Instituut voor hoger beroepsonderwijs in Suriname

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Onderzoek naar mogelijk te hanteren Business Intelligence tools voor en door I-Frontier

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G. Rambharos

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Student + registratienr: Germio Rambharos 10892
Studierichting: Informatie- en communicatietechnologie
Docent-begeleider: ing. Hendrik Schilder MBA
Bedrijf: I-Frontier NV
Bedrijfsbegeleider: Achmed Neijhorst MSc.

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VOORWOORD

De afstudeerperiode vormt het laatste gedeelte van de studie Informatie- en communicatie-technologie van de hbo-opleiding aan het Polytechnic College (PTC) te Paramaribo.

Voor het afstudeerproject heb ik gekozen voor het onderzoek van Business Intelligence Tools voor het bedrijf I-Frontier. In Suriname is de vraag naar rapporten door het management van verschillende bedrijven aan het toenemen. Business Intelligence Tools zijn bedoeld om op efficiënte wijze rapportages, interactieve analyses en dashboards te maken en zijn er in alle soorten en maten. Het is namelijk zo dat er verschillende typen Business Intelligence Tools aanwezig zijn. Het doel van dit onderzoek is om aan te geven welke het bedrijf I-Frontier het best zou kunnen gebruiken.

Ik wil de heer Achmed Neijhorst van het bedrijf I-Frontier bedanken voor de begeleiding, het geven van tips en informatie die een bijdrage hebben geleverd bij het tot stand komen van dit project. Ook moet ik verder de mensen bedanken die me hebben ondersteund bij het lezen van mijn afstudeerverslag en het geven van feedback, namelijk de heer Vincent Jubithana en mevr. Kristinadewi Legiman.

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Germio Rambharos
Paramaribo, 4 maart 2013

INHOUDSOPGAVE

SAMENVATTING

Binnen het bedrijf I-Frontier is er behoefte aan een onderzoek met betrekking tot Business Intelligence tools. De probleemstelling luidt als volgt: *"Welke Business Intelligence tools zouden het best gebruikt kunnen worden, vooral voor de klanten van het bedrijf I-Frontier?"*.

Business Intelligence tools worden gebruikt om informatie te verwerken die uit de verzamelde data van verschillende databronnen wordt opgehaald. Alvorens er gebruik wordt gemaakt van een Business Intelligence tool moet eerst de structuur van het bedrijf in kaart worden gebracht die tot stand komt door Business Intelligence toe te passen. Er zijn verschillende typen Business Intelligence tools op de markt aanwezig. Er is een onderzoek verricht om na te gaan welke de meest geschikte BI-tool is om gebruikt te kunnen worden door het bedrijf I-Frontier.

Onderzoeksmethode

In de eerste fase van het onderzoek is er literatuuronderzoek gedaan om in breed perspectief aan te geven wat Business Intelligence inhoudt, de theorie en de verschillende BI-tools die op de huidige Business Intelligence markt aan top staan. Hierbij is ook onderzocht wat de verschillende mogelijkheden zijn van de meest bekende BI-tools.
In de tweede fase is onderzocht of de bedrijven in Suriname zelf al gebruikmaken van Business Intelligence en de tools die daarvoor nodig zijn. De informatie is verzameld door het IT-management kader van een aantal grote bedrijven in Suriname te interviewen.

Resultaat

Na het onderzoek is gebleken dat het bedrijf I-Frontier eerst moet letten op de volgende hoofdpunten alvorens men gebruik zal kunnen maken van Business Intelligence tools. Deze twee hoofdpunten zijn:

1. Alvorens men begint aan een Business Intelligence traject dient men voor het gehele proces van een Business Intelligence project gebruik te maken van de Business Intelligence roadmap als leidraad.

2. De processen en doelen van de organisatie moeten goed in kaart worden gebracht.

Voor de gekozen BI-tools zijn er twee opties uit de bus gekomen, namelijk:

1. Het gebruik van een Business Intelligence tool Microsoft Business Intelligence voor elke categorie.

2. Een combinatie van verschillende Business Intelligence tools voor elke categorie.

Conclusies

- Om een goed Business Intelligence project te hebben is niet alleen een goede Business Intelligence tool nodig, maar ook een goed omschreven project.

- Na het onderzoek naar de meest geschikte Business Intelligence tool is uitgewezen dat er niet echt vastgestelde regels aanwezig zijn voor het kiezen van een Business Intelligence tool, maar dat er wel zaken zijn waarop er gelet moet worden bij het kiezen van de juiste Business Intelligence tool.

- Daarom is het toch handig om te weten wat de verschillende voor- en nadelen zijn van de verschillende Business Intelligence tools.

- In een economie waarbij de factor arbeid altijd veel geld zal kosten kan Business Intelligence organisaties helpen om de concurrentie effectief te verslaan en efficiënter te werken. Het is voordeliger en het bespaart een organisatie veel geld.

Aanbevelingen

Om een succesvol Business Intelligence traject te hebben moet het bedrijf I-Frontier letten op de volgende punten:

1. Het boek Business Intelligence Roadmap moet gebruikt worden als leidraad voor het vooronderzoek van een Business Intelligence project.

2. De processen en doelen van de organisatie moeten goed in kaart worden gebracht.

3. Men moet het accent niet alleen leggen op de technologie, maar ook op de processen en doelen van de organisatie. Aan de hand van de vraag kan de IT-consultant een Business Intelligence tool aanbevelen.

SUMMARY

Within the company I-Frontier there is a need for the research of Business Intelligence tools. The question states: *"Which Business Intelligence tools can be used best, especially for the customers of the company I-Frontier?"*.

Business Intelligence tools are used to process information that is retrieved from collected data from different data sources. Before using a Business Intelligence tool, first the structure of the business organization must be brought in card that is created by applying Business Intelligence. A study was conducted to determine the most appropriate BI tool to be used by the company I-Frontier.

Research Method

In the first phase of this research literature research is done in broad perspective to identify what Business Intelligence means, the theory and the different kinds of BI tools on the current Business Intelligence market that stand on top. Hereby also the various possibilities of the most well-known BI tools are examined.

In the second phase there is examined whether the companies in Suriname are already using Business Intelligence and the tools that are needed for that. The information is collected by interviewing the IT management framework of a number of large companies.

Result

After the investigation it has shown that the company I-Frontier should first note the following key points before making use of Business Intelligence tools. The two main points are:

1. Before you begin a Business Intelligence project the Business Intelligence roadmap must be used as a guide for the whole process of a Business Intelligence project.
2. The processes and goals of the organization must be properly mapped.

For the selected BI tools, there are two options, namely:

1. The use of a Business Intelligence tool Microsoft Business Intelligence for each category.

2. A combination of various Business Intelligence tools for each category.

Conclusions

- To have a good Business Intelligence project not only a good Business Intelligence tool is needed, but also a well-defined project.
- After examining after the most appropriate Business Intelligence tool it is shown that there are no existing rules for choosing a Business Intelligence tool, but there are cases in which there should be considered when choosing the right Business Intelligence tool.
- Therefore, it is still useful to know what the various pros and cons of the various Business Intelligence tools are.
- In an economy where labor always is expensive, Business Intelligence can help businesses beat the competition effectively and efficiently. It's cheaper and it saves an organization a lot of money.

Recommendations

In order to have a successful Business Intelligence project the company I-Frontier must remember the following points:

1. The book Business Intelligence Roadmap should be used as a guideline for the preliminary examination of a Business Intelligence project.
2. The processes and goals of the organization must be properly mapped.
3. One must lay emphasis not only on technology but also on the processes and goals of the organization. Based on demand, the IT consultant can recommend a Business Intelligence tool.

LIJST VAN AFKORTINGEN

Afkorting	Betekenis
B.I.	Business Intelligence
C.R.M.	Customer relationship management: een model dat gebruikt wordt voor het beheer van bedrijfsinteracties met klanten, cliënten en verkoopvooruitzichten. Database Management System
D.B.M.S.	Database Management System
E.R.P.	Enterprise resource planning: systemen voor intern en extern beheer van informatie integreren binnen de gehele organisatie, boekhouding, productie, verkoop en service, customer relationship management, enz.
E.T.L.	Extract Transform Load
K.P.I.	Key Performance Indicator: een variabele om prestaties van ondernemingen te analyseren.
O.L.A.P.	Online analytical processing: een methode om snel antwoord te geven op complexe vragen die een veelheid van gegevens in een database verwerken. OLAP wordt gebruikt in rapportages voor verkoop, marketing, management, datamining, en dergelijke.
P.L./S.Q.L.	Procedural language /Structured query language: een combinatie van SQL samen met de kenmerken van procedurele programmeertalen.
R.O.I.	Return of Investment
S.Q.L.	Structured query language: een standaardtaal voor het benaderen van databases
T.C.O	Total cost of ownership

LIJST VAN FIGUREN

LIJST VAN TABELLEN

1. INLEIDING

Het bedrijf I-Frontier richt zich op webdevelopment, databasebeheer, managementinformatie, ICT-projectmanagement en trainingen voor ICT-professionals. Het bedrijf heeft dus veel interne expertise.

Binnen I-Frontier is er behoefte aan het onderzoek met betrekking tot Business Intelligence. Business Intelligence is een proces dat alles omvat wat zit tussen het verzamelen van data, het transformeren van die data tot stuurinformatie en het nemen van besluiten op basis van die stuurinformatie.

Business Intelligence is een continu proces, d.w.z. dat het steeds dezelfde cyclus op efficiënte en actuele business trends doorloopt. Het doel van Business Intelligence is om het besluitvormingsproces te verbeteren wat direct effect heeft op de performance en professionaliteit van de organisatie.

Er is behoefte aan een onderzoek om na te gaan welke Business Intelligence tools het beste te gebruiken zijn voor de klanten van I-Frontier.

Het doel van dit onderzoek is om na te gaan welke Business Intelligence tool het bedrijf I-Frontier het best zou kunnen gebruiken voor zijn klanten. Om managementinformatie op een efficiënte manier te kunnen gebruiken zijn er BI-tools nodig, maar er zijn zoveel BI-tools op de markt aanwezig. Na dit onderzoek moet als resultaat de juiste tool gebruikt kunnen worden door I-Frontier.

Dit verslag beoogt inzicht te geven in de verschillende BI-tools die aanwezig zijn en welke I-Frontier het best voor zijn klanten zou kunnen gebruiken. De aandacht zal in het bijzonder worden gericht op de duurzaamheid en efficiëntie van de verschillende producten. Op basis van de doelstelling is de probleemstelling opgesteld. Dit onderzoek vindt plaats onder begeleiding van het bedrijf I-Frontier. Het bedrijf I-Frontier ziet graag dat dit onderzoek gedaan wordt ten behoeve van de uitbreiding van zijn klantenkring.

Voorgaand is de doelstelling van dit onderzoek verduidelijkt. Op basis van de doelstelling is de probleemstelling opgesteld en komt de hoofdvraag voort, die beantwoordt zal worden tijdens dit onderzoek:

"Welke Business Intelligence tools zouden het best gebruikt kunnen worden, vooral voor de klanten van het bedrijf I-Frontier?"

Om antwoord te kunnen geven op de probleemstelling zijn de volgende subvragen voor dit onderzoek geformuleerd en als uitgangspunt gebruikt:

1. Wat is BI en wat is de problematiek hieromtrent?
2. Welk type BI-tools zal een organisatie kiezen? open source[1] of licentie[2] software? En wat zijn de voor- en nadelen van deze twee types?
3. Welke BI-tools zouden gebruikt kunnen worden en zijn ze wel ideaal om te gebruiken voor de Surinaamse markt?
4. Welke ICT-architectuur bezitten potentiële klanten en gebruiken deze nu al BI-tools voor het verkrijgen van hun managementinformatie?
5. Wat is de gemiddelde groei en het ontwikkelingsniveau (maturity level) van de Surinaamse bedrijven m.b.t. Business Intelligence?
6. Zijn de prijzen van deze BI-tools wel te betalen voor de potentiële klanten van I-Frontier?
7. Wat zijn de investeringskosten m.b.t. het aanbieden van BI-tools aan bedrijven (marketing, training, onderzoek, architectuur, partnering etc.-)?

Relevantie

De afgelopen jaren hebben veel organisaties in Suriname geïnvesteerd in informatiesystemen en applicaties die moeten leiden tot informatie die de basis vormt voor snelle en accurate beslissingen. Desondanks komt de meerwaarde van Business Intelligence vaak nog onvoldoende naar voren. Dit komt doordat veel organisaties zich niet realiseren dat de focus niet alleen moet liggen op informatieproductie maar ook op informatiegebruik. Het bedrijf I-Frontier is al eerder benaderd door zijn klanten om Business Intelligence projecten op gang te brengen. Er zijn tal van BI-tools op de markt te vinden die oplossingen kunnen bieden, maar welke BI-tool bezit die flexibiliteit behorende bij de standaarden van een organisatie?

Leeswijzer

De kern van dit verslag bestaat uit vijf hoofdstukken. In hoofdstuk 2 wordt het bedrijfsprofiel van I-Frontier beschreven en de verschillende diensten die het bedrijf levert aan zijn klanten.

[1]Opensource software: software die gratis te verkrijgen is.

[2]Licentie software: software waarvoor er betaald moet worden.

In hoofdstuk 3 wordt er aangegeven wat Business Intelligence inhoudt en welke momenteel de beste BI-tools die er nu zijn. In hoofdstuk 4 is er een onderzoek verricht om na te gaan wat de huidige situatie is van de grootste bedrijven in Suriname. In hoofdstuk 5 wordt er aangegeven wat het bedrijf I-Frontier zou moeten doen om Business Intelligence in Suriname op de markt te brengen.

De bron hierbij gebruikt is het boek *Business Intelligence Roadmap: The Complete Project Lifecycle for Decision-Support Applications* van Moss T. Larissa en Atre Shaku., 2003 by Pearson Education Inc.

2. I-FRONTIER

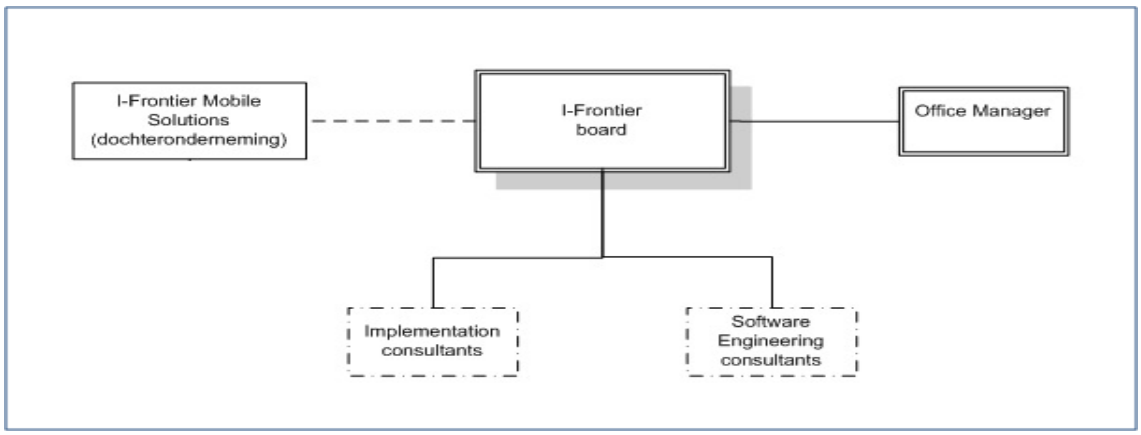
In dit hoofdstuk wordt het profiel van I-Frontier beschreven. In paragraaf 2.1 wordt het bedrijf beschreven. In paragraaf 2.2 wordt de organisatiestructuur van het bedrijf beschreven. In paragraaf 2.3 worden de diensten van I-Frontier aangegeven. In paragraaf 2.4 wordt aangegeven bij welke bedrijven I-Frontier, Business Intelligenceprojecten draait.
De hoofdbron bij dit hoofdstuk is het bedrijfsprofiel op de website: http://www.i-frontier.net/ van I-Frontier.

2.1 Bedrijf

Het bedrijf I-Frontier specialiseert zich in Oracle- en Java-technologie en levert diensten aan zowel lokale als internationale klanten. Binnen I-Frontier is er ook een netwerk aanwezig voor het personeel dat deels bijdraagt aan de geleverde diensten voor de klant van het bedrijf. Het bedrijf I-Frontier is leverancier/partner van sommige softwarepakketten zoals Decos en van de bedrijven Microsoft en Oracle. I-Frontier heeft zijn eigen standaardpakketten zoals iPay en iEmployee. Door deze pakketten zelf te gebruiken doet men expertise op en is er voor deze applicaties al een licentie voor eigen gebruik.

2.2 Organisatiestructuur

Een organisatiestructuur is een weergave van de wijze waarop taken binnen een organisatie zijn verdeeld en de wijze waarop vervolgens afstemming tussen deeltaken tot stand is gebracht. Binnen het bedrijf I-Frontier is er een verdeling van activiteiten over afdelingen en de taken van de werknemers. De organisatiestructuur wordt in figuur1 in kaart gebracht met een organisatieschema.



Figuur 1: Organisatieschema

2.3 Diensten

Binnen het bedrijf I-Frontier worden de volgende diensten aangeboden:

- **Integration Services:**
  - Software Engineering (Java)
  - Database Management (Oracle)
  - System Integration (Java, Pentaho, Oracle, PL/SQL, XML)
- **Management Information:**
  - Pentaho
  - CrystalReports/ Business Objects
  - IBM Cognos
- **Consulting Services:**
  - ICT Strategies, ICT Studies en ICT Project Management
- **Professional training courses:**
  - Oracle DBMS, SQL en PL/SQL
  - Java
  - Linux
  - Webservices en SOA
  - XML
  - Ajax and Javascript
  - ASP and HTML
  - Business Analyse met RUP
- **Implementation Services:**
  - Decos Document Management
  - Visual time (insurance systems)
  - iEmployee (hrm)
  - iPay (payroll)
  - iSale (point of sale)
  - iOptics (opticien)
  - MSL (mortgages, savings and loans)
  - Decade (general ledger/ERP)

2.4 Business Intelligence en I-Frontier

I-Frontier draait al een aantal Business Intelligence projecten voor enkele bekende bedrijven in Suriname. De bedrijven krijgen op tijd support. Bij deze Business Intelligenceprojecten worden er zeker ook BI-tools gebruikt. Elk type BI-tool verschilt van leverancier. De bedrijven waaraan I-Frontier momenteel zijn Business Intelligence diensten biedt zijn:

1. Assuria N.V.
2. Dienst Omzetbelasting
3. Surinaamse Luchtvaart Maatschappij N.V.
4. Surmac N.V.
5. SZF
6. Telesur

Tabel 1: Klanten van I-Frontier

	Informatie	**Informatie**
Bedrijf	• Assuria N.V. • Dienst Omzetbelasting • Surinaamse Luchtvaart Maatschappij N.V. • Surmac N.V. • SZF	• Telesur
Bronsysteem	DATABASE: Oracle	DATABASE: Microsoft SQL Server
Integratie	ETL: SQL/ PLSQL	ETL: SQL
Data warehouse	DATABASE: Oracle	DATABASE: Microsoft SQL Server

Data analyse	• REPORTING:
	  ○ Crystal Reporting 2008
	  ○ MS Excel 2010
	• OLAP: Microsoft SQL Server Enterprise
		• REPORTING:
		  ○ MSSQL
		  ○ MS Excel 2010
		• OLAP: Microsoft SQL Server Enterprise

In het volgende hoofdstuk wordt er verder ingegaan op het theoretisch kader van Business Intelligence.

3. Theoretisch kader

In dit hoofdstuk worden de verschillende stappen van Business Intelligence aangegeven. In paragraaf 3.1 worden de doelstellingen van de organisatie in kaart gebracht. Het project wordt omschreven in paragraaf 3.2 en 3.3. De technische stappen van Business Intelligence worden in paragraaf 3.4 aangegeven. Ook worden de eventuele risico's aangegeven in paragraaf 3.5. De beschrijving van een BI-tool komt in paragraaf 3.6 voor. De verschillende typen BI-tools zijn beschreven in paragraaf 3.7. Het verschil tussen een open source- en een licentie BI-tool wordt aangegeven in paragraaf 3.8.De top BI-tools van 2012 worden met elkaar vergeleken in paragraaf 3.9.
De hoofdbron bij dit hoofdstuk is het boek *Business Intelligence Roadmap* en Magic Quadrant for Business Intelligence Platforms dat elk jaar wordt uitgebracht.

