory,

and finally a unified WSO2 developer studio. Public cloud services for an iPaaS service based on the same technology stack and an API management offering are complemented by an app store offering for internal and partner-created assets.

Non-Evaluated Vendors

In addition to the evaluated vendors, Forrester recognized the following vendors in the space of hybrid² integration:

- **Aurea owns the Sonic ESB, Savvion BPM, and DataXtend SI data integration solution.**
  In October 2012, Progress Software sold Sonic, Savvion, Actional (application performance management), and DataXtend SI to Trilogy, which created the company Aurea. The converged portfolio provides a stable basis for the further development and support of these products and is good news for all current users. We did not include the company this time, as the focus was still too narrow and its new strategy still in flux.

- **Axway is targeting the hybrid² integration market strategically but is not yet ready.** With strong products in the B2B/EDI, MFT, and SOA space, Axway is the backbone for B2B traffic and the open web for many enterprises. The acquisition of Vordel helped Axway to develop a strong presence in "The Forrester Wave™: API Management Platforms, Q1 2013." However, the broadness of the hybrid² integration scenarios evaluated in this Forrester Wave is beyond Axway's current capabilities, and we decided not to include it. Forrester expects Axway's current investment to deliver a wider set of hybrid² integration scenarios in the future.

- **Fiorano is a traditional ESB and mature SOA infrastructure.** As all functionality is exposed out of a single product, its combination of functionality and limited complexity resonates well with enterprises looking for a limited skill investment. Although founded back in 1995, Fiorano is still focused on ESB, B2B, and data integration but does not offer a CBI service yet. Its BPM functionality is based on a close partnership and integration of the YAWL open source BPM engine.[23]

- **GXS Group's B2B solution and Cordys' BPM and PaaS platform are now under the OpenText roof.** The GXS B2B network enables many enterprises to interact with their suppliers and buyers. However, GXS is not addressing the data integration and application integration included in the hybrid² integration challenge. If OpenText manages to establish a good interoperability between its own offerings, the GXS B2B network and integration, and the application development capabilities of Cordys, we expect the combination to meet the inclusion criteria of the next hybrid² integration Forrester Wave with strong iPaaS capabilities.

- **Hubwoo is too B2B-focused to address the broader scope of hybrid² integration.** Hubwoo's value is more the B2B network with established supplier and buyer relations similar to Ariba or GXS (prior to the acquisition). While Hubwoo remains an important and viable option for B2B integration — for example, related to SAP's Business Suite — Forrester does not consider it to be in the broad hybrid² integration space.

- **Information Builders' application and data integration products integrate with the cloud.** Information Builders' integration solutions, branded as iWay products, are quite relevant, especially for enterprises relying on the well-known adapters. The vendor demonstrated three years ago the ability to handle integration scenarios between salesforce.com and SAP's Business Suite. However, this is still not yet a self-service CBI service, and therefore Information Builders did not meet the inclusion criteria for the hybrid² integration Forrester Wave.

- **Oracle publishes very little about its interoperability capabilities between different integration products.** Based on previous evaluations of Oracle's Fusion Middleware products, we expected a good performance in the "deep integration" perspective. However, the major investment of competitors such as IBM, Informatica, Microsoft, Software AG, and Tibco into the interoperability across their suites, as explored in the "wide integration" perspective, is most likely challenging to Oracle. The Fusion Middleware products can integrate with the cloud or can be rehosted in the cloud, but Oracle hadn't until now re-architected its middleware into a modern CBI service. Unfortunately, Oracle makes very little information about interoperability scenarios available publicly or on request. Forrester therefore decided not to evaluate Oracle Fusion Middleware in this Forrester Wave.

- **SAP attempts to become a platform vendor again but is not a standalone integration vendor.** SAP's go-to-market strategy over the past few years was really more focused on the value of its business applications. Enterprises used SAP's middleware products such as SAP NetWeaver PI simply as the given and stable foundation of SAP's business suite and less as a multipurpose middleware for non-SAP integration scenarios. With the advent of SAP's in-memory database and application platform HANA, the leading ERP vendor likes to add the value proposition of a general-purpose platform software. Forrester expects SAP to compete in the hybrid² integration space soon — not only with its next generation of middleware tools but also with prepackaged metadata for application, process, and data integration with and in the cloud.