3.1 Business case assessment

Bij het starten met Business Intelligence, volgens het boek Business Intelligence Roadmap geschreven door Larissa T. Moss en Shaku Atre, moeten eerst de doelstellingen van de organisatie in kaart worden gebracht. Het BI-besluitvormingsproces en de voorgestelde BI-tool moeten steun kunnen geven aan de doelstellingen van de organisatie. Bij het vaststellen van de doelstellingen zijn er vier zakelijke rechtvaardigingscomponenten en deze zijn:

1. Het identificeren van de doelstellingen van de organisatie en nagaan hoe de BI-tool ondersteuning kan bieden aan deze doelstellingen.
2. Een goede bedrijfsanalyse moet ontworpen worden om de doelen te kunnen bereiken door de eisen van het bedrijf te vermelden.
3. De kosten voor het bouwen en onderhouden van een succesvolle BI- omgeving moeten goed in kaart worden gebracht door gebruik te maken van het ROI (Return of Investment) principe. Dit is een prestatiemaatstaf die gebruikt wordt om de efficiëntie van een investering te evalueren en de positieve impact aan te geven die Business Intelligence zal hebben op de organisatie.
4. De risico's in termen van technologie, complexiteit, integratie, organisatie, projectteam en financiële investeringen moeten beoordeeld worden.

Nadat de verschillende doelen van een organisatie in kaart zijn gebracht moet een project-

planning worden opgesteld. In de volgende paragraaf zal dit verder belicht worden.

3.2 Projectplanning

Projectmanagement wordt in de meeste organisaties behandeld als een administratieve functie. Projectplanning en projectcontrole worden vaak geminimaliseerd, in het bijzonder wanneer organisaties meerdere BI-applicaties zo snel als mogelijk willen opstarten. Sommige BI-projecten lopen daarom in het begin vertragingen op, maar dat is normaal.

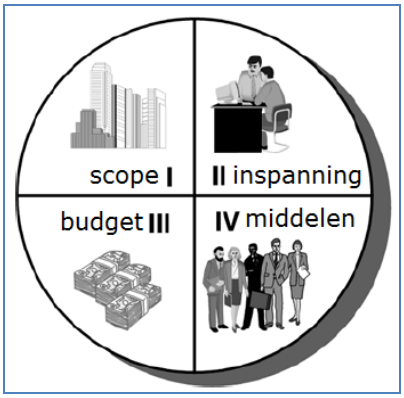
Veel organisaties bouwen dit soort vertragingen en tegenslagen niet binnen hun planning in. Evenmin worden hun BI-concepten en strategieën getest. Een goede planning voor het indekken van risico's zal helpen bij het behalen van een realistische streefdatum van een project.

Het projectmanagement moet beschreven worden in de meest simplistische termen. Het doel is om vier basisvragen te kunnen beantwoorden en deze zijn:

a. Wat zal geleverd worden?
b. Wanneer zal het af zijn?
c. Hoeveel zal het kosten?
d. Wie zal wat doen?

Deze vragen geven de duidelijkheid aan in vier projectbeperkingen, te weten:

- De scope
- De tijd
- Het budget
- De nodige middelen



Figuur 2: Projectvertragingen

Projectplanning is een discipline waarin staat aangegeven hoe een project aangepakt moet worden en haalbaar kan zijn binnen een bepaalde termijn. Een visie van een BI-projectplanning wordt onderverdeeld in de volgende stappen:

- De doelen en doelstellingen
- De scope (de verwachte projectresultaten die leverbaar zijn)
- De risico's
- De beperkingen
- De veronderstellingen
- De verandering controleprocedures
- Het beheer van probleemprocedures

In de volgende paragraaf worden de projecteisen aangegeven waaraan een project zou moeten voldoen m.b.t. een Business Intelligenceproject.

3.3 Projecteisen

Bij het vaststellen van de eisen van het project worden de uitgangspunten en de doelstellingen met bijbehorende eisen geformuleerd, waaraan het te realiseren project moet voldoen. De punten waarop er gelet wordt zijn:

- De zakelijke vereisten
- De specifieke vereisten van het project
- Het interviewproces
- De eisen van het project
- De streefdatum van de activiteiten
- De rollen die bij deze activiteiten betrokken zijn

Nadat de projecteisen zijn opgesteld kan men overgaan tot het Business Intelligencegedeelte van het project.

3.4 Business Intelligence

BI of Business Intelligence is een proces dat alles omvat tussen het verzamelen van informatie en het nemen van besluiten op basis van die verzamelde informatie. Aan de hand van de verzamelde informatie worden er rapporten gegenereerd die inzicht verschaffen in het verloop van een bepaald proces. Hierdoor kan een strategische planning aangescherpt of ontworpen worden met als gevolg het verbeteren van een besluit, en als direct effect een verbeterde

prestatie van de organisatie. De waarde die BI kan hebben voor een organisatie wordt in subparagraaf 3.4.1 uitgelegd. Het technisch proces van de infrastructuur wordt beschreven in paragraaf 3.4.2. Uiteindelijk wordt de processtructuur van Business Intelligence in paragraaf 3.4.3 beschreven.

De hoofdbron bij dit hoofdstuk is het boek *Business Intelligence Roadmap.*

3.4.1 De waarde van Business Intelligence

Hieronder zijn er twee figuren aangegeven en het verschil in effect dat Business Intelligence op de beslissingstijd kan hebben. Het besluitvormingsproces bestaat uit twee fasen, namelijk:

1. Het verzamelen en het analyseren van informatie.
2. Het nemen van beslissingen op basis van de verzamelde informatie.

In een organisatie waar er geen sprake is van Business Intelligence zal ongeveer 80% van de tijd in beslag worden genomen voor het verzamelen van informatie; dit heeft als effect dat er maar 20% van de tijd overblijft om alle informatie te analyseren en op basis daarvan een besluit te nemen. Dit is vaak de oorzaak van niet goed overwogen beslissingen. In figuur 3 is er geen gebruikgemaakt van BI en het effect dat het heeft op de beslissingstijd.

Figuur 3: Schematische weergave van een beslissingstijd zonder BI

Hiertegenover staat een organisatie waar er wel sprake is van BI; hier zal ongeveer 20% van de tijd worden besteed voor het verzamelen van informatie, dus rest 80% van de tijd om alle informatie te analyseren en op basis daarvan een besluit te nemen. Van de 80% tijd die rest is 50% meer dan voldoende voor het analyseren van alle data en het nemen van een goed overwogen besluit, dus is er 30% van de tijd over. In figuur 4 is de waarde van BI aangegeven en het effect dat het heeft op de beslissingstijd.

Figuur 4: Schematische weergave van beslissingstijd met BI

Return On Investment

Het implementeren van een succesvol Business Intelligenceproject kan belangrijke informatie van een organisatie verzamelen. Deze informatie stelt een organisatie in staat om effectiever en winstgevender te opereren.

Waarde en voordelen van een BI-oplossing

Veel bedrijven rekenen op Excel-spreadsheets en Access-databases om informatie te verstrekken en te beheren voor hun organisatie. Deze toepassingen zijn populair omdat ze vaak bedrijven de mogelijkheid geven om rapporten te ontwerpen met hun eigen specificaties zonder echt gebruik te maken van IT- processen. Excelexperts kunnen aangepaste rapportagetemplates maken met allerlei analytische vermogens. Echter zijn er veel significante risico's bij betrokken. Deze zijn:

- Werknemers zijn langer bezig met het samenstellen van informatie voor het management Spreadsheetmanipulatie is tijdrovend voor de business units en is vaak gevoelig voor gebruikersfouten.
- Gegevens over het bedrijf zouden beschikbaar moeten zijn voor allen die ze nodig hebben, niet alleen voor de expertdata-analisten.
- Als het bedrijf groeit, zullen de spreadsheets en databases niet alleen complexer worden, maar ook moeilijker te beheren zijn.

Belangrijke punten m.b.t. ROI

Organisaties hebben vaak moeite met het maken van zakelijke en financiële keuzes, omdat ze geen rekening houden met alle kosten. Hierdoor missen ze vaak een goed uitgangspunt. Bij het bouwen van een business case zijn er vier belangrijke ROI- onderdelen waarop men moet letten, te weten:

- *Betere managementbeslissingen**:***
  Door eerder rapporten te kunnen bezichtigen met de laatste statistieken kunnen er betere beslissingen genomen worden door het management.
- *Marketing:*
  Op marketinggebied kan er eerder worden ingegrepen
- *Bedrijfswaarde:*
  Inzicht in de bedrijfsvoering kan eerder onbekende inzichten opleveren. Business Intelligence-oplossingen kunnen uitzonderlijke waarde leveren door het verstrekken van de nodige informatie om strategische en tactische beslissingen te nemen in drie grote

gebieden:

1.Omzet, prijzen en winstgevendheid

2.Klanttevredenheid, retentie en acquisitie

3. Operationele efficiëntie en uitmuntendheid

- *Gebruikersproductiviteit:*

  Door de verbetering van de kwaliteit van de gegevens, kunnen organisaties hun werknemers van de juiste informatie voorzien om effectiever te werken.

- *IT -effectiviteit:*

  IT-organisaties hebben meer tijd nodig voor het behoud van de systemen dan het ontwikkelen van nieuwe oplossingen voor een organisatie. Met een self-service BI-oplossing, kunnen IT-afdelingen de kostbare tijd terugwinnen en die besteden aan strategische initiatieven.

- *Total Cost of Ownership (T.C.O.):*

  Bij de beoordeling van verschillende oplossingen, is het belangrijk om te overwegen, welke kosten verbonden zijn aan de implementatie van Business Intelligence, waaronder consulting, software en licenties, hardware, training, onderhoud, upgrades en ondersteuning. Vaak richten bedrijven zich op de hardware- en softwarekosten maar verwaarlozen ze de aanzienlijke kosten van Extract, Transform, Load(ETL), databaseconfiguratie, Enterprise Architecture Management, en het trainen van gebruikers indien het bedrijf groeit of eisen verandert.

  Voor de organisatie kan een SaaS (Software-as-a-Service) implementatie een lager total cost of ownership opleveren en een betere ROI.

Zakelijke doelstellingen

De topzakelijke doelstellingen voor het gebruik van Business Intelligence zijn hieronder aangegeven:

- Het maximaliseren van marketingcampagnes en forse verkoopeffectiviteit.
- Het verhogen van verkoopkansen en de uitoefening van de belangrijkste besluitvormers.
- Het verbeteren van het koopgedrag van relaties en consumenten
- Ervoor zorgen dat verkopers vasthouden aan gevestigde verkoopmethodieken.
- Het optimaliseren van verschillende gebieden.

- Het verbeteren van kapitaal en de toewijzing van middelen.
- Het identificeren van innovatieve technieken voor het leveren van producten op de markt.
- Het verbeteren van richtlijnen tussen managers/vertegenwoordigers en hun verantwoordelijkheden.
- Het sluiten van de kloof tussen de beste en slechtst presterende vertegenwoordigers.
- Het bewaken van de naleving van de diverse regelementen van de organisatie.

3.4.2 Technische infrastructuur

Alvorens het BI-proces wordt aangepakt moet de technische infrastructuur eerst goed bekeken worden. De punten die hierbij bekeken worden zijn:

1. Het hardware platform

   Voor een optimale werking bij het verwerken van query's en het produceren van rapporten is het van groot belang dat de juiste hardware aanwezig is in de servers.

2. Het systeem softwareplatform

   Dit is de software die gebruikt zal worden voor alle verschillende processen van Business Intelligence. Deze kunnen onderverdeeld worden in twee categorieën:

   - Gedistribueerde systeemsoftware: dit is de ondersteuning van programma tot programma en de communicatie tussen twee stukken op maat geschreven applicatie code.
   - Datamanagementsysteemsoftware: deze verbindt een applicatie of een DBMS[3] op een platform met een DBMS dat op een ander systeem draait.

3. Database Management System

   Hierbij wordt er gekeken naar de hardware waarop een database zal draaien. Een kleine organisatie zal al genoeg hebben aan een normale bestandsserver, maar bij een grotere BI-applicatie is het beter dat de infrastructuur een Enterpriseserver ondersteunt.

3.4.3 BI-procesarchitectuur

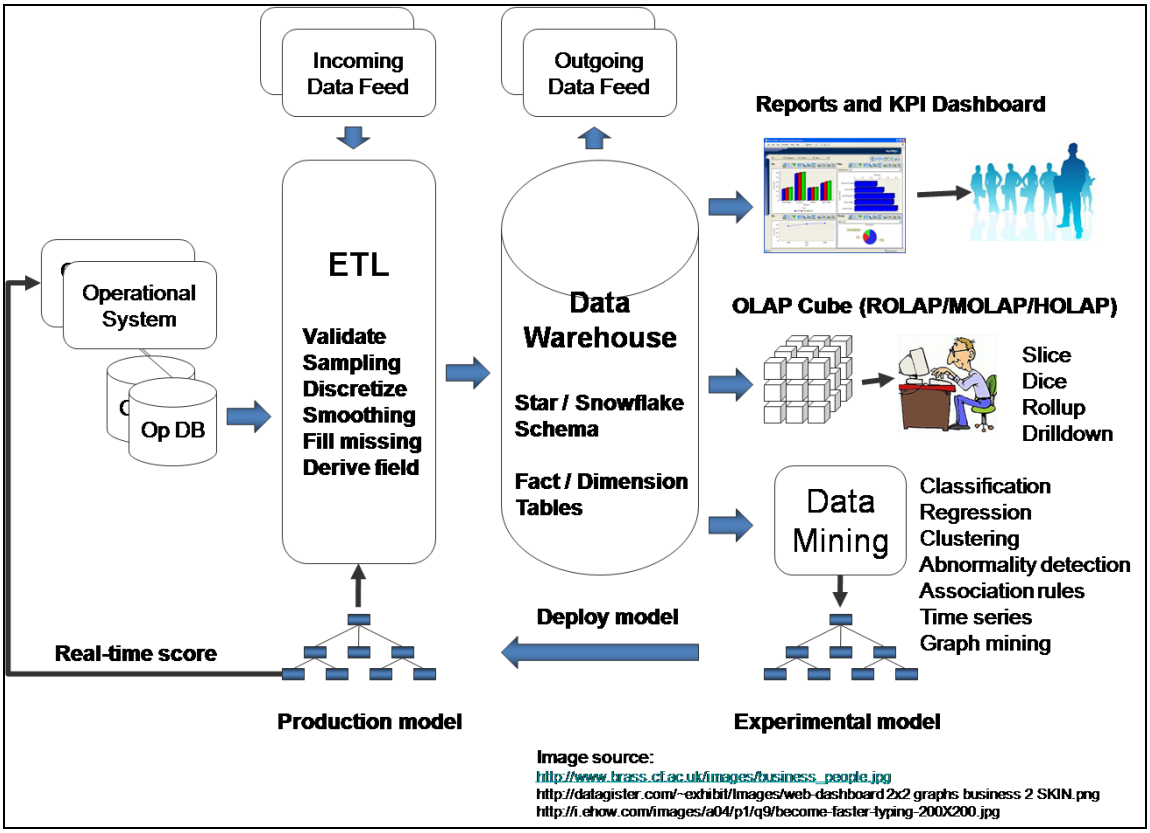
De BI-procesarchitectuur in figuur 5 zorgt ervoor dat de processen van Business Intelligence goed op elkaar zijn afgestemd en dat de verbindingen tussen processen, instrumenten en toepassingen correct zijn. De BI-procesarchitectuur omvat alle BI-processen vanaf het registreren tot het nemen van besluiten. De BI-procesarchitectuur dient er voor te zorgen dat

[3] DBMS: Database Management System

er een samenhang ontstaat tussen financiële en niet-financiële informatie, in- en externe informatie, KPI's[4] en invalshoeken en processen, toepassingen en instrumenten.

Het is daarom raadzaam om een BI-procesarchitectuur te ontwikkelen die gebaseerd is op de organisatie en haar processen. De BI-procesarchitectuur bestaat uit de volgende vier componenten:

1. De bronsystemen
2. De integratie
3. Het datawarehouse
4. De data-analyse



Figuur 5: BI- architectuur

ad 1) Bronsystemen

Het is belangrijk om na te gaan welk typen bronsystemen gebruikt worden binnen een organisatie. Bronsystemen kunnen variëren van spreadsheets, databases tot CRM[5]/ERP[6]systemen

[4]KPI: Hoe eenorganisatie in de richting vanhaar doelstellingen de vooruitgang meet en definieert
[5]CRM (Customer relationship management):is een model dat gebruikt wordt voor het beheervan bedrijfsinteracties met klanten, cliënten en verkoopvooruitzichten.
[6]ERP (Enterprise resource planning): zijn systemen voor intern en externbeheer vaninformatie integrerenbinnen de gehele organisatie, boekhouding, productie, verkoop en service, customer relationship management, enz.

etc. Kort gezegd, alles waaraan informatie onttrokken kan worden om te komen tot het weergeven van de juiste informatie in het eindresultaat.

ad 2) Integratie

Tijdens het integratieproces wordt er gebruikgemaakt van het ETL-proces. ETL staat voor Extract, Transform en Load. Het ETL-proces ziet er als volgt uit:

1. *Extract:*

   De eerste fase van het ETL-proces is extractie en in die fase worden data uit de verschillende typen bronsystemen gehaald. Het proces van Extract zorgt ervoor dat data worden omgezet naar een formaat voor het proces van transformatie.

2. *Transform:*

   De tweede fase van het ETL-proces is transformatie. Dit proces zet de opgenomen data om, gebruikmakende van regels, opzoektabellen of maakt een combinatie van data uit verschillende bronnen.

3. *Load:*

   De derde fase van het ETL-proces is het laden. Dit proces schrijft de getransformeerde data naar het datawarehouse toe. Bij sommige datawarehouses kan er elke week bestaande informatie overschreven worden met aangepaste, bijgewerkte data, terwijl andere datawarehouses nieuwe data in een tijdstabel toevoegen (vb. elke minuut).

ad 3) Datawarehouse

Een datawarehouse is een database die als doel heeft het ondersteunen van het besluitvormingsproces. Een datawarehouse is opgezet om data over een bepaald onderwerp uit verschillende datasources te trekken en op te slaan. Deze data worden gefiltreerd, opgeschoond, gecombineerd en getransformeerd voordat ze in het datawarehouse worden opgeslagen. Een datawarehouse heeft een aantal belangrijke doelen, namelijk:

- Het verbeteren van de integratie
- Het versnellen van de responstijd
- Het flexibeler en sneller kunnen rapporteren
- Het verhogen van de datakwaliteit
- Het ontlasten van operationele systemen
- Het ontlasten van de IT-afdeling

- Het verhogen van de kenbaarheid van informatie

Metadata

Metadata zijn data over data. Het zijn gegevens die de karakteristieken van bepaalde gegevens beschrijven. Het expliciet opslaan van metadata, heeft als voordeel dat de data makkelijker gevonden kunnen worden. Het nadeel van werken met metadata is dat metadata moeten worden toegevoegd aan alle gegevens.

ad 4) Data-analyse

Data-analyse is een complete en grondige herziening van alle informatie die wordt verzameld en opgeslagen in het datawarehouse. Er zijn analysetools die gebruikmaken van queries om informatie te trekken uit het datawarehouse. De typen BI-tools die hiervoor gebruikt worden zijn Reporting -, OLAP - en Metadata tools.

Voor de analyse van data worden de volgende manieren gebruikt om data in de gaten te houden, aan te passen en ook te rapportages te maken.

Dashboard

Een dashboard bevat een verzameling van scorekaarten, rapporten en filters. Het is een visualisatietool die de huidige status van Key Performance Indicatoren (KPI's) van een organisatie weergeeft. In figuur 6 is een voorbeeld van een dashboard aangegeven.

Figuur 6: Voorbeeld van een dashboard

OLAP

OLAP staat voor Online Analytical Processing. Door gebruik te maken van OLAP-software kan een OLAP-model gemaakt worden. In dit model worden meetwaarden en dimensies gedefinieerd. Meetwaarden zijn de getallen die gerapporteerd dienen te worden. Dimensies zijn de zaken waarop de getallen betrekking hebben.

Interactieve visualisatie

Interactieve visualisatie geeft een gebruiker de mogelijkheid om verschillende aspecten van de gegevens weer te geven. Een goed voorbeeld zijn interactieve foto's en grafieken.

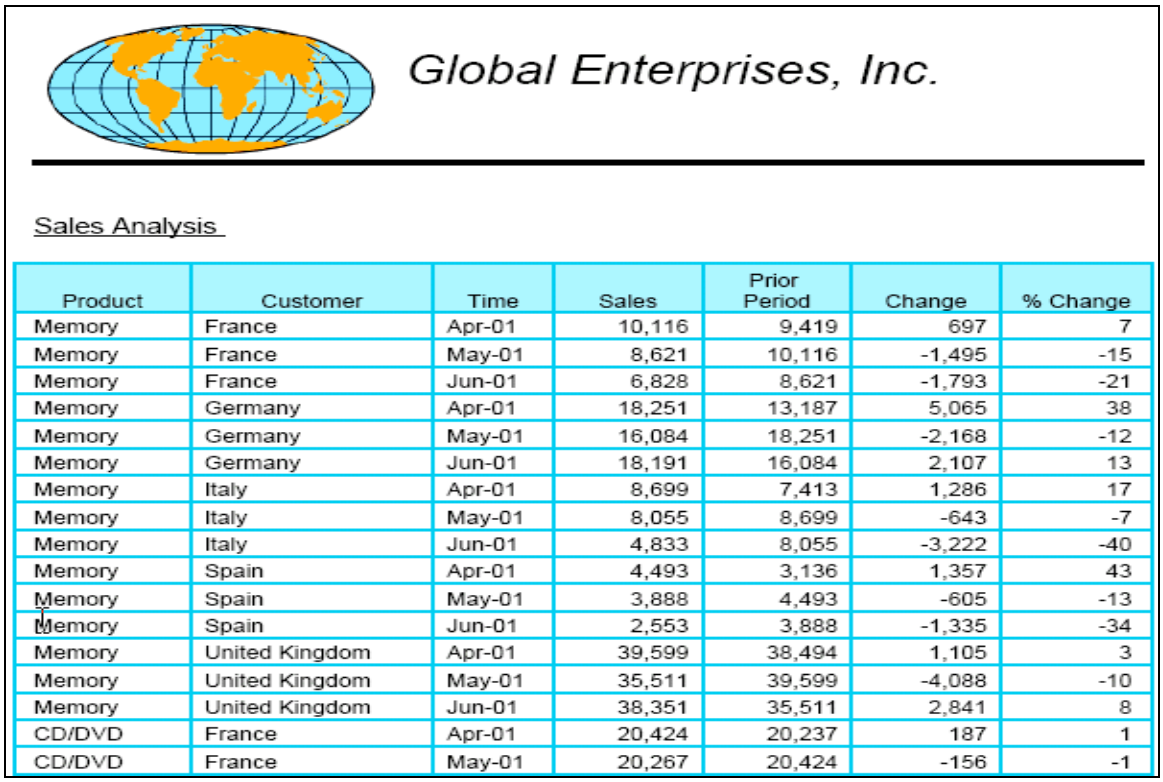
Datamining

Datamining is geautomatiseerd zoeken naar patronen en relaties in datasets.

Rapporteren

Een rapport is de presentatie van gegevens, omgezet in opgemaakte en georganiseerde informatie op basis van specifieke zakelijke behoeften. In figuur 7 is een voorbeeld van een

rapport aangegeven.



Global Enterprises, Inc.

Sales Analysis

Product	Customer	Time	Sales	Prior Period	Change	% Change
Memory	France	Apr-01	10,116	9,419	697	7
Memory	France	May-01	8,621	10,116	-1,495	-15
Memory	France	Jun-01	6,828	8,621	-1,793	-21
Memory	Germany	Apr-01	18,251	13,187	5,065	38
Memory	Germany	May-01	16,084	18,251	-2,168	-12
Memory	Germany	Jun-01	18,191	16,084	2,107	13
Memory	Italy	Apr-01	8,699	7,413	1,286	17
Memory	Italy	May-01	8,055	8,699	-643	-7
Memory	Italy	Jun-01	4,833	8,055	-3,222	-40
Memory	Spain	Apr-01	4,493	3,136	1,357	43
Memory	Spain	May-01	3,888	4,493	-605	-13
Memory	Spain	Jun-01	2,553	3,888	-1,335	-34
Memory	United Kingdom	Apr-01	39,599	38,494	1,105	3
Memory	United Kingdom	May-01	35,511	39,599	-4,088	-10
Memory	United Kingdom	Jun-01	38,351	35,511	2,841	8
CD/DVD	France	Apr-01	20,424	20,237	187	1
CD/DVD	France	May-01	20,267	20,424	-156	-1

Figuur 7: Voorbeeld van een rapport

Ad hoc query

Deze mogelijkheid stelt de gebruikers in staat om hun eigen rapporten te maken zonder een beroep te doen op IT. In het bijzonder moeten de BI-tools de functionaliteit hebben tot een Robust Semantic Layer om de gebruikers in staat te stellen door de beschikbare data te navigeren.

3.5 Risico's

Er zijn verschillende typen problemen die kunnen ontstaan bij het implementeren van een Business Intelligenceproject.

Problemen die kunnen voorkomen op projectniveau:

1. Het project overschrijdt het budget.
2. Het project duurt te lang.

Problemen die kunnen voorkomen in de BI- omgeving:

1. Bepaalde functies en mogelijkheden zijn niet geïmplementeerd.

2. Onacceptabele prestaties van het systeem, de BI-architectuur of de BI-tool.
3. Slechte beschikbaarheid van het systeem.
4. Slechte beschikbaarheid van het netwerk.
5. Onvermogen om uit te breiden: hierbij wordt er gekeken naar de uitbreiding van gebruikers en het draaien van queries die te complex zijn of die zelfs te zwaar kunnen draaien op het systeem.
6. Slechte kwaliteit van data of rapporten: als de data niet accuraat zijn zal het gebruik van de queries en de opmaak van rapporten vastlopen. Het gevolg hiervan is dat er verkeerde beslissingen genomen kunnen worden door het management.
7. Niet-gebruikersvriendelijk: sommige BI-tools kunnen ingewikkeld zijn voor de eindgebruiker. Het gevolg hiervan is dat de gebruikers er langer over zullen doen om een resultaat eruit te halen.

Problemen die kunnen voorkomen en waarop het bedrijf dat de diensten levert aan de organisatie moet letten, zijn:

1. Support van de leverancier: hierbij wordt er gekeken naar lokale of regionale ondersteuning van de leverancier bij eventuele problemen.
2. Beschikbaarheid van de implementatiewerkgroep
3. Beschikbaarheid van de stuurgroep
4. De vaardigheden van het bedrijf of de IT- groep m.b.t. Business Intelligence

In paragraaf 3.6 wordt de aandacht gericht op wat een Business Intelligencetool precies is.

3.6 BI-tools

Business Intelligence tools zijn ontworpen om informatie te halen uit een of meerdere bronsystemen, te rapporteren, te analyseren en te presenteren. Er zijn verschillende typen Business Intelligence tools op de markt. Business Intelligence tools kunnen onderverdeeld worden in vier categorieën en deze zijn:

1. ETL- tools:

   Een ETL-tool haalt informatie uit een of meerdere informatiebronnen en laat vervolgens een gebruiker op een relatief gemakkelijke manier rapportages samenstellen. De belangrijkste doelen van de ETL-tools zijn:

   - extractie van de gegevens uit de bronsystemen.
   - datatransformatie (gegevens geoptimaliseerd voor transacties->data geoptima-

liseerd voor analyse).

- synchronisatie en reiniging van de gegevens.
- laden van de gegevens in het datawarehouse.

2. Reportingtools:

   Voor het opmaken van rapporten voor de gewenste informatie is er een reportingtool nodig.

3. OLAP- tools:

   OLAP-tools worden op grote schaal gebruikt om informatie vanuit verschillende perspectieven te analyseren. Ze voorzien in functies zoals slice, dice, roll up en drill-down.

4. Metadatatools:

   De metadata-opslagplaats (metadatawarehouse) is deels een fysieke en deels een virtuele omgeving waar alle metadata van de Business Intelligence - omgeving bij elkaar worden gebracht.

In paragraaf 3.7 wordt het verschil tussen een open source- en een licentie BI-tool aangegeven.

3.7 Vergelijking tussen een open source- en licentie BI-tool

Open source-software is meestal gratis te verkrijgen. Wat de meeste gebruikers niet weten is dat er mogelijk verborgen kosten eraan zijn verbonden. Vaak kan het gebruik van open cource-software die gratis oplossingen levert op langere termijn leiden tot hogere kosten m.a.w. als er geen support is zal men op zoek moeten gaan naar bedrijven die consultancy leveren die duurder zullen zijn in tegenstelling tot licentiesoftware waarvoor men wel betaalt en wel support geleverd krijgt.

Licentiesoftware is software waarvoor er betaald moet worden. Dit om de kosten te dekken van de ontwikkeling van een softwarepakket en uiteraard om winst te maken.

In tabel 2 worden de verschillen tussen open source-software en licentiesoftware aangegeven.

Tabel 2: Vergelijking tussen open source software en licentiesoftware

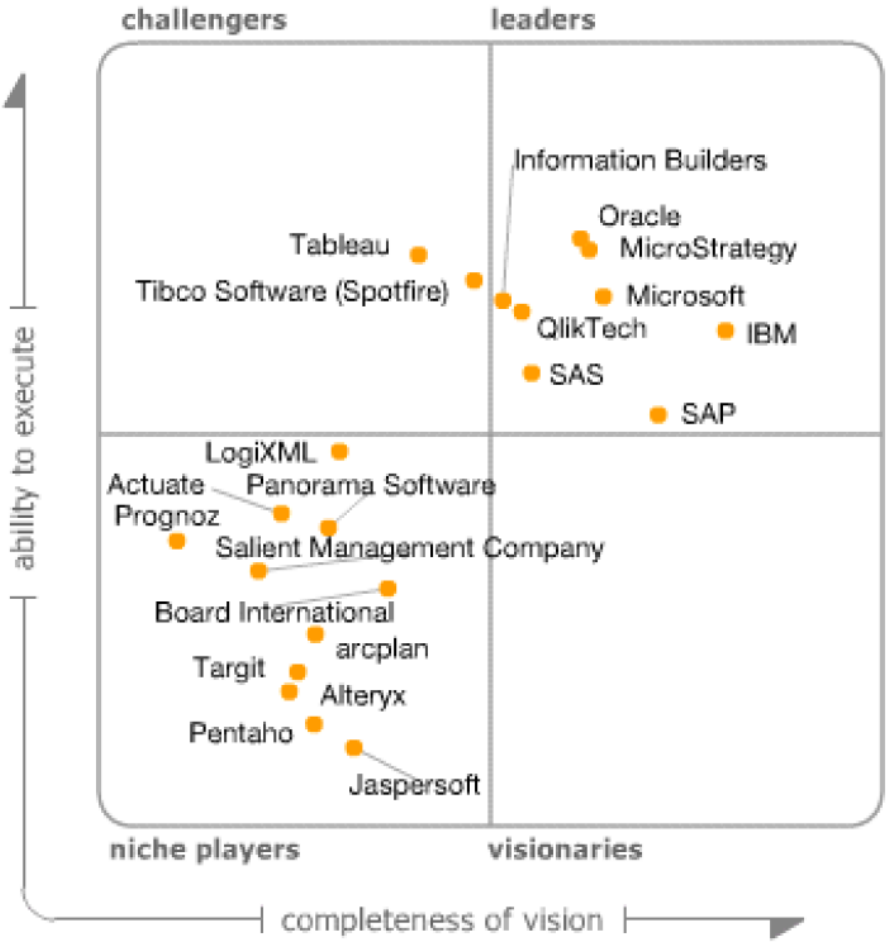
	Open source BI- tool	**License BI-tool**
Support	Een open source BI-tool biedt slechte support, consultancy, training, alsook documentatie vanuit verschillende bronnen buiten de moedermaatschappij.	Een licentie BI-tool heeft de beschikbaarheid van een helpdesk en technische ondersteuning.

Total Cost of Ownership (T.C.O.)	Een open source BI-tool heeft een hogere kostprijs voor installatie en aanpassing wat leidt tot hogere kosten.	Een licentie BI-tool heeft een lage TCO. Hierbij wordt gelet op het gebruiksgemak, de lage trainingskosten en minder implementatietijd.
Innovatie	Meestal is een open source BI-tool niet een upgrade van de applicatiearchitectuur en wordt er gewerkt aan ouderwetse code geschreven door verschillende ontwikkelaars over de hele wereld.	Een licentie BI-tool heeft een goed gebouwde architectuur en biedt allerlei zakelijke functies voor diverse industrieën.
Interoperabiliteit	Terwijl een open source BI-tool wordt aangenomen binnen de kleinere bedrijven zijn er nog obstakels en vertragingen rondom interoperabiliteit.	Een licentie BI-tool zet zich in om data uit te wisselen met externe systemen, hardware, software, netwerk, datawarehouse s, ETL en het analyseren van data.
Compatibiliteit en integratie	open source BI-tool is niet gratis en gemakkelijk te integreren met andere applicaties.	De meeste licentie BI-tools hebben uitstekende integraties met verschillende technologieën beschikbaar.
Veiligheid en administratie	Meestal ontbreekt er beveiliging, ondersteuning, administratie en een metadatalaag bij een open source BI-tool.	Een licentie BI-tool ondersteunt alle soorten gebruikers met beveiliging met behulp van LDAP of Active Directory(ADS)en een eenvoudige administratieconsole.
Toepassing documentatie	Het is moeilijk om functionele of technische documentatie van een open source BI-tool te vinden.	Een licentie BI-tool biedt betere documentatie. Een BI -Suite wordt geleverd met handleidingen voor ontwikkelaars en gebruikers van desktop en web.

3.8 Top BI-tools

Het vergelijken van BI-tools is moeilijk vanwege de variatie van bundeling en de verschillende functies waarover ze beschikken. Leveranciers proberen te concurreren op tal van kenmerken en functies. Dit zorgt soms voor verwarring bij het maken van een vergelijking tussen de BI-tools.

Het bedrijf Gartner is het grootste toonaangevende IT- onderzoeks-en adviesbureau in de wereld. Zo brengt dit bedrijf elk jaar een rapport uit van de verschillende Business Intelligence tools met hun sterke en zwakke punten, genaamd *De Magic Quadrant for Business Intelligence Platforms*, (zie bijlage 3 voor het rapport van Gartner). De Magic Quadrant for Business Intelligence Platforms van Gartner geeft een globaal overzicht van de belangrijkste leveranciers die ernaar streven om Business Intelligence tools te ontwikkelen. In figuur 8 is de grafiek van de verschillende BI-tools aangegeven.



Figuur 8: BI-tools grafiek

De verschillende typen niveaus van elke BI-tool zijn aangegeven in figuur 8 en worden hieronder verder uitgelegd:

- *Leaders*:

  scoren hoger op beide criteria, de mogelijkheid om uit te voeren en de volledigheid van visie. Typisch voor grotere industrie-ontwikkelde bedrijven met een visie en de mogelijkheid om uit te breiden.

- *Challengers*:

  scoren hoger op de mogelijkheid om uit te voeren en lager op de volledigheid van visie. Typisch voor grotere, gevestigde bedrijven met minimale toekomstige plannen voor hun industrie.

- *Niche players:*

  scoren lager op beide criteria: de mogelijkheid om uit te voeren en de volledigheid van visie. Typisch voor nieuwe toevoegingen aan het Magic Quadrant, of leveranciers

die pas op de markt zijn.

- *Visionaries*:
  scoren lager op de mogelijkheid om uit te voeren en hoger op de volledigheid van visie. Typisch voor kleinere bedrijven die hun geplande potentie willen uitbreiden.

Er zijn momenteel een aantal Bi-tools die de markt domineren. Zie bijlage 1 voor de lijst met vergelijkingen tussen de top BI-tools met hun functionaliteiten. Deze top BI-tools zijn:

1. IBM Cognos
2. Microsoft Business Intelligence
3. Oracle Business Intelligence
4. Pentaho Business Intelligence
5. SAP Business Objects

In het volgende hoofdstuk wordt de huidige situatie van Suriname in kaart gebracht.

4. Huidige situatie

Dit hoofdstuk berust op de huidige situatie van het onderzoek voor de BI-tools die aanbevolen zullen worden. In paragraaf 4.1 worden de resultaten van afgenomen interviews met een aantal IT- medewerkers van bedrijven in Suriname gepresenteerd. Het volwassenheidsniveau van de grote bedrijven in Suriname wordt in paragraaf 4.2 bekeken.
De hoofdbron bij dit onderzoek zijn de afgenomen interviews van het IT- managementkader van een aantal grote bedrijven in Suriname (zie Persoonlijke communicatie) en het resultaat van het onderzoek van de verschillende mogelijkheden van de Business Intelligence tools

4.1 Onderzoek Business Intelligence Suriname

Er is een lijst (zie bijlage 2 voor het interview met de vragen en antwoorden opgesteld met een aantal vragen om na te gaan of bedrijven in Suriname wel gebruikmaken van Business Intelligence. Hierbij is het IT- managementkader van een aantal grote bedrijven in Suriname benaderd om een interview af te staan. Er is gekozen voor grote bedrijven in Suriname vanwege het feit dat ze al ervaring hebben met het dagelijks verwerken van grote hoeveelheden data of informatie. De bedrijven zijn:

1. Assuria N.V.
2. Ministerie van Financiën
3. Staatsolie N.V.
4. Suralco L.L.C.
5. Telesur

Uit het onderzoek is naar voren gekomen, dat:

1. de bedrijven wel weten wat een BI-tool is.
2. de bedrijven wel een bepaalde prijs willen betalen voor een BI-tool.
3. de bedrijven eerder kiezen voor licentiesoftware i.p.v. open source-software. Dit vanwege het feit dat support van de leverancier heel erg belangrijk is.
4. de bedrijven matig tevreden zijn met de functionaliteiten van de BI-tools die men momenteel gebruikt.
5. de bedrijven het wel noodzakelijk achten om gebruik te maken van een BI-tool.
6. de bedrijven wel willen investeren in het gebruik van Business Intelligence.
7. de bedrijven eerder gebruik willen maken van Microsoft producten, omdat men al bekend is met de leverancier Microsoft, vooral Microsoft Office.

Om het onderzoek te ondersteunen zijn de voor- en nadelen van de verschillende Business Intelligence tools aangegeven door middel van een scorekaart op basis van een aantal argumenten die van toepassing zijn voor I-Frontier. Hierbij kan de gekozen Business Intelligence -tool voor I-Frontier aanbevolen worden. In tabel 3 is zo een scorekaart aangegeven.

Tabel 3: Scorekaart

	IBM Cognos	**Microsoft Business Intelligence**	**Oracle Business Intelligence**	**Pentaho Business Intelligence**	**SAP Business Objects**

Kennis van I-Frontier	+		+		+		-		++		
Prijs	-		+/-		+/-		+		+		
Partnerschap	++		++		++		+		-		
Support	+/-		+/-		+/-		-		+		
Trend	+/-		+		++		-		-		
Licentiesoftware	+		+		+		-		+		
Klantenkeuze	-		++		+		-		+		
Enquêteresultaat	+		++		+		+		+		
Embedded Reporting (BIRT)	+		-		+		+		+		
Imago op de markt	+		+		+		+		-		
Mobiel	+		-		-		+		+		
Implementatie	-		+		-		+		+		
Gebruikersvriendelijkheid	+		+		+		+		+		
Functionaliteit	+		+		-		+		+		
Flexibiliteit	+		+		-		+		-		
Analyse en optimalisatie	+		+		+/-		-		+		
Betrouwbaarheid en stabiliteit	+		+		+		+		+		
Prestatie en performance management	-		+		-		+		+/-		
Overall rating	13 2 3	+ +/- -	17 2 1	+ +/- -	12 3 6	+ +/- -	12 0 6	+ +/- -	14 1 4	+ +/- -	

Tabel 4: Legenda van scorekaart

Legenda	
Uitstekend	++
Goed	+
Gemiddeld	+/-
Slecht	-

Na dit onderzoek is er ook gekeken naar het volwassenheidsniveau van de grote bedrijven in Suriname die in paragraaf 4.2 belicht zullen worden.

4.2 Methode voor volwassenheidsniveau

Hoewel Business Intelligence de laatste jaren steeds vaker in het buitenland wordt gebruikt en de bekendheid ervan toeneemt, is het gebruik van Business Intelligence in Suriname nog steeds op een laag pitje. Vele bedrijven in Suriname zijn nogal onbekend met Business Intelligence en wat die voor hen en de organisatie kan betekenen. Om te weten op wel denkniveau een organisatie is moet er worden gekeken naar het volwassenheidsniveau van een organisatie.