- **SnapLogic is an important CBI alternative to Dell Boomi or Informatica Cloud.** The California-based vendor was founded in 2006 and is now headed by ex-CEO and co-founder of Informatica, Gaurav Dhillon. SnapLogic's market focus and architecture is similar to Dell Boomi's. SnapLogic can handle both data integration and application integration use cases in a single platform and can provide API management capabilities. Forrester assumes that SnapLogic's market visibility for hybrid cloud scenarios will further increase, while customers will use it less for on-premises integration scenarios.

SUPPLEMENTAL MATERIAL

Online Resource

The online versions of Figures 5 through 8 are Excel-based vendor comparison tools that provide detailed product evaluations and customizable rankings.

Data Sources Used In This Forrester Wave Evaluation

Forrester used a combination of three data sources to assess the strengths and weaknesses of each solution:

- **Vendor surveys.** Forrester surveyed vendors on their capabilities as they relate to the evaluation criteria. Once we analyzed the completed vendor surveys, we conducted vendor calls where necessary to gather details of vendor qualifications.

- **Product demos.** We asked vendors to conduct demonstrations of their product's functionality. We used findings from these product demos to validate details of each vendor's product capabilities.

- **Customer reference calls.** To validate product and vendor qualifications, Forrester also conducted reference calls with two of each vendor's current customers.

The Forrester Wave Methodology

We conduct primary research to develop a list of vendors that meet our criteria to be evaluated in this market. From that initial pool of vendors, we then narrow our final list. We choose these vendors based on: 1) product fit; 2) customer success; and 3) Forrester client demand. We eliminate vendors that have limited customer references and products that don't fit the scope of our evaluation.

After examining past research, user need assessments, and vendor and expert interviews, we develop the initial evaluation criteria. To evaluate the vendors and their products against our set of criteria, we gather details of product qualifications through a combination of lab evaluations, questionnaires, demos, and/or discussions with client references. We send evaluations to the vendors for their review, and we adjust the evaluations to provide the most accurate view of vendor offerings and strategies.

We set default weightings to reflect our analysis of the needs of large user companies — and/or other scenarios as outlined in the Forrester Wave document — and then score the vendors based on a clearly defined scale. These default weightings are intended only as a starting point, and we encourage readers to adapt the weightings to fit their individual needs through the Excel-based tool. The final scores generate the graphical depiction of the market based on current offering, strategy, and market presence. Forrester intends to update vendor evaluations regularly as product

capabilities and vendor strategies evolve. For more information on the methodology that every Forrester Wave evaluation follows, go to http://www.forrester.com/marketing/policies/forrester-wave-methodology.html.

Integrity Policy

All of Forrester's research, including Forrester Wave evaluations, is conducted according to our integrity policy. For more information, go to http://www.forrester.com/marketing/policies/integrity-policy.html.

ENDNOTES

[1] The following report introduced the concept and basic requirements for integration platforms solving integration challenges today and in the future. See the May 1, 2013, "The Hybrid² Integration Challenge" report.

[2] To understand the segment of CBI tools and its typical agent-based architecture compared with other options for integration with or in the cloud, see the November 12, 2013, "How Many Cloud Integration Technologies Do You Need?" report.

[3] Vendors can hardly achieve this by rehosting traditional integration software on an infrastructure-as-a-service (IaaS), as the consumption experience and price level simply require a modern multitenant architecture. Focused on data integration and lightweight application integration, a CBI solution does not allow development of application logic or even full business applications operated in the same cloud service, which is usually not required for basic integration tasks.

[4] The following report introduces the product space, major players, and the evaluation criteria. See the February 5, 2013, "The Forrester Wave™: API Management Platforms, Q1 2013" report.

[5] The following report adds the people and organizational challenge to the big picture of modern integration challenges. See the May 1, 2013, "The Hybrid² Integration Challenge" report. Please combine these considerations with the hard product capabilities explored in this Forrester Wave to make a final decision.