De People Capability Maturity Model(People CMM), volgens het boek *People Capability Maturity Model(P-CMM) Roadmap* geschreven door Curtis B., Hefley W. en Miller S., is een roadmap die continu zorgt voor de verbetering van de capaciteit van het personeelsbestand van een organisatie. De People CMM maakt gebruik van het procesvolwassenheidsniveau

van het zeer succesvolle Capability Maturity Model voor Software(SW-CMM) als basis voor een model van beste praktijken voor het beheer en de ontwikkeling van een organisatiepersoneelsbestand.

De Software CMM is gebruikt door software-organisaties over de hele wereld voor het begeleiden van drastische verbeteringen in hun vermogen om productiviteit en kwaliteit te verbeteren, de kosten te verlagen, en de klanttevredenheid te verhogen.

Op basis van de beste huidige praktijken op gebieden zoals human resources, kennismanagement en organisatieontwikkeling, begeleidt de People CMM organisaties bij het verbeteren van processen voor het beheren en ontwikkelen van het personeelsbestand.

De People CMM is een methode die gebruikt wordt om:

1. het volwassenheidsniveau van het personeelsbestand te karakteriseren
2. een programma van continue ontwikkeling van het personeelsbestand
3. stelt prioriteiten voor verbeteringsacties
4. te integreren ontwikkeling van het personeelsbestand met procesverbetering
5. het zorgt voor een cultuur van excellentie.

In tabel 5 is het volwassenheidsniveau van enkele Surinaamse bedrijven aangegeven.

Tabel 5: Volwassenheidsniveau Suriname

Volwassenheidsniveau	**Inhoud Maturity-level**	**Bedrijven**
Volwassenheidsniveau 1: Initial	• Inconsistentie in het uitvoeren van praktijken • Verplaatsing van verantwoordelijk-heid • Ritualistische praktijken • Een emotioneel afstandelijk personeelsbestand	• Ministerie van Financiën
Volwassenheidsniveau 2: Managed	• Personeel • Communicatie en coördinatie • Werkmilieu • Performance management • Training en ontwikkeling • Vergoeding • People Capability Maturity Model	• Assuria N.V. • Telesur • Staatsolie N.V.

Volwassenheidsniveau 3: Defined	• Competentieanalyse • Planning personeelsbestand • Competentieontwikkeling • Carrièreontwikkeling • Competentiegebaseerde praktijken • Werkgroepontwikkeling • Participatiecultuur	• Suralco L.L.C.
Volwassenheidsniveau 4: Predictable	• Competentie-integratie • Bevoegde werkgroepen • Competentiegebaseerd vermogen • Kwantitatieve prestatie management • Organisatorische capaciteit manage-ment • Mentorschap	• Geen
Volwassenheidsniveau 5: Optimizing	• Het blijven inzetten voor de verbe-tering van het vermogen • Prestatie management • Voortzetting van het personeelsbe-stand	• Geen

Dit onderzoek is geconcentreerd op de grote bedrijven in Suriname die dagelijks heel veel data verwerken. Bij de meeste grote bedrijven in Suriname is er na onderzoek gestuit op een schatting van een gemiddeld volwassenheidsniveau 2.

5 Gewenste situatie

Dit hoofdstuk beschrijft de gewenste situatie van het onderzoek voor de aanbevolen BI-tools. De typen BI-tools die aanbevolen zijn voor I-Frontier worden in paragraaf 5.1 aangegeven. Hoe de prijs van een BI-tool beïnvloedt kan worden, wordt bekeken in paragraaf 5.2. In paragraaf 5.3 wordt de investering die I-Frontier eventueel zou moeten doen om BI-tools te kunnen promoten in Suriname aangegeven.

De hoofdbron bij dit onderzoek is het resultaat van de afgenomen interviews van het IT-management kader (zie bijlage 2) en het onderzoek naar de verschillende mogelijkheden van de Business Intelligence tools (zie bijlage 1)

5.1 Aanbevolen BI-tools voor I-Frontier

Na het onderzoek zijn er twee opties naar voren gekomen die aanbevolen kunnen worden door I-Frontier. Ze zijn verder uitgewerkt:

1. **Één BI-tool Microsoft Business Intelligence**

   Redenen waarom er gekozen is voor Microsoft Business Intelligence:

   - Het wordt al gebruikt door lokale klanten van I-Frontier.
   - Het is van een leverancier waar i-Frontier al een relatie mee heeft.
   - Prijs: het is goedkoper om gebruik te maken van één leverancier, nl. Microsoft.
   - Partnerschap: I-Frontier kan wederverkoper worden van licenties.
   - Productomvang: het vermogen om een complete oplossing te bieden.
   - Support van Microsoft-vertegenwoordigers.
   - Toekomstige aanwezigheid en imago van Microsoft op de markt.
   - Flexibiliteit: inclusief de mogelijkheid om verschillende soorten gegevens te ondersteunen.
   - Prestatie: de verwerkingssnelheid en meerdere verwerkingseenheden.
   - Betrouwbaarheid: in de vorm van de gereedschapsstabiliteit gedurende de gebruiksduur.
   - Functionaliteiten: drill-down in de vorm van ad-hoc queries / ‘wat als’-scenario's.
   - Gebruiksgemak: de eindgebruiker weet al om te gaan met Microsoft Excel en Microsoft Access.

   Bronsysteem

   - DATABASE: Microsoft SQL Server

   Integratie

   - Microsoft SQL Server, ETL: SQL Integration Services

   Datawarehouse

   - Microsoft SQL Server, Data Warehouse Services

   Data-analyse

   - REPORTING:
     - SQL Reporting Services
   - ANALYSE:
     - Microsoft Excel

    - Microsoft Power Pivot
- DATA MINING
- OLAP:
    - Microsoft SQL Server Enterprise

2. Een combinatie van verschillende BI-tools per categorie

Redenen waarom er gekozen is voor de combinatie van verschillende leveranciers:

1. Oracle is een van de topdatabases die nu gebruikt worden. I-Frontier is al een partner van Oracle m.b.t. databases.
2. Oracle heeft de mogelijkheid om gebruik te maken van PL/SQL. PL/ SQL bestaat uit blokken code die genest kunnen worden. PL / SQL blokken kunnen worden opgeslagen en hergebruikt in de database.
3. Reporting:
    a. Crystal Reporting 2008: I-Frontier heeft al een aantal projecten lopen waarbij er al gebruikgemaakt wordt van Crystal Reporting.
    b. De applicaties die I-Frontier zelf bouwt maken gebruik van reporting. Deze zijn: SAP Crystal Reporting Embedded services en BIRT Embedded services.
4. Voor het analyseren van data kan gebruik worden gemaakt van
    a. Microsoft Excel: de eindgebruiker is al bekend hiermee.
    b. Microsoft Power Pivot: hiermee kan er gebruikgemaakt worden van de optie drill-down.
5. OLAP:
    a. Microsoft SQL Server Enterprise

Bronsysteem

- DATABASE: Oracle Database

Integratie

- ETL: Oracle PL/SQL

Datawarehouse

- DATABASE: Oracle Database

Data -analyse

- REPORTING:

    - SAP Crystal Reporting 2008
    - SAP Crystal Reporting embedded services
    - BIRT embedded services
- ANALYSE:
    - Microsoft Excel
    - Microsoft Power Pivot
- OLAP:
    - Microsoft SQL Server Enterprise

5.2 Betaalbare prijzen voor de klanten van I-Frontier

De prijs van een BI-tool is afgesteld op de afhankelijkheid van de ROI. Er zijn twee aspecten waarop men moet letten bij de bepaling van een prijs voor een Business Intelligencetool, te weten:

1. De tijd: hierbij wordt er gekeken naar de snelheid van informatie die verwerkt kan worden alsook de snelheid waarmee informatie middels een rapport onder ogen komt van de directie van een organisatie.
2. Het bedrag: hierbij wordt er gekeken naar het bedrag dat neergeteld moet worden voor de implementatie van Business Intelligence. Als een klant hetzelfde bedrag voor veel mankracht moet neertellen om rapporten of informatie op tafel te krijgen kan die het beter investeren in Business Intelligence, omdat door het gebruik van Business Intelligence resultaten sneller gegenereerd kunnen worden. Het kost minder tijd en minder mankracht om de informatie te verwerken en op tafel te krijgen m.a.w. door een druk op de knop kan informatie in een rapport geplaatst worden.

Gelet op de kosten komt naar voren dat de waarde die men terugkrijgt tijd is. De tijd waarin informatie verwerkt moet worden is veel sneller met BI dan er zonder. Het gevolg daarvan is dat men betere beleidsbeslissingen kan nemen om een meerwaarde terug te kunnen krijgen.

5.3 Investeringskosten m.b.t. het aanbieden van BI-tools

Dit hoofdstuk berust op de investeringen die I-Frontier zou moeten plegen om Business Intelligence tools te kunnen aanbieden in Suriname. De aanpak voor het opstellen van een marketingplan komt in paragraaf 5.3.1 voor. Het marketing doelgroep en de marketingdoelstellin-

gen worden in paragraaf 5.3.2 opgesomd. De marketingstrategie is uitgewerkt in paragraaf 5.3.3. In paragraaf 5.3.4 is er een uitleg hoe men moet omgaan met het budget.
De hoofdbron berust op onderzoek om de marketing binnen I-Frontier voor Business Intelligence tools op een hoger niveau te brengen en is te vinden op de website http://www.mkbservicedesk. nl/49/wat-staat-marketingplan.htm

5.3.1 Marketingplan

Een marketingplan beschrijft hoe men inspeelt op de markt met als doel om zoveel mogelijk te kunnen verkopen. Door het schrijven van een marketingplan komt er een duidelijk beeld van de markt en haar behoeften naar voren en hoe men beter kan inspelen op de veranderingen. Hieronder worden de verschillende onderdelen van het marketingplan beschreven:

- *Doel*:

  Eerst wordt het doel van het marketingplan beschreven. Het plan moet betrekking hebben op het product of de dienst.

- *SWOT-analyse*:

  SWOT staat voor Strenghts, Weaknesses, Opportunities en Threats. In deze analyse worden de belangrijkste sterke en zwakke punten van het bedrijf tegenover de voornaamste kansen en bedreigingen beschreven.

5.3.2 Marketing doelgroep en marketingdoelstellingen

Marketing doelgroep

Wie zijn de klanten en wat zijn hun behoeften?
Belangrijke punten zijn:

- Algemene kenmerken: Typeer de doelgroepen in enkele woorden.
- Aantal bestaande klanten: Geef een overzicht van de belangrijkste klanten, in omzet of klantentrouw.
- Aantal potentiële klanten: Breng in beeld wie tot de nieuwe doelgroep zouden kunnen behoren.
- Behoeften: Ga na wat de behoeften van de doelgroep zijn.

Marketingdoelstellingen

Bij marketingdoelstellingen wordt er beschreven wat I-Frontier wil bereiken. De doelstellingen moeten concreet en meetbaar zijn. De SMART- formule kan hierbij gebruikt worden. Te weten:

- Specifiek
- Meetbaar
- Acceptabel
- Realistisch
- Tijdgebonden

5.3.3 Marketingstrategie

Om effectief een product of dienst op de markt te brengen zijn er vier elementen, waarop men moet letten, namelijk Product, Prijs, Promotie en Plaats. Deze elementen worden als een eenheid gezien en zijn gestructureerd om elkaar te ondersteunen.

1. *Product*:

   Het bedrijf heeft een product dat het wil afzetten op de markt dat in dit geval een Business Intelligencetool is. Hierbij moet het zich richten op grote bedrijven in Suriname vanwege het feit dat deze bedrijven dagelijks heel veel data of informatie verwerken. I-Frontier moet het product differentiëren in vergelijking met alle andere IT-bedrijven die hetzelfde product ook leveren.

2. *Prijs*:

   Er zijn verschillende prijsstrategieën, maar elke strategie moet ervoor zorgen dat er winst gemaakt wordt tenzij de prijs wordt gebruikt om klanten aan te trekken. Een product is pas evenveel waard als de mensen bereid zijn ervoor te betalen. Het bedrag dat een klant bereid is te betalen voor het product of dienst is afhankelijk van de producteigenschappen en de doelmarkt van de begroting. Ook moet er gelet worden op concurreerde prijzen van hetzelfde product en factoren binnen de marketingomgeving.

3. *Promotie*:

   Promotie is een activiteit om het bewustzijn voor een product of dienst te verhogen of om klanten aan te moedigen om een product te kopen. Er moet een awareness bij de klant opgewekt worden wat de waarde van Business Intelligence kan betekenen voor zijn organisatie. Hierbij zal er meer aandacht besteedt moeten worden aan marketing om de klant of organisatie bewust te maken wat de vele voordelen zijn van Business Intelligence.

4. *Plaats*:

   Waar het product verkocht zal worden is zeker wel van belang.

Mensen moeten dezelfde berichten meerdere keren horen voordat ze de voordelen en de

waarde zullen inzien. Hieronder volgen enkele punten om Business Intelligence effectief te promoten:

- *Seminar*: een omvangrijke bijeenkomst rond een bepaald onderwerp, waar deskundigen, meestal via workshops en lezingen, kennis met elkaar delen.
- *Bedrijfsnieuwsbrieven*: bestaande zakelijke nieuwsbrieven zijn uitstekende media om via communicatie op hoog niveau berichten te versturen naar een breed publiek.
- *Trainingen*: het geven van trainingen m.b.t. Business Intelligence tools.
- *Getuigenissen van klanten*: de huidige klanten aan wie I-Frontier zijn Business Intelligence diensten aanbiedt, zouden een groot effect kunnen hebben in het promoten van Business Intelligence tools.
- *Kortingen*: een vooronderzoek bij de klant door I-Frontier kan ook een investering zijn. Hierbij kan de klant een korting krijgen, want I-Frontier weet niet of men die opdracht zal krijgen. Dit zal bij de klant erg welkom zijn.

5.3.4 Marketingbudget

Het budget dat I-Frontier wil besteden moet wel in kaart worden gebracht. Hiervoor zijn er verschillende methoden die gebruikt kunnen worden. Deze zijn:

- Omzetpercentagemethode: Vast percentage van de omzet.
- Sluitpostmethode: Het bedrag dat overblijft na aftrek van de andere kosten.
- Pariteitenmethode: Hierbij wordt er gekeken naar wat de concurrent besteedt.
- Taakstellende methode: Het budget dat nodig is om een bepaalde omzet te halen.

De praktijk heeft uitgewezen dat de taakstellende methode de beste methode is. Het budget is nu namelijk geen gevolg van de omzet, maar juist een instrument om de omzet te realiseren. Er wordt eerst vastgesteld wat de communicatiedoelstellingen zijn. Daarna wordt er gekeken naar welke activiteiten nodig zijn om deze doelstellingen te realiseren. En ten slotte wordt berekend hoeveel dit zal gaan kosten.

6. CONCLUSIES EN AANBEVELINGEN

Conclusies

- Om een goed Business Intelligenceproject te hebben is er niet alleen een goede Business Intelligencetool nodig, maar ook een goed omschreven project.
- Na onderzoek naar de meest geschikte Business Intelligence tool is gebleken dat er niet echt vastgestelde regels aanwezig zijn voor het kiezen van een Business Intelligence tool, maar dat er wel zaken zijn waarop er gelet moet worden bij het kiezen van de juiste Business Intelligencetool.
- Daarom is het toch handig om te weten wat de verschillende voor- en nadelen zijn van

de verschillende Business Intelligence tools.

- In een economie waarbij de factor arbeid altijd veel geld zal kosten kan Busi-ness Intelligence organisaties helpen om de concurrentie effectief te verslaan en efficiënter te werken. Het is voordeliger en het bespaart een organisatie veel geld.

Aanbevelingen

Om een succesvol Business Intelligencetraject te hebben moet het bedrijf I-Frontier letten op de volgende punten:

1. Het boek Business Intelligence Roadmap moet gebruikt worden als leidraad voor het vooronderzoek bij een Business Intelligence project.
2. De processen en doelen van de organisatie moeten goed in kaart worden gebracht.
3. Na onderzoek is gebleken dat men het accent niet alleen moet leggen op de technologie, maar ook op de processen en doelen van de organisatie. Aan de hand van de vraag kan de IT-consultant een Business Intelligence tool aanbevelen.

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Persoonlijke communicatie

Bedrijf	**Naam**	**Functie**	**Datum interview**
Assuria N.V.	Nadira Hellendoorn	Manager Customer Intelligence	02 augustus 2012
Ministerie van Financiën	Vincent Jubithana	Systeembeheerder	18 oktober 2012
Staatsolie N.V.	Hendrik Schilder	IT Consultant	24 oktober 2012
Suralco L.L.C.	Jacob Legiman	Systeembeheerder	18 oktober 2012
Telesur	Rahet Ghazi	Hoofd van applicatieontwikkeling en beheer	30 oktober 2012

BIJLAGEN

Bijlage 1 Lijst van Top BI-tools

Bijlage 2 Interviewvragen Business Intelligence

Bijlage 3 Magic Quadrant for Business Intelligence Platforms 2012

Bijlage 1 Lijst van Top BI-tools

Tabel: Lijst van Top Business Intelligence tools

Leverancier	**IBM**	**Microsoft**	**Oracle**	**Pentaho**	**SAP**
Software	IBM Cognos	Microsoft Business Intelligence	Oracle Business Intelligence	Pentaho Business Intelligence	Business Objects
Details	IBM levert oplossingen die Business Intelligence op een geheel nieuw niveau brengen. Met dergelijke oplossingen kunnen er sneller en betere beslissingen genomen worden.	Microsoft Business Intelligence maakt gebruik van 3 typen tools en deze zijn: • Microsoft Excel en PowerPivot • Microsoft Sharepoint • Microsoft SQL server	Oracle Business Intelligence Standard Edition One is een complete, geïntegreerde en BI-tool voor kleine tot middelgrote bedrijven. Het is gebaseerd op hetzelfde technologieplatform als Oracle Business Intelligence Enterprise Edition, waardoor het eenvoudig op te schalen is als uw zakelijke behoeften groeien.	Pentaho Business Analytics biedt een web-based interface voor zakelijke gebruikers voor toegang tot gegevens, het maken van rapporten en dashboards, het analyseren van gegevens over meerdere dimensies, zonder afhankelijk te zijn van IT-of ontwikkelaars.	• SAP Crystal Reports wordt gebruikt voor het ontwerpen en genereren van rapporten. • Xcelsius/Dashboards: interactieve dashboards die tabellen en grafieken bevatten. • Web Intelligence: voor het creëren van ad-hoc queries en analyse van de gegevens.
Prijs	**IBM Cognos voor 1 jaar met 1 gebruiker Prijs: $522.58** **Source:** http://www.microcad.ca/products/details/IBM-Cognos-Business-Intelligence-Enhanced-Consumer-with-1-Year-Software-Subscription-and-Support-1-Authorized-User-1013296562	**Microsoft SQL Server Business Intelligence 2012,Prijs: $11,000** **Source:** http://www.amazon.com/SQL-Server-Business-Intelligence-2012/dp/B007RFX0SU/ref=sr_1_1?s=software&ie=UTF8&qid=1357259273&sr=1-1&keywords=Microsoft+Business+Intelligence **Microsoft Office Professional 2010, Prijs per gebruiker: 285.55** **Source:** http://www.amazon.com/Microsoft-Office-Professional-2010-Product/dp/B005O24ECO/ref=sr_1_2?s=software&ie=UTF8&qid=1357736615&sr=1-2&keywords=microsoft+office+2010+professional	**Software Licentie Oracle Business Intelligence Standard Edition One**: • **Prijs voor 1 jaar: $223.85** • **Prijs voor 2 jaar: $385.94** • **Prijs voor 3 jaar: $545.28** • **Prijs voor 4 jaar: $641.61** **Gebruikerslicentie** Oracle Business Intelligence Standard Edition One: • 1 jaar met 1 gebruiker: $91.29 • 2 jaar met 1 gebruiker: $150.68 • 3 jaar met 1 gebruiker: $214.79 • 4 jaar met 1 gebruiker: $257.58 • 5 jaar met 1 gebruiker: $299.49 **Source:** http://www.shopbot.ca/business-intelligence/price/canada/602768	Pentaho BI is een open source tool dat gratis te verkrijgen is. De tool kan online gedownload worden en vervolgens geïnstalleerd worden op een server. De prijs van een licentie hangt af van het aantal gebruikers en type support.	**SAP Business Objects Crystal Reports 2011,Prijs per gebruiker: $ 538.04** **Source:** http://www.amazon.com/SAP-Crystal-Reports-2011-Multilingual/dp/B005N6XB5W/ref=sr_1_1?s=software&ie=UTF8&qid=1357259124&sr=1-1&keywords=sap+business+objects
Operating System	• Windows OS • Linux OS	• Windows OS	• Windows OS • Linux OS	• Windows OS • Linux OS	• Windows OS • Linux OS
Mobile	**IBM Cognos Mobile voor:** • Apple iPhone and iPad • RIM BlackBerry smart phones and PlayBook • Android 3 • Symbian • Windows Mobile	• Geen	• Geen	• geen	• geen
Support	• Forum • Online support • Online database support	• Email • Forum • Telefoon	• Email • Forum • Live chat • Online database support • Telefoon	• Email • Forum • Live chat • Telefoon	• Email • Live chat • Telefoon
Functionaliteiten					

ETL	X	X	X	X	X
Ad hoc Analysis	X	X	X	X	X
Ad hoc Query	X	X	X	X	X
Ad hoc Reporting	X	X	X	X	X
API Availability				X	
Benchmarking	X			X	X
Budgeting & Forecasting	X			X	X
Compliance Management				X	
Custom User Interface	X	X	X	X	X
Customizable Fields	X	X	X	X	X
Customizable Functionality	X	X	X	X	
Customizable Reporting	X	X	X	X	
Dashboard	X	X	X	X	X
Data Import/Export	X	X	X	X	
Data Management		X	X	X	X
Graphical Data Presentation	X	X	X	X	
Key Performance Indicators	X	X	X	X	X
Legacy System integration				X	
Mashboards				X	
Mobile Access				X	
Multi-Currency		X			
Multi-Language		X		X	
OLAP	X	X	X	X	X
Performance Metrics		X	X	X	X
Predictive Analysis	X		X	X	X
Profitability Analysis				X	X
Reporting	X	X	X	X	X
Software Development Kit				X	
Strategic Planning	X			X	X
Trend / Problem Indicators		X	X	X	X
Workflow Management	X			X	

Bijlage 2 Interviewvragen Business Intelligence

Tabel: Lijst van interviewvragen

Interviewvragen	Assuria N.V.	Ministerie van Financiën	SURALCO L.C.C.	Staatsolie N.V.	Telesur
Naam Functie Bedrijf Datum	Nadira Hellendoorn Manager Customer Intelligence Assuria NV 02 augustus 2012	Vincent Jubithana Systeembeheerder Ministerie van Financiën 18 oktober 2012	Jacob Legiman Systeembeheerder Suralco **L.C.C.** 18 oktober 2012	Hendrik Schilder IT Consultant Staatsolie N.V. 24 oktober 2012	Rahet Ghazi Hoofd van applicatieontwikkeling en beheer Telesur 30 oktober 2012
1. Hebt u ooit eens aan een Business Intelligence project gewerkt? • ☐ Ja • ☐ Nee	Nee	Nee	Nee	Ja	Ja
2. Wat was uw rol daarin en uw ervaring daarmee? • **Business Manager** • **BI Business Specialist** • **BI Project Manager** • **Business Requirements Analyst** • **Decision Support Analyst** • **BI Designer** • **ETL Specialist** • **Database Administrator**	Business Manager	Momenteel heeft de heer Jubithana nog geen rol, maar als hij een rol zou krijgen zou het een leidinggevende rol kunnen zijn.	**Decision Support Analyst**	**BI Project Manager**	**BI Project Manager**
3. Hebt u al eerder met een Business Intelligence tool gewerkt(s)? • ☐ Ja • ☐ Nee	Nee	Ja	Ja	Ja	Ja
4. Kunt u aangeven welke leverancier en welke Business Intelligence tool(s) u heeft gebruikt?	• Crystal Reports	• MS Excel • MS Acces (als database voor het genereren van rapporten)	• BIRT (Reporting) • SPOON (Plugin van Pentaho) • Oracle APEX	• Business Objects Crystal reporting • Oracle Business Intelligence Enterprise Edition	• Microsoft Business intelligence (Backend) • Business Objects crystal reporting (Frontend)
5. Voldeed de ICT- architectuur aan de eisen van deze Business Intelligence tool(s)?	Hardware is redelijk goed	Op hardwareniveau is het momenteel wel redelijk goed. Het zou wel opnieuw be-keken moeten worden vanuit het datamo-del.	De hardware voldeed wel. Alles kon ik op een machine doen, helaas niet via het netwerk.	Ja, het was goed.	Niet helemaal, • Hardware: is er niet op gericht om datawarehouses te ondersteunen. Weinig schijfruimte. Dus we zijn onderweg naar de juiste hardware ondersteuning. • Software: design is nog niet wat het wezen moet.
6. Denkt u dat deze prijs wel te betalen is?	Ja	Ja, er is geen moeite met de prijs, omdat de overheid genoeg financieringsbronnen be-vat zoals de IDB. Voor hun database IBM informix zijn er al licenties gekocht. Momenteel is men ook bezig een applicatie te kopen	Ja, de ALCOA neemt de beslissin-gen.	Ja	Ja, voor een groot bedrijf als Telesur is het wel redelijk be-taalbaar.
7. Voor welk type BI-tools zal een organisatie gaan? open source of licentiesoftware en wat zijn vol-gens u de voor- en nadelen van deze twee types?	Licentiesoftware Support is belangrijk.	Licentiesoftware. Reden hiervoor is omdat managementin-formatie kritisch is. Support is daarom be-langrijk en moet professioneel zijn. Het ministerie van Financiën doet al zaken met IBM. Relatief bekeken zal IBM Cog-nos misschien goedkoper zijn	Licentiesoftware. ALCOA-SURALCO maakt geen gebruik van open source. Support is belangrijk.	Licentiesoftware Support is belangrijk voor een bedrijf als Staatsolie	Licentiesoftware Support is belangrijk.

8. Was u tevreden met de functionaliteiten van deze Business Intelligence tool(s)? • Indien Ja; kunt u aangeven in welke mate? • Indien nee; kunt u aangeven waarom niet?	Ja	Ja, het was een heel pakket. Er was een demo gegeven door IBM.	Ja, want management hoeft zich niet druk te maken hoe rapporten gecreëerd worden.	Ja	MS 2008BI redelijk stabiel. Specifieke functies die gericht waren op de BI van Telesur
9. Was u tevreden met de prijs van deze Business Intelligence tool(s)? • Indien Ja; kunt u aangeven in welke mate u tevreden was? • Indien nee; kunt u aangeven waarom niet?	Ja	Vanwege de prijs van de BI-tool heeft de organisatie toen besloten om geen BI-tool te kopen	Ja, Freeware tools worden niet ge-bruikt bij de ALCOA.	Ja	Ja
10. Was u tevreden met de kwaliteit van deze Business Intelligence tool(s)? • Indien Ja; kunt u aangeven in welke mate u tevreden was? • Indien nee; kunt u aangeven waarom niet?	Ja	Ja, Ik denk dat het wel kwalitatief goed zal zijn. Het zal goed aansluiten op de infor-mix database waarover het ministerie van Fnanciën al beschikt.	Ik zou het niet kunnen peilen.	Ja	Ja, ongeveer 6 jaren ervaring met Microsoft BI en Business Objects
11. Wat was uw gebruikerservaring met deze Business Intelligence tool(s)?	Positief, Crystal Reports is te begrijpen	Geen ervaring	Positief, maar kan zijn toepassing op dit moment niet vinden binnen Suralco, omdat de ALCOA beslui-ten neemt op dit vlak.	Het hele vooronderzoek en de hele bouw van de BI-omgeving was slecht. Het was niet conform de Business Intelligence roadmap.	In het begin ging het moeilijk met MS 2000. Bij de overstap naar MS 2008 moest er eerst een training gevolgd worden, waarbijalles opnieuw gedaan moest worden.
12. Vond u het wel handig om gebruik te maken van een Business Intelligence tool(s) voor uw organisatie?	Ja	Geen ervaring	Ja	Ja	Ja, als er een tool aanwezig is, is het handig.
13. Heeft uw organisatie positieve veranderingen kunnen inbrengen op managementniveau door gebruik te maken van een Business Intelligence tool(s)?	Ja	De IBM Informix development tool wordt momenteel gebruikt. Hierbij worden ruwe data geëxporteerd naar een CSV-formaat. Ze worden daarna geïmporteerd in de MS Acces Database. Door middel van MS Excel pivot tabel wordt er gebruik gemaakt van datamining en dril down.	Nee	Nee	Ja, nog niet op niveau maar er zijn toch wel onderwerpen op basis van Business Intelligence, waarbij er besluiten zijn geno-men v.b.: De interconnectie met Digicel en Uniqa
14. Zou uw organisatie willen investeren in een Business Intelligence tool(s)?	Ja, zeer zeker zou men willen investeren	Dat is momenteel moeilijk in te schatten, omdat er geen BI- model in kaart is ge-bracht. Dus dat zou eerst gedaan moeten worden. De BI -kennis is niet aanwezig om zo een project aan te pakken.	Ja, zeer zeker, maar moet opge-drongen worden aan de Business Units van de Alcoa	Ja	Ja, er zijn verschillende investeringen geweest, zoals trainingen en de ICT- architectuur
15. In welke type BI-tool en waarom?	Geen idee	Microsoft BI	Geen idee	Aanbevolen	Microsoft BI. Ms Excel is al bekend bij de meeste gebruikers
16. Wat zou volgens u de prijsklasse moeten zijn voor een dergelijke investering?	Het is moeilijk te bepalen	IBM had een bedrag van USD200.000 aan-geboden. Hierbij waren inbegrepen soft-ware, Training en het aantal gebruikers. Geld is geen probleem. Het management heeft niet gekeken naar de ROI, maar eer-der naar de kosten.	Geen idee	Geen prijsklassen, geen probleem	Het is moeilijk in te schatten

Bijlage 3 Magic Quadrant for Business Intelligence Platforms 2012

Magic Quadrant for Business Intelligence Platforms

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Analyst(s): John Hagerty, Rita L. Sallam, James Richardson

VIEW SUMMARY

In 2011, business users continued to exert significant influence over BI decisions, often choosing data discovery products in addition to/as alternatives to traditional BI tools. An avalanche of new use cases, content types and interaction models expands the scope for tomorrow's BI platforms.

Market Definition/Description

Business intelligence (BI) platforms enable all types of users — from IT staff to consultants to business users — to build applications that help organizations learn about and understand their business. Gartner defines a BI platform as a software platform that delivers the 14 capabilities listed below. These capabilities are organized into three categories of functionality: integration, information delivery and analysis. Information delivery is the core focus of most BI projects today, but we are seeing an increased interest in deployments of analysis to discover new insights, and in integration to implement those insights.

Integration

- **BI infrastructure** — All tools in the platform use the same security, metadata, administration, portal integration, object model and query engine, and should share the same look and feel.
- **Metadata management** — Not only should all tools leverage the same metadata, but the offering should provide a robust way to search, capture, store, reuse and publish metadata objects such as dimensions, hierarchies, measures, performance metrics and report layout objects.
- **Development tools** — The BI platform should provide a set of programmatic development tools and a visual development environment, coupled with a software developer's kit for creating BI applications, integrating them into a business process, and/or embedding them in another application. The BI platform should also enable developers to build BI applications without coding by using wizard-like components for a graphical assembly process. The development environment should also support Web services in performing common tasks such as scheduling, delivering, administering and managing. In addition, the BI application can assign and track events or tasks allotted to specific users, based on predefined business rules. Often, this capability can be delivered by integrating with a separate portal or workflow tool.
- **Collaboration** — This capability enables BI users to share and discuss information, BI content and results, and/or manage hierarchies and metrics via discussion threads, chat and annotations, either embedded in the BI platform or through integration with

collaboration, social software and analytical master data management (MDM).

Information Delivery

- **Reporting** — Reporting provides the ability to create formatted and interactive reports, with or without parameters, with highly scalable distribution and scheduling capabilities. In addition, BI platform vendors should handle a wide array of reporting styles (for example, financial, operational and performance dashboards), and should enable users to access and fully interact with BI content delivered consistently across delivery platforms including the Web, mobile devices and common portal environments.
- **Dashboards** — This subset of reporting includes the ability to publish formal, Web-based or mobile reports with intuitive interactive displays of information, including dials, gauges, sliders, check boxes and traffic lights. These displays indicate the state of the performance metric compared with a goal or target value. Increasingly, dashboards are used to disseminate real-time data from operational applications or in conjunction with a complex event processing engine.
- **Ad hoc query** — This capability enables users to ask their own questions of the data, without relying on IT to create a report. In particular, the tools must have a robust semantic layer to allow users to navigate available data sources. These tools should include a disconnected analysis capability that enables users to access BI content and analyze data remotely without being connected to a server-based BI application. In addition, these tools should offer query governance and auditing capabilities to ensure that queries perform well.
- **Microsoft Office integration** — In some use cases, BI platforms are used as a middle tier to manage, secure and execute BI tasks, but Microsoft Office (particularly Excel) acts as the BI client. In these cases, it is vital that the BI vendor provides integration with Microsoft Office applications, including support for document and presentation formats, formulas, data "refreshes" and pivot tables. Advanced integration includes cell locking and write-back.
- **Search-based BI** — This applies a search index to both structured and unstructured data sources and maps them into a classification structure of dimensions and measures (often, but not necessarily leveraging the BI semantic layer) that users can easily navigate and explore using a search (Google-like) interface. This capability extends beyond keyword searching of BI platform content and metadata.
- **Mobile BI** — This capability enables organizations to deliver report and dashboard content to mobile devices (such as smartphones and tablets) in a publishing and/or interactive (bidirectional) mode, and takes advantage of the interaction mode of the device (tapping, swiping and so on) and other capabilities not commonly available on desktops and laptops, such as location awareness.

Analysis

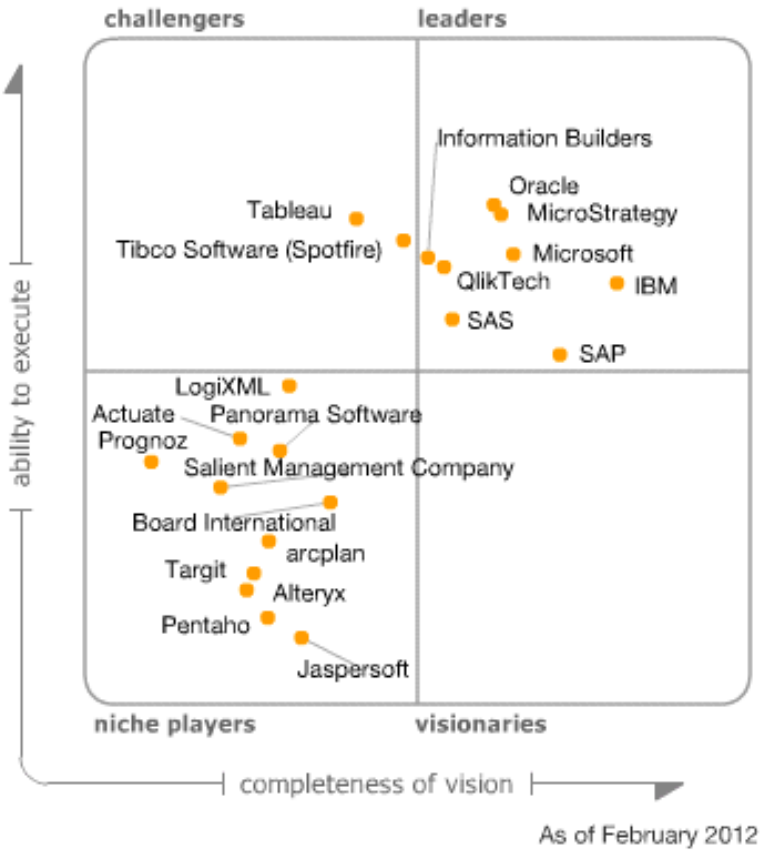
- **Online analytical processing (OLAP)** — This enables end users to analyze data with extremely fast query and calculation performance, enabling a style of analysis known as "slicing and dicing." Users are (often) able to easily navigate multidimensional drill

paths. And they (sometimes) have the ability to write-back values to a proprietary database for planning and "what if" modeling purposes. This capability could span a variety of data architectures (such as relational or multidimensional) and storage architectures (such as disk-based or in-memory).

- **Interactive visualization** — This gives users the ability to display numerous aspects of the data more efficiently by using interactive pictures and charts, instead of rows and columns. Over time, advanced visualization will go beyond just slicing and dicing data to include more process-driven BI projects, allowing all stakeholders to better understand the workflow through a visual representation.
- **Predictive modeling and data mining** — This capability enables organizations to classify categorical variables and to estimate continuous variables using advanced mathematical techniques. BI developers are able to integrate models easily into BI reports, dashboards and analysis, and business processes.
- **Scorecards** — These take the metrics displayed in a dashboard a step further by applying them to a strategy map that aligns key performance indicators (KPIs) with a strategic objective. Scorecard metrics should be linked to related reports and information in order to do further analysis. A scorecard implies the use of a performance management methodology such as Six Sigma or a balanced scorecard framework.

Magic Quadrant

Figure 1. Magic Quadrant for Business Intelligence Platforms



Source: Gartner (February 2012)

Vendor Strengths and Cautions

arcplan

Strengths

- arcplan's customer base is firmly established in Western and Central Europe, with nearly 90% of customer references based in those sectors. Sixty-five percent are based in Western Europe, compared with an average of 27% for the rest of the survey respondents.
- The top reasons why customers select arcplan are data access and integration (top quartile), functionality, and ease of use for end users. Additionally, references indicate that report design complexity is a major contributing factor in selecting this vendor, along with the availability of skills provided by an extensive partner network. Customers rate arcplan's end-user ease of use in the top quartile, compared with other vendors in this report, and indicate reporting, dashboard, and scorecard functionality as being above average. They also use OLAP options more aggressively than the average for other vendors in the survey.
- The average tenure of arcplan's customers is 7.2 years, the longest of any vendor in this Magic Quadrant. This indicates long-term customer satisfaction. However, 10% of customers report a definite plan to replace the software in three years, which tempers this long-term satisfaction rating. While the rating is lower than last year's survey response, it is above the average for all vendors this year.
- arcplan's unified platform incorporates guided and self-service analytics, along with budgeting, planning and forecasting capabilities and integrated search and collaboration functionality. The breadth of this vendor's platform differentiates it from other pure-play BI vendors in this Magic Quadrant that lack an integrated planning capability.

Cautions

- arcplan is considered the BI standard in less than 35% of its reference accounts, near the bottom of all vendors in this survey (but nearly double last year's response). A substantial part of arcplan's business is linked to SAP — 50% of references indicate that it is their ERP standard — and sales and marketing efforts from SAP for BusinessObjects products and the High-Performance Analytic Appliance (HANA) platform must be considered a competitive threat to arcplan's near- and mid-term sales prospects. Interestingly, HANA may also act as an accelerator to arcplan's growth as another source of data for arcplan to analyze.
- Overall, reference customers scored arcplan's product capability below the average for all vendors in this survey; Microsoft integration was noted as a particular weakness. Performance concerns, specifically the inability to handle required data volumes, as well as overall system performance, were noted as problem areas with the software. Given relatively small data volumes (less than 500 gigabytes [GB] of data on average, in the bottom quartile of survey respondents), this is troubling. It is important to note that arcplan sits on top of existing data sources (for example, SAP NetWeaver Business Warehouse [BW]) that may have performance constraints of their own,

making it less clear where performance concerns lie.

- Scores for product quality, customer experience and platform integration were also below the average for all respondents, contributing to less positive execution scores in this year's Magic Quadrant results. arcplan should put a specific plan in place to address concerns over products and customer experience. It would be unfortunate to lose long-term customer loyalty without addressing the specific issues noted by customers in this survey.