[6] For the original criteria set for this segment, please see the April 25, 2011, "The Forrester Wave™: Enterprise Service Bus, Q2 2011" report.

[7] For the original criteria set for this segment, please see the January 17, 2012, "The Forrester Wave™: Integrated SOA Governance, Q1 2012" report.

[8] While the change of EDI message types violates compliance in some industries such as healthcare, it is a very common practice, for example, in the automotive industry.

[9] Please see the Excel-based Forrester Wave model associated with this report and the corresponding lines 14 to 24.

[10] Please see the Excel-based Forrester Wave model associated with this report and the corresponding lines 25 to 32.

[11] Please see the Excel-based Forrester Wave model associated with this report and the corresponding lines 33 to 39.

[12] Please refer to the recent webinar entitled "Integration With The Cloud — Integration In The Cloud" to get an overview of the most common cloud integration options. Source: December 17, 2013, "Integration With The Cloud — Integration In The Cloud" webinar (http://www.forrester.com/Integration+With+The+Cloud +Integration+In+The+Cloud/-/E-WEB16223).

[13] Please see the Excel-based Forrester Wave model associated with this report and the corresponding lines 40 to 46.

[14] The tooling index metric is in detail the following: 5 = integration capabilities are exposed with others out of a single tool; 4 = the integration capability is provided by a suite of tools with unified design-time tools and a single container-based runtime concept; 3 = the integration capability is very well integrated in a suite of tools; 2 = the integration capability is well integrated in a suite; 1 = the integration capability is a standalone tool or recently acquired or a partner solution with only limited integration.

[15] For the original criteria set for this segment, please see the April 25, 2011, "The Forrester Wave™: Enterprise Service Bus, Q2 2011" report.

[16] For the original criteria set for this segment, please see the October 29, 2009, "The Forrester Wave™: B2B Service Providers, Q4 2009" report.

[17] For the original criteria set for this segment, please see the March 11, 2013, "The Forrester Wave™: BPM Suites, Q1 2013" report.

[18] For more information, see the March 18, 2013, "The Standalone Business Rules Platform Market Segment Should Be Growing Faster" report.

[19] For more information, see the February 4, 2010, "Forrester TechRadar™: Enterprise Data Integration, Q1 2010" report.

[20] For the original criteria set for this segment, please see the February 5, 2013, "The Forrester Wave™: API Management Platforms, Q1 2013" report.

[21] For more information about the Industrie 4.0 initiative, please refer to Wikipedia (http://en.wikipedia.org/ wiki/Industry_4.0) and the official website (http://www.bmbf.de/en/19955.php).

[22] More analysis of the strategy of the Bosch Software Innovations group can be found in a recent blog post. Source: Stefan Ried, Ph.D., "Bosch Connected World — Internet Of Things Made In Germany," February 5, 2014 (http://blogs.forrester.com/stefan_ried/14-02-05-bosch_connected_world_internet_of_things_made_ in_germany).

[23] For more information about the YAWL open source BPM engine, refer to The YAWL Foundation's website (http://www.yawlfoundation.org).s

About Forrester

A global research and advisory firm, Forrester inspires leaders, informs better decisions, and helps the world's top companies turn the complexity of change into business advantage. Our research-based insight and objective advice enable IT professionals to lead more successfully within IT and extend their impact beyond the traditional IT organization. Tailored to your individual role, our resources allow you to focus on important business issues — margin, speed, growth — first, technology second.

FOR MORE INFORMATION

To find out how Forrester Research can help you be successful every day, please contact the office nearest you, or visit us at www.forrester.com. For a complete list of worldwide locations, visit www.forrester.com/about.

CLIENT SUPPORT

For information on hard-copy or electronic reprints, please contact Client Support at +1 866.367.7378, +1 617.613.5730, or clientsupport@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.

Forrester Focuses On CIOs

As a leader, you are responsible for managing today's competing demands on IT while setting strategy with business peers and transforming your organizations to drive business innovation. Forrester's subject-matter expertise and deep understanding of your role will help you create forward-thinking strategies; weigh opportunity against risk; justify decisions; and optimize your individual, team, and corporate performance.

« CAROL ITO, client persona representing CIOs