Actuate

Strengths

- In 2011, Actuate turned an important corner. It has seen multiple consecutive quarters of double-digit license revenue growth, with a stronger emphasis on Business Intelligence and Reporting Tools (BIRT)-based license revenue (marketed as the ActuateOne product line), as well as improved customer satisfaction ratings in this year's Magic Quadrant survey, largely because a majority of ActuateOne's customers took part. After many years, it appears that the company's open-source strategy is finally paying some dividends. While there are differences in responses from clients on older vs. newer product lines, they are less pronounced than last year. This has resulted in a higher Ability to Execute rating in the Magic Quadrant.
- The top reasons why companies choose Actuate products are functionality, ease of use for developers, enterprise application integration, and ease of use for end users. The products are often used to develop information-based applications for internal and external constituents. In fact, support for large numbers of concurrent users was a leading buying motivation for Actuate customers — rated No. 1 among all vendors in this survey. While references report a relatively modest 510 user average, Gartner knows of several implementations where tens of thousands of consumers access Actuate-generated content.
- When complex reporting and development requirements are paramount, Actuate products stack up well against competitors. Reference accounts rated it as the No. 2 vendor overall for this requirement.
- The company has shown more progress in the transition of its product portfolio and customer base to BIRT-based products. Actuate reports that BIRT license revenue is growing significantly as a percentage of total license revenue, and the BIRT on Demand cloud offering is gaining new customers, with 7% of references saying they use it today.
- X2BIRT (the rebranded Xenos acquisition) allows customers to access and query non-traditional/unstructured data sources including archives, statements and print streams. When needed, this is a critical component.

Cautions

- Customer references note two problem areas that prevent further deployment of the products: cost and quality of support. Cost has been a perennial concern for Actuate's customers, and it remains one this year, albeit less so than in prior years. Cost is also the No. 1 reason that broader deployments are blocked. Quality of support is noted specifically for BIRT products, resulting in a lower than average support rating for the

firm as a whole. This can be troubling for existing customers that are considering a migration from e.Report-based products.

- Overall product quality ratings are also lower than the average for all vendors this year, as are customer experience and sales execution scores. Fortunately, they are better than last year. Actuate's investment in these areas in 2011 is showing payback; the company must continue to show improvement in these areas next year to maintain positive momentum in terms of its execution.
- Actuate's customers report using a narrower range of functionality than for other vendors — one of the lowest in this year's vendor analysis. In addition, only 45% report that they use the products as their BI standard, below the average for all vendors, but, again, higher than last year.
- Based on inquiry and survey results, the company has made progress in changing its reputation as a company that's difficult to work with. Organizations considering Actuate's products should check references closely to verify the product fit for use case(s) under evaluation. The company's transition continues; but it's a long haul that will require management attention and superb execution.

Alteryx

Strengths

- A new entrant to the 2012 BI platforms Magic Quadrant, Alteryx (formerly SRC) is based in Irvine, California, and was founded in 1997 with a strong foundation of data integration and advanced analytic capabilities. Today, it specializes in delivering a business analytic platform to develop geographic-based applications with significant external content input to enrich business decision making. A strong network of partners often develop their own applications using the Alteryx platform for sale to specific regional and/or industry segments. The product is licensed by subscription.
- Customer references indicate that Alteryx's products are used for highly complex analytics on large data sources (approximately 5 terabytes [TB] on average). The company received the highest complexity of use scores (meaning the variety of analytic use cases) of any vendor evaluated in this year's Magic Quadrant. Ad hoc analysis — from simple to complex — is a demonstrated strength and is rated highest by references across all vendors. Predictive analytics is also highly rated, with many customers using Alteryx products for decision support in sales and marketing scenarios, including prospect targeting or store placement based on population demographics — again, largely based on geographic intelligence.
- The company's integration heritage is evident, as references indicate that over 60% of data used in analyses comes from external sources. In addition, the company scores in the highest quartile for use of unstructured data and use of content analytics. Integration is also one of the primary reasons that clients choose Alteryx.
- Reference customers also gave the company above average support and product scores. Additionally, they indicated that the product is selected for its support of large data sources and its performance against those large datasets.
- The company received significant funding in 2011 to expand its sales and marketing efforts and to broaden its product/company vision to include more analytic scenarios beyond geographic intelligence.

Cautions

- Alteryx is deployed very narrowly within its reference clients, operating on average within single departments/functional areas, and with fewer than 50 users per implementation. For survey respondents, the most common factor blocking expansion was competition with a BI corporate standard. Given its relatively narrow geographic use cases, Alteryx is a classic niche vendor. While the company does plan to expand to more sophisticated predictive analytics workbench capabilities in 2012 and beyond, today it is a highly specialized product.
- Given those analytic strengths, customers do have concrete product concerns. They are not happy with the products' data visualization capabilities — rated the lowest of any vendor included in this year's Magic Quadrant. Clients note concerns about ease of use for developers and users that are preventing expansion. With ease of use and data visualization driving many BI evaluations, Alteryx needs to address these criticisms quickly or risk falling behind the market. Direct conversations with partners reinforced these survey findings. Better visualization is on the product road map for 2012.
- The average tenure of reference customers was 3.5 years — slightly below the average tenure of all respondents in the Magic Quadrant survey — yet over 10% plan to replace the vendor in the next three years (or are considering doing so), which is above the average for all respondents. The short tenure and high replacement factors indicate that the products could be used more tactically than those of other vendors in this survey. As a counterpoint, Alteryx customers continue to renew their subscriptions at exceptionally high rates.
- All Alteryx references who responded to the BI Platforms Magic Quadrant reference survey were North American. The company has limited presence outside this market.

Board International

Strengths

- Board International offers a well integrated BI platform that combines planning, reporting and analysis capabilities in a single integrated product.
- Historically, Board has focused on developing and deploying custom analytic applications (on the same foundation as its corporate performance management [CPM] applications). This unified approach remains its key value proposition, and is evident in its usage — at 29%, a higher proportion of Board users are monitoring their performance via a formal scorecard than those of any other vendor surveyed for this Magic Quadrant.
- Board's "toolkit" approach to BI application development handles database creation and updates, data presentation and analysis, and process modeling in a single graphical environment without programming. This is a differentiator for the company: more Board customers selected it due to a perceived lower implementation cost and effort than for any other on-premises BI vendor (only pure cloud vendors ranked higher).
- Board has worked hard in recent releases to deliver an interactive, visually aesthetic experience for users (via its extensive use of Windows Presentation Foundation and

Silverlight), and customers now rate ease of use for end users as the top reason for selecting Board. In fact, when considering overall ease of use (for end users and developers), only data discovery vendors rated higher — no mean feat given Board's more traditional OLAP-led approach. Board is innovating at the back end too, adding new hybrid in-memory technology to its offering in 2011 (see "Need for Speed Powers In-Memory Business Intelligence").

- Board's ability to meet both BI and CPM (particularly planning) needs in a single product makes it a strategic choice for the firms using it — it is considered a BI standard by 83% of its surveyed customers, the highest of any vendor featured on this Magic Quadrant. Along with this is a strongly positive perception in its customer base regarding Board's future as their BI supplier.

Cautions

- Board offers a functionally complete and capable BI product. However, survey feedback from Board's customers about its BI platform functionality fell below the average in most areas this year. Its customers rated it above or close to average in four functional capabilities: reporting, dashboards, development tools and BI infrastructure.
- Board's customers also report below average product quality (with the lowest rating of any vendor on the Magic Quadrant this year). This, taken in combination with customer support rated in the lowest quartile, amounts to a diminished customer experience for Board users. It should be noted that innovation, and the kind of growth experienced by Board in 2011, can be disruptive to an existing customer base. According to the vendor it is likely that its customers are experiencing issues with the quality of its latest versions, due to the functional innovation they contain. If this is correct, the issues with customer experience should be short-term.
- Board's core markets are in Europe, with emergent adoption elsewhere. Board is looking to grow its global presence — it now has operations in 12 countries worldwide, adding three new ones in 2011 in China, Japan and Mexico. However, its direct presence tends to be limited outside Europe — it has less than 10 full-time equivalents in the U.S., for example.
- Firms considering Board should talk to references that can vouch for its use at scale. It's evident that Board's customers are smaller firms on average, and its deployments are among the smallest of the vendors covered in this Magic Quadrant. The Board customers surveyed had 139 users on average, compared to the survey average of 1,176 users. Board is getting traction in some larger firms (notable recent wins include Puma, Triumph, Giorgio Armani and Nike US), so this survey finding may reflect historical buying patterns rather than technical limitation.
- Board's technology remains Windows-only, which limits its potential to expand into some segments of the enterprise market.

IBM

Strengths

- IBM maintains its leading position on the Completeness of Vision axis for this year's Magic Quadrant. The company takes a holistic approach to what it calls Business

Analytics and Optimization (BAO), combining comprehensive software, hardware and services in a coordinated market offering. IBM's business analytics software portfolio includes a unified BI, analytics and performance management platform, and is complemented by IBM information management software and appliances (Netezza, for example). Services are made up of a consulting line of nearly 9,000 people, which is a growing part of IBM Global Business Services (GBS). IBM can offer both a tools-based and/or a solution-driven offering, along with significant vertical expertise, to customers and prospects.

- In 4Q10, IBM introduced its latest business analytics platform, IBM Cognos 10. Throughout 2011, additional capabilities have been released and customer adoption has begun in earnest. Cognos 10 references who responded to this year's Magic Quadrant survey painted a very interesting snapshot — on average nearly 4,000 users, over 12 TB of data, broad functional use, and very high platform integration scores, all at or near the top of all ratings for all vendors in this report. Overall, Cognos 10 references were significantly more satisfied than Cognos 8 customers, who were the majority of IBM's survey respondents. While some indicated that upgrading from Cognos 8 to Cognos 10 had some complexity, the majority rated it as straightforward or very straightforward. This bodes well for IBM's future ability to execute, providing the firm delivers superior service and support and problem-free software.
- The average tenure of IBM respondents was seven years, second highest of all vendors in this survey. Gartner often hears this long-standing customer commitment in inquiry, and this represents a strong customer loyalty factor. This year, less than 7% of references noted that they are planning to discontinue use of the software in the next three years (or are considering doing so), which is significantly lower than last year's result.
- Advanced analytics is a particular IBM strength. The company's SPSS software continues to advance nicely, readily allowing IBM to bid for predictive analytics and statistical use cases. Customers rated IBM's predictive capabilities in the top quartile of all vendors. A secret weapon at IBM's disposal — IBM Research — delivers another level of research and development prowess to the overall IBM value proposition. For example, Watson, the Deep Question and Answer system that interprets natural language and scores possible answers based on probability, is a visible example of IBM Research at work. While not a part of the Cognos 10 platform, it demonstrates the depth and breadth that IBM can bring to clients' advanced analytic scenarios.
- The top reasons why customers select IBM are functionality, ease of use for end users, and data access and integration. IBM's road map and future vision weighed heavily in reference decisions. In 2011, IBM delivered a new Cognos 10 mobile application for the iPad that is included free in existing user roles. In early 2012 the company will introduce Cognos Insight, a personal, desktop BI product that enables independent discovery and "what if" modeling, while also providing full interoperability with the larger workgroup and enterprise solutions.

Cautions

- Twenty-three percent of Cognos 8 references indicate that performance continues to be problematic (a persistent problem for the last several years), nearly three times the average response for other vendors evaluated in this Magic Quadrant. In contrast, Cognos 10 references reported below average performance concerns. This is a sure signal that IBM must encourage upgrades to Cognos 10 without technical and/or

financial disruption.

- Again this year, references consider the Cognos products more difficult to implement and use than those of competitors. While Cognos 10 was rated slightly below average, other IBM products (Cognos 8, SPSS software and Cognos TM1) were deemed significantly more difficult. These are cited as two major reasons that limit expanded BI deployments with Cognos 8. As such, improved system administration and end-user usability were major development themes of the Cognos 10 release. References indicate that Cognos software is used largely by a consumer/casual user population. Reporting is the most extensively deployed component, followed by ad hoc query and OLAP analysis.
- IBM's customers also continue to have less than optimal customer experiences, with support and sales interactions, along with product quality, rated in the bottom quartile of all vendors reviewed in this report. References also rate product functionality slightly below the average for all vendors. The bright spot is that Cognos 10 references rated product functionality near the top of all vendors, and support, sales and product quality were rated better than for Cognos 8. These issues remain IBM's Achilles' heel, and will limit its ability to raise execution scores next year unless action is taken quickly.
- License cost continues to be another source of customer concern across all products in the IBM business analytics portfolio. Gartner client inquiry also bears out this concern. Higher than expected costs to upgrade from Cognos 8 to Cognos 10 have stalled some projects, but changes in configuration, user roles, and/or support costs appear to drive the increase. As a counterpoint, existing Cognos 10 users did not identify license cost as a concern.

Information Builders

Strengths

- Information Builders' customer references report strong BI functionality across the BI platform spectrum. The WebFocus customers surveyed rated it at or above average in 10 out of 14 capabilities. That said, its strongest area remains reporting: Information Builders' customers predominantly make great use of parameterized reporting (for example, interactivity via prompts, drilling or filters) for consumers and casual users. By and large, this is the sweet spot for WebFocus.
- Although the most common reason for selecting WebFocus remains BI functionality, more Information Builders users select it for its ability to integrate with information infrastructure (database, middleware) than for any other vendor on the Magic Quadrant. The company's broad information management capabilities bolster its BI platform and provide differentiation from other pure-play BI competitors. WebFocus is fully integrated with the firm's iWay integration platform, which provides adapters for multiple data sources, and data federation, profiling and quality capabilities, geocoding and real-time search index management, business activity monitoring/complex-event processing, file-based integration and MDM. This integration makes Information Builders a good fit for organizations without a data warehouse and for operational reporting.

- The suite has proven user scalability; Information Builders' customers reported the highest average number of end users of any vendor on the Magic Quadrant (at 3,184, almost three times the average). This ability to scale for users makes the WebFocus product well suited as a platform for building custom Web-based BI applications. Customers surveyed indicate that 46% utilize the product to develop externally facing applications, and that the single strongest business benefit they'd gained from using Information Builders is "increased customer satisfaction." Its strength in this type of deployment forms the basis of the firm's approach to software as a service (SaaS) — rather than offering its own generic BI-in-the-cloud offering, it is instead targeting third-party independent software vendors (ISVs) that want to develop and deliver their own hosted applications using WebFocus.
- Overall customer experience ratings, including product quality and support measures, put Information Builders among the top vendors included in this year's Magic Quadrant. Many contributing metrics, including level of expertise, response time and time to resolution, were rated highly by Information Builders' clients. Of the company's customers, 68% had encountered no problems with its software — a top three rating.
- Information Builders continues to innovate, with a new range of vertical applications for public sector needs, an entry-level offering for emerging markets (WebFocus Express), the addition of its own column-oriented staging engine for query optimization, and a joint appliance venture with Teradata, drawing on the experience of its successful offering for IBM iSeries machines.

Cautions

- Shrinking revenue and market share is a concern. According to data published by Gartner, Information Builders has seen falling revenue from BI in the past three years, with a 6% fall in calendar 2010 (in a market that grew 13%). The company is being squeezed between fast growing data discovery tools and the megavendors' stack-buying agenda. While it's no surprise that 40% of Information Builders' reference customers stated that Oracle or SAP are their primary ERP systems, this does constitute a threat to the company's hold as a BI standard in those firms in the future. It should be noted that 83% of the firms surveyed stated that they had no plans to discontinue their usage of WebFocus.
- While large in scale, WebFocus deployments tend to be analytically simpler than average and have a narrower scope. Beyond static and parameterized reporting, WebFocus user activity is below average in all other areas of interactive exploration and analysis of data, ad hoc analysis and discovery and scorecarding, and in using predictive analytics and/or data mining models. The final one of these points to Information Builders' inability to capitalize on its strong technical innovation — WebFocus RStat has been in the market since 2009, yet Information Builders' users report among the lowest levels of user activity in predictive analytics.
- Marketing to non-IT buyers remains a challenge. Information Builders has very limited brand equity in that segment, which hinders the firm's ability to acquire new customers, and undermines its ability to sell the analytic applications which are a core part of its go-to-market strategy. The company is aware of this and has been investing in new messaging and market communications activity for these segments (in particular its "total view of customer/supplier" positioning, which leverages both its BI and information management propositions).
- Limited geographic coverage remains a constricting issue. Information Builders has a

limited international presence — the vast majority of its direct customers are in the U.S. While progress is being made, this is still a clear weakness for the vendor in relation to its competitors. There are exceptions: the company is doing well in Japan, where K. K. Ashisuto is a very strong partner. While a new WebFocus Express entry-level product may see downloads in Asia, Russia, Eastern Europe, the Middle East, Africa and South America (the company intends to seed new usage in these growth markets), the chief concern that Gartner hears from customers outside the U.S. — the lack of a strong ecosystem of staff skilled in WebFocus — will remain valid.

Jaspersoft

Strengths

- Jaspersoft offers a comprehensive, highly embeddable, open-source BI platform. The Jaspersoft Enterprise Edition, based on version 4.5 of its platform, includes JasperReports Server (which incorporates a reporting server, ad hoc query including an enhanced user interface for analysis, in-memory analysis and dashboarding), JasperReports Library, Jaspersoft iReport Designer, Jaspersoft Studio (an Eclipse-based report designer), Jaspersoft OLAP and Jaspersoft ETL (which is the open-source extraction, transformation and loading [ETL] engine from Talend), including advanced functions from Talend's commercial edition such as change data capture, monitoring, job versioning and more. Over the past year, Jaspersoft released a broad range of native Apache Hadoop and NoSQL connectors, as well as support for iPad HTML5-based report and dashboard delivery and ad hoc authoring and analysis, as well as a software development kit for building mobile BI applications on the iOS platform.
- Due to its embeddable architecture, and the fact that customers can embed its software without being bound by the GNU General Public License terms and conditions, Jaspersoft earns over half of its business from more than 400 OEMs and SaaS providers that include Jaspersoft as the BI components in their software offering, as well as other businesses that integrate Jaspersoft into their internal applications. Jaspersoft also has an established partner network that includes companies such as Red Hat, VMware, IBM and Tata. Note that OEMs are not included in our survey results.
- Cost is by far the most compelling part of the Jaspersoft value proposition, and the major ingredient driving its success. Customers cite total cost of ownership (TCO), license cost, and implementation cost and effort as among the top reasons for choosing Jaspersoft as their BI vendor, more often than for most other vendors in the survey. Its low-cost value proposition extends beyond low initial license cost; Jaspersoft customers also report below average overall BI platform ownership costs. Its low-cost model also makes it well suited to extranet deployments in which the number of users is often unknown. Jaspersoft customers use its platform for an above average percentage of externally facing applications, compared with most other platforms in the survey.
- While Jaspersoft is primarily delivering an open-source version of mainstream BI functionality at a very low license price point, its product portfolio and road map includes some forward-thinking elements. These include building connectors for open-source language "R"-based Revolution Analytics for predictive analytics, those

for eXo for collaboration, and those for diverse "big data" sources such as Hadoop, Hive and HBase, as well as NoSQL sources such as MongoDB and Cassandra.
- Early success in cloud deployments is another strength. In 2010 the company launched Jaspersoft Live, a SaaS BI offering for proofs of concept and trial purposes. Partners can also leverage the Jaspersoft multi-tenant platform to build complete solutions for its clients. Jaspersoft will be offering BI for platform as a service (PaaS) with Red Hat and VMware, and will be embedded with Red Hat's virtualization offering.

Cautions

- Jaspersoft tends to be deployed in smaller companies with smaller data volumes than the survey average, and implemented in departments rather than enterprisewide. Moreover, Jaspersoft customers view it as their enterprise standard less frequently than for the majority of vendors participating in the Magic Quadrant survey.
- Even though Jaspersoft has a fully featured BI platform, it is used narrowly in organizations mostly for reporting. In fact, a higher percentage of Jaspersoft customers use its platform for static reporting than for all but one other BI vendor in the Magic Quadrant survey, although its customers rated this functionality below the survey average. Because of Jaspersoft's usage profile, the platform earned among the lowest complexity of workload scores of any vendor in the survey, and is among the most limited in terms of the breadth of use of its BI platform functionality. This usage is consistent with Jaspersoft's roots as an open-source reporting tool; its customers have not yet begun widely implementing the broader set of BI functionality now available as part of the Japsersoft BI platform. This is also consistent with anecdotal evidence from Gartner inquiries that suggests that organizations are increasingly using low-cost alternatives, such as open-source products, to offload basic reporting functionality to lower overall BI portfolio costs, while using another BI platform as the enterprise standard.
- Of particular concern is Jaspersoft's score for support, which was almost the lowest for the second year in a row, despite this being a key part of the company's subscription-based business model.
- Jaspersoft has not yet distanced itself from its IT-oriented, do-it-yourself, open-source project roots. Jaspersoft earned below average scores for ease of use for both end users and developers, as well as for integration of its BI platform components (it was near the bottom for a unified semantic layer), its product quality and its performance. Despite these results, Jaspersoft customers still report below average BI platform ownership costs. Moreover, its customers maintain a positive view of the vendor's future, and report successes with Jaspersoft's product (as defined by expanded usage) over the past year. One explanation for this paradox is that the value that organizations derive from Jaspersoft's lower-cost deployments is in line with their level of investment and expectations.
- The threat from low-cost alternatives with a similar value proposition is a concern, particularly given that many of these competitors have demonstrated stronger execution on key customer satisfaction measures.

LogiXML

Strengths

- Much like last year, LogiXML continues to deliver on its value proposition of ease of use, rapid time to deployment, "embeddability" and lower cost compared with the offerings of the traditional enterprise and open-source market players with which it competes, but with the advantage of generally higher customer satisfaction with the platform's ease of use, product functionality, support, sales experience, and product quality than for both types of vendor.
- LogiXML's BI platform is sold as a single platform that includes reporting, analysis and dashboards for both IT and business users, plus data integration. It also introduced mobile capabilities in 2011. LogiXML targets small and midsize businesses (SMBs), departments in large enterprises, and software/SaaS companies that embed LogiXML's solutions in their own products and applications. Similar to open-source vendors, a large percentage of LogiXML's customers are ISVs or SaaS vendors that incorporate the product because of its embeddability and low cost.
- Although targeted more at BI developers and IT managers, LogiXML's products include an ad hoc reporting solution for nontechnical business users. Business-user-oriented interactive visualization is an area where LogiXML continues to improve. Some implementations, many as part of customer-facing applications, are deployed to more than 500 users — LogiXML's unlimited user license model makes it economical to do so. Compared with most other vendors in the survey, LogiXML has among the highest percentage of external users using its product for more externally facing applications (52%).
- Cost is one of the primary reasons customers choose LogiXML. It is chosen more often than most other vendors for overall TCO, license cost, and implementation cost and effort. Although LogiXML tends to focus on reporting and dashboards with less complex deployments in terms of user and data size, global deployment, and breadth and complexity of use than its competitors, it has one of the lowest total costs per user in the survey.
- Ease of use goes hand-in-hand with cost as a key strength for LogiXML, which is reflected by its customers giving it among the highest scores for ease of use of any vendor in the survey. The company includes interfaces for both business users and IT developers to create reports and dashboards. But its IT-oriented, rapid development environment seems to be most compelling for its customers. The environment features extensive prebuilt elements for creating content with minimal coding, while its components and engine are highly embeddable, making LogiXML a strong choice for OEMs. LogiXML customers report among the shortest time to develop simple to complex BI content of any vendor in the Magic Quadrant survey. The platform productivity features are enhanced by a robust user-community-driven website (Logi DevNet) that contains a best practices discussion forum and hundreds of sample projects, tutorials and training videos. In addition to ease of use, LogiXML earned high marks for "BI infrastructure" and "BI development tools," with an above average percentage of its customers reporting "no product-related problems for wider deployment." These results confirm LogiXML's strength as an easy to use, high-productivity developer platform.

Cautions

- LogiXML is in the cross hairs of competing low-cost alternatives from open-source vendors and Microsoft. While LogiXML has received a fresh round of funding and has achieved strong market momentum over the past three years, it is still small, with more limited resources than other vendors — particularly Microsoft, open-source vendors and other large traditional BI vendors — when they compete for roughly the same type of customer (SMBs and departments; embedded use cases, and OEMs).
- LogiXML's customers tend to have smaller numbers of users and data volumes (less than half and less than one third of the survey average, respectively), while a majority do not consider it their BI standard. A key test of LogiXML's market momentum beyond its current SMB and departmental target market (and its ability to make upward progress on the Magic Quadrant in the future) will be its ability to expand its footprint beyond single or multiple departments, and become or replace the incumbent enterprise BI standard in a larger percentage of its accounts. LogiXML currently focuses on the SMB and OEM space, where pervasive and large enterprise deployments are less common.
- While LogiXML has an above average overall product rating, its sweet spot is clearly parameterized and static reporting and dashboards, which are used by the majority of its customers. In fact, 84% of its customers use its Logi Info product (reporting and dashboards), while 29% use its ad hoc product. LogiXML's reporting and dashboard capabilities also are rated higher than its ad hoc analysis, OLAP and interactive visualization capabilities. Because of its focus on reporting, it earned low workload complexity scores (for example, reporting, static reporting and dashboards for smaller departmental deployments, the domain use case for LogiXML, are considered lighter analytic workloads than complex ad hoc analysis and interactive visualization for large and global deployments), it has some of the least complex deployments, and it is among the most limited in terms of breadth of functionality (the number of BI capabilities used). LogiXML added real-time OLAP capabilities for in-memory analysis in 2011 and plans to deliver an expanded set of interactive visualization and advanced analysis capabilities in 2012. The company is hopeful that this combination will result in expanded use of LogiXML for analysis and interactive visualization use cases in the future.
- LogiXML's highly embeddable architecture is both a positive and a negative. On the one hand, this attribute makes it highly attractive to organizations embedding BI into existing operational applications and to OEMs looking to embed its product, an area where LogiXML has been successful to date. On the other hand, its high percentage of OEM business will limit its ability to expand brand awareness, as most users (and potential customers of the product) will never know they are using the company's products.
- Although LogiXML has executed vertically focused marketing campaigns, targeted in particular at healthcare, manufacturing and financial services over the past year, and its OEM partners create vertical solutions using its platform, it has more limited, directly marketed packaged vertical offerings than many leading vendors. Moreover, its geographical presence, while growing outside North America (particularly in Western Europe and Asia, where the company has OEM, reseller and system integration partners), is more limited than for its larger competitors.

Microsoft

Strengths

- Microsoft offers a competitive set of BI capabilities, packaging and pricing that appeal to Microsoft developers and its independent distributor channel. The company has consistently invested in building and enhancing BI capabilities into three of its core offerings — Microsoft Office (specifically Excel), Microsoft SQL Server and Microsoft SharePoint — in order to increase their value and drive upgrades. By incorporating BI capabilities into its most ubiquitous products, Microsoft virtually guarantees its BI offering's continued adoption, particularly in organizations with a Microsoft-centric information infrastructure. As a result of this strategy, since the company's serious entry into the market in 2000, Microsoft's BI market share has grown steadily to take the No. 3 spot in 2010.
- Microsoft's low-license-cost bundling strategy for BI platforms makes it a compelling license-cost value proposition for organizations that want to deploy BI to a wider range of users, or that want to lower overall BI portfolio license costs by using lower-cost BI tools for basic BI functions. Its license cost profile is comparable to open-source BI vendors, and is considerably less than its commercial competitors. Moreover, Microsoft has added a new BI package (server/client access license [CAL] model) for SQL Server 2012, which makes it easier for customers to license the SQL Server BI portion of the stack. As Microsoft continues to enhance its BI capabilities in products that most companies already own (Office, SQL Server and SharePoint), the functionality premium for alternatives may become increasingly difficult to justify for many organizations. In the Magic Quadrant customer survey, more Microsoft customers cited TCO and license cost as the No. 1 reason for selecting Microsoft as a BI vendor than for most other vendors in the survey.
- Microsoft's market success is also driven in part by its IT-oriented, BI authoring tools within SQL Server, which are based on Visual Studio, the broadly adopted development environment. This approach, along with targeted marketing efforts and programs for building strong developer communities and support, has helped Microsoft lower the cost and expand the availability of its BI skills. In the Magic Quadrant survey, Microsoft customers rate its BI platform infrastructure among the highest compared to most other vendors, and a higher percentage of customers use it extensively. Moreover, "wide availability of skills" is among the top reasons why customers select Microsoft more often than all other competing vendors in the survey.
- While Microsoft has traditionally focused on the developer, it continues to enhance reporting, dashboarding and data discovery capabilities in Excel with the intention of making Excel not only the most widely deployed BI tool, but also the most functional for business users. With its April 2010 release of SQL Server PowerPivot and the upcoming release of Power View in SQL Server 2012, Microsoft has earned the distinction of being the first megavendor to offer a credible response to the groundswell of interest in, and acceptance of, interactive visualization tools as an alternative and complement to traditional report-centric architectures. Compared to what is available with competing stand-alone data discovery products, the user and usage monitoring capabilities of PowerPivot workbooks in SharePoint give IT greater control over what content is shared, and the process of validating data sources, models and calculations contained in PowerPivot workbooks. With the SQL Server 2012 release Microsoft is expected to build on this set of managed business user capabilities by enabling PowerPivot to move seamlessly from a personal workbook to

an enterprise data source and deployment. Specifically, IT will be able to import user-created content from a personal PowerPivot model into the professional BI environment of Visual Studio. This capability can help to bridge the departmental silo/enterprise divide, without compromising on business-user flexibility.

- Use of OLAP functionality by Microsoft customers is among the highest when compared to other vendors. This can be attributed to the success and adoption of Microsoft SQL Server Analysis Services functionality bundled with Microsoft SQL Server and its optimizations with Microsoft front-end tools. Building on the in-memory capabilities of SQL Server PowerPivot, in SQL Server 2012, Microsoft will introduce a fully in-memory version of Microsoft Analysis Services cubes that enables the subsecond analysis of billions of rows (as opposed to hundreds of millions of rows supported today by PowerPivot), to address the needs of organizations that are turning to newer in-memory OLAP architectures over traditional multidimensional OLAP architectures to support dynamic and interactive analysis of large datasets.
- Microsoft's cloud-based DataMarket offering, which makes external data easier to consume, analyze and integrate with internal data, is a unique enhancement to Microsoft's portfolio of BI capabilities. DataMarket is an online data market that enables ISVs and business users to access, purchase and analyze trusted, public-domain and commercial premium data. ISVs can use this data to build new analytic applications. Business users can incorporate and analyze this external data with internal data sources using Microsoft Excel and PowerPivot, or with partner tools, such as those from Tableau Software.

Cautions

- Since Gartner began surveying BI platform customers for this Magic Quadrant research five years ago, this is the first year that Microsoft has scored below the survey average on key Ability to Execute measures, including overall product functionality, support and customer experience. These results are reflected in Microsoft's lower relative Ability to Execute position on the Magic Quadrant compared to last year.
- Multiproduct complexity is a challenge. Because Microsoft's BI platform capabilities exist across three different tools (Office, SQL Server and SharePoint) that also perform non-BI functions, integrating the necessary components and building the applications is left to the organization. Microsoft's do-it-yourself approach puts more of the BI solutions development and integration onus for the platform components on customers, compared with the all-in-one purpose-built BI platforms offered by most other vendors in the BI market. Microsoft's road map for Office, which features the consolidation of more and more front-end reporting, dashboard and analysis capabilities in Excel, should begin to address some of this complexity over time. Moreover, although BI in the cloud is not yet a high priority for most organizations in the Magic Quadrant survey, Microsoft has placed cloud deployment at the top of its list of major development and go-to-market initiatives for BI by ultimately making its core BI products — SQL Server, SharePoint and Office — available in the cloud. This investment and emphasis is core to Microsoft's strategy to make BI easy to deploy and low-cost — cloud-based BI will, in theory, remove some of the complexity of the three-component requirement.
- Microsoft lags behind most other BI vendors in delivering mobile BI capabilities. It has, instead, relied on partners, such as Decision Support Panel, Roambi and

Extended Results, to build mobile solutions for Apple iOS that integrate with Microsoft BI components. Microsoft BI assets can run in a browser today, but they are not optimized for iOS, Android or Windows devices. Microsoft has stated that it plans to optimize browser experiences on mobile devices in the future, including the version of Safari provided by the iPad. It is notable that despite limitations to Microsoft's current mobile BI capability, an above average percentage of Microsoft BI customers report that they plan to deploy a mobile BI solution in the next 12 months.

- Microsoft discontinued the development of Microsoft Office PerformancePoint Server 2007 (PPS 2007) as a stand-alone solution for financial analytic applications (for example, planning, budgeting and consolidation) in favor of moving its CPM capabilities, such as financial reporting, into the Dynamics applications. Microsoft moved the functionality in PPS 2007 for dashboards, scorecards and analysis natively into SharePoint as SharePoint 2010 PerformancePoint Services. As a result, Microsoft's performance management product strategy lags behind that of the other stack vendors (IBM, Oracle and SAP) that offer stand-alone CPM products. Microsoft instead relies on its partners to deliver Microsoft-based CPM solutions.
- There is currently no single business metadata layer or capability that spans Microsoft's BI platform components, and there are limited capabilities for sophisticated metadata modeling, impact analysis, data lineage and change management. In Gartner's BI platform customer surveys, Microsoft scores below average year after year for its metadata capabilities. This year is no different; Microsoft earned among the lowest semantic layer integration and metadata functional rating scores of any vendor. The lack of a unified semantic model has been a key customer pain point and limitation. In response, Microsoft will be shipping the BI semantic model as the single business metadata layer, in the SQL Server 2012 release for relational and multidimensional data, and is adding data lineage, impact analysis and master data services in SQL Server 2012. As customers upgrade, we would expect these results to improve in next year's Magic Quadrant survey.
- Microsoft's recent announcement to support Hadoop on Windows is a signal that it has plans to support diverse data types. However, unlike Oracle and IBM, beyond Hadoop, even though Microsoft has Bing, its core search engine, and FAST, its enterprise search engine in SharePoint 2010, Microsoft has not articulated a comprehensive vision around delivering analytics for diverse data. At the time of the FAST acquisition, however, FAST was gaining some traction with its BI search capabilities.

MicroStrategy

Strengths

- MicroStrategy specializes in enterprise BI deployments running on top of large enterprise data warehouses. Its customers cite functionality, performance and support for large data volumes as top reasons for selecting it as a vendor, more frequently than customers of most other vendors. Its deployments are among the most complex in terms of large numbers of users, the highest data volume, broad product functionality use, wide deployment across an enterprise, and complexity of analytic workload, and its customers have a high level of satisfaction with product functionality. Moreover, MicroStrategy is typically deployed in larger enterprises that consider it their

enterprise BI standard more often than for most other vendors.

- MicroStrategy has a focused vision that maps to key high-value market requirements, particularly for mobility, and large and diverse data, including social media data sources. The company was one of the first vendors to invest heavily in deploying BI applications on mobile devices, with earlier successes than its competitors in accumulating a respectable number of large production mobile deployments, initially on Research In Motion (RIM) BlackBerry devices and now on the Apple iPhone and iPad and Android devices. Free trials and online training make it easy for developers to try and succeed with mobile development. This early investment is beginning to pay off. In 2011, the MicroStrategy mobile application was one of the top-rated business applications on the Apple iStore. Magic Quadrant survey results show that MicroStrategy has among the highest percentage of customers using its mobile capability, with customers rating its mobile functionality among the highest of all vendors in the survey. Moreover, MicroStrategy has among the highest percentage of customers that are either using or piloting mobile BI (more than twice the survey average). Beyond mobility, MicroStrategy continues to reinforce its enterprise-scale pedigree through initiatives for high performance across all layers of its platform and against extremely large and diverse datasets (for example, support of Hadoop). MicroStrategy has invested heavily in creating a cloud offering that includes its platform and complementary technologies, including ETL and data warehousing. MicroStrategy is positioning its cloud offering as a way to address variable scale requirements, and to lower TCO. Social data is another forward-looking area of focus for MicroStrategy. This past year, the company delivered a Facebook connector to enable organizations to integrate Facebook profile data, with user permissions, into a MicroStrategy analytic application.
- Developer productivity for building complex analytic applications is another of MicroStrategy's strengths. Its efficient, parameterized report development paradigm and object-oriented report development environment support centralized management, in which a small number of administrators can support big BI projects with many users, complex reporting and analysis requirements, and a large amount of data. With an extensive library of prebuilt objects, including metrics, prompts, filters and statistical functions, developers can create reports and other analytic content with high degrees of formatting and analytical sophistication, but with less effort and cost than many other platforms. With each release the company continues to streamline developer and modeling activities and enhance proactive tools for managing and supporting MicroStrategy deployments.
- In March 2011, MicroStrategy introduced a data discovery capability, Visual Insight, that complements and fully integrates with its enterprise, report-centric architecture. Visual Insight is available as a feature of Report Services, MicroStrategy's core product, reducing the need for most MicroStrategy customers to purchase stand-alone interactive visualization/data discovery products. Visual Insight is also available in a free personal cloud-based version. These efforts not only make it easier for a broader set of business users and workgroups to use MicroStrategy, they also provide capabilities for promoting business-user-authored models (that may include local data sources, such as Microsoft Excel) to the corporate metadata repository to minimize departmental silos, an advantage over stand-alone data discovery tools.
- MicroStrategy has built its BI platform from the ground up through completely organic development. The high level of integration of the individual platform components and the reusability of MicroStrategy's well architected and object-

oriented semantic layer are the result of this strategy, which is reflected in integration scores for MicroStrategy that are among the highest of any vendor in the Magic Quadrant survey. Without the integration challenges faced by the megavendors, MicroStrategy has more development cycles available for innovation.

Cautions

- While the MicroStrategy development environment is robust and flexible, there is a steep learning curve, even for seasoned report developers building any level of analytic complexity into parameterized reports that simulate ad hoc analysis and interactive dashboards for business users. The need for interactivity beyond parameterized reports and dashboards will only increase with broader mobile BI application user adoption. Even though usability enhancements were delivered with MicroStrategy 9.x, such as more one-click user actions, reusable dashboards and dashboard design wizards, and although MicroStrategy delivered Visual Insight this past year, its customers continue to rate the platform below average for ease of use. We would expect MicroStrategy's ease of use assessment to improve as more MicroStrategy users take advantage of its mobile and Visual Insight interactive visualization capabilities.
- Even though MicroStrategy has comparatively moderate administration costs per user compared to its competitors, its customers report above average license and implementation costs per user. Moreover, "cost of software" is cited by its customers as the No. 1 product limitation to broader deployment, more frequently than for most other vendors in this year's Magic Quadrant survey. In 2009, MicroStrategy introduced a fully featured and capable free version, which is upwardly compatible with new departmental and enterprise pricing packages. In addition, it made a portfolio of free online training available to make it more attractive and easier to adopt MicroStrategy outside the high-end enterprise market. Moreover, in 2011, MicroStrategy introduced MicroStrategy Mobile Suite, which allows anyone to build mobile BI applications at no cost. Despite these initiatives, plus its new free personal cloud data discovery offering, the cost, complexity of analysis and large enterprise attributes of most MicroStrategy deployments continue to reinforce its high-cost image.
- While MicroStrategy Mobile, its new social data capabilities and its personal cloud offering will increase its appeal to business users and line of business owners, the company currently sells predominantly to IT, which has a stack-centric buying tendency. Megavendors offering end-to-end BI, CPM, packaged analytic applications and integration middleware optimized for their specific enterprise applications and technology stacks are at an advantage over MicroStrategy when stack optimization is an important purchasing criterion. MicroStrategy's focus on BI platforms excludes it from consideration, particularly in enterprise BI standardization projects where buyers are looking for single-stack optimizations with the existing information and application infrastructure. Moreover, MicroStrategy will have to strengthen its sales and marketing capabilities for business users and line of business owners in order to fully realize the potential of its mobile, data discovery and cloud offerings.
- While MicroStrategy has added OEM relationships, with particular success among SaaS vendors, and it is continuing to develop partnerships to deliver industry-specific solutions leveraging its strong product vision, its geographic presence and packaged

analytic applications (starter kits) continue to be more limited, both in number and geography, particularly in emerging markets, than those of other leading BI platforms. The continued expansion of MicroStrategy's services group and a renewed focus on system integration partnerships will not only help to minimize skill deficit barriers for MicroStrategy products, but will also enable it to deliver more industry-specific, advanced analytic applications based on its platform.

Oracle

Strengths

- In 2011, Oracle Business Intelligence Foundation Suite, with its principal component Oracle Business Intelligence Enterprise Edition (OBIEE), continued to execute on its stated top-to-bottom BI vision. This year, the products have the highest aggregate Ability to Execute scores. References depict a customer base that is Oracle through and through — 85% run Oracle Database as their data warehouse, nearly 75% run Oracle Applications, and a majority utilizes Oracle Fusion Middleware. Oracle is deployed most broadly (in respect of global deployment) of any vendor in this Magic Quadrant, with average user populations nearing 3,000 and data volumes of more than 5 TB, and it is considered the BI standard for nearly 70% of firms surveyed. While complex workloads are below average, the breadth of use scores in the highest quartile.
- During the Magic Quadrant evaluation process, Oracle announced and completed its acquisition of Endeca, a search-based provider of e-commerce and analytic capabilities. Customer surveys were conducted before the Endeca acquisition was completed; therefore, Endeca is not factored into the Magic Quadrant evaluation of Oracle's execution, but was considered as part of its long-term product vision. Relatively low numbers of existing references access hybrid data types using OBIEE. Gartner believes that this is a forward-looking acquisition that will have significant impact on the company's business analytics future (see "Endeca Buy Extends Oracle's Ability to Support and Discover Diverse Data" for a more detailed opinion of the acquisition).
- In October 2011, the company announced an engineered system — Oracle Exalytics In-Memory Machine — that leveraged assets across the Oracle stack. The integrated hardware/software analytics solution features a package of OBIEE with new in-memory capabilities (based on Oracle's acquisition of TimesTen), optimized Oracle Essbase to support the range of traditional BI (reporting, dashboards and analysis), and dynamic planning, what-if and scenario analysis, as well as interactive visualization and data discovery capabilities. The system is designed to support high-performance BI and performance management use cases with the intention of improving the performance, scale and speed of reporting, analysis and planning applications. It is now generally available.
- References select Oracle primarily for functionality, enterprise application integration, and data access capabilities. Additionally, customers indicated that they valued the products' ability to support large numbers of users. Like other megavendors, the product road map plays an important role in the evaluation process. Ease of use and cost do not factor significantly into the selection process.
- Oracle Business Intelligence Applications (OBIA) are predefined analytic applications for horizontal business processes such as finance, procurement and sales analysis. Customers and prospects find this combination of analytic applications built

using the OBIEE toolset appealing, with many buyers selecting both at evaluation time. Additionally, the company also delivers vertical-specific analytic data models for industries such as retail and financial services for IT buyers looking to establish a common data model standard as the foundation for analytics.

Cautions

- References rate OBIEE as difficult to implement, with only SAS Institute considered more difficult. Also, the product was rated as having lower than average ease of use scores. As ease of use for both developers and end users takes on an even more important role in business analytic deployments and evaluations, Oracle must explicitly address these issues or risk being marginalized in user-driven projects. The company has been slow to respond to the data discovery trend. However, some functions are now available in the Exalytics In-Memory Machine, and the Endeca acquisition will add more capabilities in this important area.
- Product functionality evaluation scores remain below average again this year, a trend that appeared in last year's report. Additionally, customer support and product quality issues are rated below the average (in the fourth and third quartiles respectively) for all vendors in this report. In fact, both support and product quality were also noted as issues that blocked further deployments within customer organizations. This represents a slip from last year's scores. While not huge red flag items now, they may become more problematic without dedicated company attention to address client concerns.
- Oracle customers use the product mostly for static report viewing, parameterized reporting and scorecard capabilities, leading to below average user complexity ratings. Slightly more than 25% of customers Gartner surveyed for this report run the most current version of the BI suite, which is significantly below average for vendors in this analysis.
- More than 10% of survey respondents indicate that they plan to discontinue, or are evaluating a discontinuation of, software use in the next three years — a relatively high response rate given responses from the prior year. This is above the average for all vendors in this research.

Panorama Software

Strengths

- Panorama's NovaView BI suite — the product evaluated by Panorama's customers in this survey — continues to be used primarily as a front end for OLAP databases — chiefly Microsoft SQL Server Analysis Services — via Multidimensional Expressions (MDX). Similar to last year, references ranked Panorama in the top quartile of vendors for OLAP and scorecard capabilities. Panorama's customers indicate that the vendor is used as the BI standard in more than 75% of firms surveyed — the highest of any vendor in this Magic Quadrant analysis.
- In 2011, Panorama introduced a new product, Panorama Necto. This is an example of a collaborative BI solution that facilitates interaction around BI content in the

Panorama Software BI platform. It also helps users streamline their analyses and learn from best practices through recommendations for additional relevant BI content and analysis, based on other users' past behavior and contextual analysis. While generally available, no clients provided survey feedback for this report. Direct conversations with initial users indicate strong satisfaction with Necto with a straightforward migration path; however, rollouts have been gradual as departments adapt to this new analysis paradigm. NovaView BI customers did note that collaboration was a weak link in the existing product; this should address that concern.

- This year, the top reasons why customers choose Panorama software are functionality, ease of use for end users, performance and cost. References also rate the vendor in the top quartile for TCO and give Panorama above average ratings for platform integration capabilities. Overall customer and sales experience ratings are above average, a marked improvement from last year, and contribute to better execution scores in this year's Magic Quadrant. Another area of improvement from last year to be noted is that Panorama's support ratings have improved year-over-year, and customers are now generally positive about the vendor's outlook and the continued success of Panorama's products within their organizations.

Cautions

- Reference customers have flagged one major concern about the NovaView product. They have indicated that the suite is unreliable and/or unstable, flagging it more often than any other vendor in the Magic Quadrant. This contributes to below average product quality scores, and is also noted as the primary barrier preventing further deployment. In 2010, the company recognized that product and support issues were a concern and took action. While there has been noted improvement in some areas, there is still work to do on software quality.
- In addition to the limitations of NovaView's collaboration capabilities noted above, references gave low scores to the product's interactive data visualization options. With data discovery and ease of use so important in purchase and expansion decisions, Panorama must take this criticism seriously or risk being marginalized, and possibly losing its BI standard designation within reference accounts.
- The average tenure of customers responding to this survey was 5.1 years. More than 20% of them report that they plan to, or are considering, discontinuing their use of NovaView software within the next three years. This is troubling, as it is the highest ratio of any vendor in the survey, albeit similar to last year's response. While there have been improvements in customer satisfaction this year, we see softness in longer-term vendor support. The company's decision to maintain two product lines — NovaView and Necto — may contribute to this response, as customers must consciously license a new product to adopt the Necto capabilities. Microsoft's anticipated BI release in 2012 may also give customers other options in the future.

Pentaho

Strengths

- Pentaho makes its debut on the Magic Quadrant this year, although it participated in the customer survey last year. It provides a comprehensive open-source BI platform

composed of ETL, OLAP, reporting, dashboards, ad hoc analysis and data mining components, all managed from a central BI server deployed either on-premises or in the cloud, with end-user access via the Web or mobile devices such as the iPad.

- Low license cost is central to Pentaho's value proposition. The No. 1 reason that customers choose Pentaho is for its perceived low license cost and TCO, more often than for any other vendor in the Magic Quadrant survey. Pentaho's customers are also generally satisfied with their sales experience, which is an improvement on last year.
- Pentaho's lightweight footprint, in which the complete platform can be deployed in a small environment on a laptop, or can be integrated into an existing scalable architecture such as a grid for much larger deployments, makes it very flexible in meeting a broad range of deployment requirements. Moreover, Pentaho is an embeddable platform, making it very attractive to ISVs and internal IT shops for embedded use cases, which now make up 35% of its business, to deploy both on-premises and in the cloud.
- While open-source vendors, including Pentaho, tend to invest more heavily to achieve feature parity with the core BI functionality of commercial competitors rather than in innovation, Pentaho does have focused areas of forward-looking investment, on which it has been able to deliver quickly. In particular, Pentaho has integrated a data mining project into its BI platform (which its customers rate above average); it delivered ad hoc reporting for the iPad (in May 2010); and it was one of the first BI vendors to deliver capabilities for integrating its ETL and BI tools with Hadoop to support large and diverse data sources (in October 2010). In 2011, Pentaho expanded its native support for a wide range of Hadoop distributions, NoSQL databases and analytics databases (in August 2011), and added support for lightweight virtualized data federation (in June 2011).

Cautions

- Pentaho's below average aggregate product scores (with below average ratings in all 14 BI capabilities with the exception of predictive modeling), although higher than last year, are still an indication that functional gaps in the platform remain. Moreover, Pentaho earned lower ease of use scores (both for developers and end users) than the survey average, which suggests that Pentaho needs to continue to improve on both its business user tools, to meet growing requirements for intuitive and interactive analysis, and the usability and efficiency of its developer-oriented tools. Moreover, ease of use goes hand in hand with the effort to develop content. Despite the perception of low TCO as a primary reason for purchasing Pentaho, users report among the longest BI content development times of all vendors in the Magic Quadrant survey. However, Pentaho continues to make investments in this area, with the June 2011 introduction of new and enhanced user-driven BI content development capabilities for all thin-client designers for reporting, analysis and dashboards. Since only 23% of Pentaho's customer references (this is lower than only one other vendor) report being on the latest product release, as more customers upgrade we would expect its functional and ease of use scores to continue to improve in next year's survey.
- Given that Pentaho's subscription-based model hinges on providing superior support, and while we do see positive improvement on last year's survey, Pentaho's below average product support scores (particularly related to level of expertise) are a concern, especially since the company's product is also rated below average in terms of product quality, which tends to result in more customer interaction with support.

Lower support scores could in part be explained by growing pains from Pentaho's rapid customer growth. During 2011, Pentaho put in place a number of changes to mature its support and services organization to support its growth, including hiring customer success managers, expanding the size of its support group, up-skilling its support team, and separating its escalation teams into two tiers in an effort to improve the customer support experience. Pentaho also created an OEM Development Services Group to address the customized needs of services and support for OEMs. Given that Pentaho has had some positive movement in its customer experience, product and support survey scores over last year's survey, we would expect to see continued improvements as Pentaho's investments in improving support mature and its customer base upgrades to its newest releases. However, this remains to be seen. Counter-intuitively, despite Pentaho's below average scores on most of the major customer experience measures, its customers have a positive view of the vendor's future. One explanation is that the value organizations derive from Pentaho's lower-cost deployments is in line with their level of investment and expectations.

- Although Pentaho claims a single unified platform managed from a single server, the repositories and authoring environments remain separate, with migration to a single repository in process. Customers in the Magic Quadrant survey rate Pentaho among the lowest for platform integration of any vendor in the survey. To address this issue, in March 2010 Pentaho released a single environment for dimensional modeling, data mart building, ETL, OLAP model generation, and reporting and data analysis/visualization. We would expect customer perception of the level of integration (like functionality and ease of use noted above) of the Pentaho BI platform to improve as more customers upgrade to the latest release.
- While Pentaho has some very large reference customers, Pentaho deployments still tend to be primarily departmental. Its customers have among the least complex deployments, which are roughly one eighth the size of the survey average in terms of number of end users and data volumes, while a majority of its customers (below the survey average) do not consider it their BI standard. One reason why Pentaho's references could be smaller may be due to its "try and buy" sales strategy, whereby deployments start small and grow. Pentaho has a large percentage of newer customers. Since this is Pentaho's first year on the Magic Quadrant, if customers are successful with Pentaho we would expect our survey data to show growth in the size and pervasiveness of Pentaho deployments in future years.
- Pentaho recently received an infusion of venture funding, and expanded its already experienced management team with executives with a strong track record of success. Moreover, Pentaho's large active community, with 30,000+ members, provides outsized development resources that make many meaningful contributions to features, quality assurance, documentation, and road map requirements. This community gives Pentaho access to resources beyond what might be expected for a company of its size. However, even with its extended resources, Pentaho is small relative to the leaders in this space, with fewer resources to both enhance its core BI platform so that it is on a par with commercial equivalents, and to differentiate itself though innovation. Moreover, its vertical strategy and global reach for its commercial product are more limited than most of its larger commercial competitors.

Prognoz

Strengths

- A new entrant to the 2012 BI platforms Magic Quadrant, Prognoz was founded in 1991 in Perm, Russia, with regional operations in Moscow, Brussels, Beijing and Washington, DC. Its product, Prognoz 5 Platform, is a unified BI platform with analysis, reporting, OLAP, dashboarding, modeling and predictive analytic capabilities. The company largely develops specific analytic applications on a consulting basis with its clients. Eventually, those applications are extended and new applications built by client organizations.
- Prognoz's references rate the company the highest of all vendors in this Magic Quadrant for customer experience, and near the top for overall sales experience. The company's consultative approach is obviously well received. With hundreds of development resources available in Russia, the company is exceptionally responsive to customer requirements.
- Customers choose Prognoz most often for its functionally, skills availability (again, company consultants), and information infrastructure integration. The advanced statistical and analytic breadth of the product is a foundational element and at the core of the company's DNA. It is certainly evident when reviewing the platform and resulting applications built for customers. The product received first quartile scores in both complexity and breadth of use. References have a very positive outlook for the vendor.
- With expertise in many sectors — government ministries, non-government organizations (NGOs) such as the International Monetary Fund and the World Bank, agriculture and manufacturing — Prognoz has good credentials to support many industry-driven use cases. References report that many Prognoz applications are built as externally facing applications — in fact, the highest percentage reported in this Magic Quadrant analysis — with lots of external content. Given the company's experience in government ministries and NGOs, it wasn't a surprise that these applications were used by external customers/constituents.

Cautions

- Prognoz's consulting-led approach, while a benefit to some, does significantly limit it as a free-standing, customer-implemented BI platform. The company has made strides recently in building out functionality to make the tool more approachable to client BI developers, but existing customers consistently report that ease of use for developers is a nagging concern. In Gartner's opinion, this is the company's main challenge to competing in the BI platforms market.
- Prognoz is deployed to an average of several hundred users at each account, below the average for all vendors in this survey, but still a respectable number. References report that expansion is often blocked when there is limited buy-in to an enterprise approach to business analytics. Conversations with references indicate that the product may be purchased and deployed for a specific use case for example, econometric analysis but not for general business use.
- While Prognoz has established a global footprint in major geographic regions of the world. Local capability is expanding as opportunities are closed, but there remains a high dependence on resources from headquarters to support projects.

QlikTech

Strengths

- QlikTech is a marketing juggernaut; it has brand recognition many times more prominent than a firm with its current market share would expect. The company continues to be featured in a high number of Gartner inquiries and evaluations, which reinforces just how strong its momentum is.
- QlikTech's QlikView product is a self-contained BI platform, based on a wholly in-memory data store, with a set of well integrated BI tools. Anecdotal feedback from QlikView's end users invariably centers on how intuitive and likable the product is to use: 68% of customers surveyed selected it due to its ease of use for end users — higher than for any other vendor on the Magic Quadrant.
- Based on the survey, QlikView deployments have grown over the past two years, both in terms of their reach across their customers (most QlikView implementations are regional or national, with the third widest scope of any vendor on the Magic Quadrant — only trailing Oracle and SAP), and in terms of the average number of users per customer respondent (a mean of 928 end users, still below the survey's overall average). Furthermore, QlikTech is building out from its initial midmarket stronghold; survey data shows that larger organizations are adopting QlikView.
- Gartner frequently sees companies deploy QlikView for prototyping and requirements gathering, leveraging its flexibility to engage end users, usually alongside a more traditionally modeled BI platform — QlikTech's customers indicate that it is often used alongside SAP and IBM. This adoption model may explain why only 45% of its customers consider QlikView their BI standard — the lowest of any vendor rated as a Leader in this Magic Quadrant.
- QlikTech's customers report strong delivery of business benefits, particularly in making better information available to more users and expanding the type of analysis undertaken.
- Customers' rating of QlikView's functionality is very positive, in the highest quartile and above average in nine out of 14 functional capabilities: dashboards, interactive visualization, mobile BI, search-based BI, scorecards, ad hoc query, Microsoft Office integration, OLAP, and development tools.
- QlikTech has the momentum to be a truly global player, with strong geographic expansion. This is evident from the customers that completed the Magic Quadrant survey in late 2011. It's already firmly established in Europe (it originated in Sweden), and is aggressively pursuing growth in North America. Uniquely among the vendors surveyed, however, QlikTech had almost a third (32%) of respondents coming from the Middle East and Africa.

Cautions

- QlikTech's growing pains are more evident. The note of realism that first appeared in 2010 grew in 2011 and became a genuine concern for 2012. For the first time, QlikTech's customers reported having a poor overall customer experience (of the vendors on the Magic Quadrant only SAP, IBM, Targit and Microsoft fared worse), and below average ratings for product quality and support. Furthermore, more QlikTech customers than for any other vendor (with the exception of Oracle) said that QlikView became less successful in the previous year (that is, the product is being used by fewer users, or is being replaced by other tools).

- Gartner continues to hear rumblings of discontent from QlikTech customers about the structure of its pricing model and its high license cost. Despite its strong market position and compelling value proposition, it is likely to be increasingly difficult for QlikTech to defend its premium price position as competition grows.
- QlikTech faces increasing competition from larger BI vendors offering in-memory offerings and interactive visualization (particularly Microsoft SQL Server PowerPivot/Power View and MicroStrategy Visual Insight), all of which are intent on narrowing QlikView's opportunities for expansion by offering cheaper alternatives.
- QlikTech offers limited metadata management. As QlikView grows into larger BI deployments spanning the enterprise, the lack of an enterprise semantic layer becomes a more pressing issue. Filling this gap requires additional cost and effort in the management of metadata to lockdown common definitions and calculations, and to conform dimensions for cross-functional analysis across QlikView applications. Customers rate its semantic layer capabilities in the lowest quartile.
- Although quick to develop simple or moderately complex dashboards, when it comes to building large, complex reports from various data sources, involving detailed logic or calculations, QlikView users reported the second slowest turnaround time of any vendor on the Magic Quadrant (only Pentaho was worse). One of the key issues QlikTech needs to address is QlikView's weakness in data integration (currently requiring IT scripting), which contributes to this issue.
- Although strong on most of the measures driving the Completeness of Vision placing, QlikTech's product vision is at best focused, at worst limited, when compared with other leading vendors. This is in part dictated by frame of reference: QlikTech sees itself as playing in a different market category to traditional BI, which it calls "Business Discovery" (adapting the "data discovery" term coined by Gartner in 2007). As such it is likely to view a number of the criteria Gartner measures product vision by as irrelevant to it, given that they address broader BI needs.

Salient Management Company

Strengths

- As found in its first year on the Magic Quadrant in 2011, Salient's customers are very positive about the vendor. In the survey, Salient achieved a top-three ranking for customer support (support expertise, response time and time to resolution); it was among the top three vendors whose customers had encountered no problems with the software; and it garnered the single best rating for product quality.
- Salient's in-memory-powered BI platform achieved the highest average rating for BI functionality of any vendor on the Magic Quadrant, with clearly above average scores in all functional areas except dashboarding.
- Write-back and constraint-based modeling functionality is one of Salient's key strengths. The ability to perform scenario modeling and support planning type use cases is rare in in-memory BI products, which tend to focus on ad hoc "slice and dice" type interactions.
- Processing speed is also a strong suit. Salient's underpinning in-memory technology (which it calls UXT) switches processing across an array of servers to deliver rapid performance while handling complex calculations (for example, key performance metrics, productivity metrics, price elasticity, allocations). No Salient customers

reported performance problems, and more of its customers than for any other vendor cited performance as a reason for selecting it (50% vs. an average of 20.2%).
- Salient's customers report more complex user activity than for many other vendors, with a higher proportion of users doing predictive analytics than for any other vendor. As a result, Salient has a more analytic user profile; 31% of Salient's users are power users/business analysts (the highest surveyed, compared with a 21% survey average).

Cautions

- Salient is little known in the BI platforms market, pointing to a lack of effective marketing communications activity in the past. In response to this observation, Salient increased its investment in marketing in 2011, leading to much expanded above- and below-the-line communications activity, new staff, and new segment-oriented positioning and campaigns targeting retail, consumer products, healthcare and the public sector.
- Lack of customer acquisition and growth is a concern. Although Salient's customers are among the most satisfied we surveyed, they are also among the oldest — the average tenure for the Salient customers surveyed is 6.4 years, and almost 40% have used the product for more than 10 years. Long tenure comes with customer satisfaction, but it may also indicate an aging installed base and a firm facing difficulty acquiring new customers.
- Despite its customers' across-the-board plaudits, Salient's functionality is narrower than that of traditional players, in that it does not offer a full set of BI capabilities — lacking production reporting and ad hoc query capabilities against SQL or MDX sources, for example.
- A weak partner ecosystem is another concern. Salient needs to grow its indirect partner channel if it intends to step away from its high-touch approach, as this limits its growth. High-touch models do not scale rapidly, as staffing constraints are often encountered.
- The company has no direct international presence. Although Salient's software is deployed internationally, it is not well represented outside the U.S. It has no direct operations other than its headquarters in New York state. Representation and support internationally is delivered via a small network of boutique partners in Malaysia, Japan, Brazil and Cyprus.

SAP

Strengths

- The combination of SAP BusinessObjects and SAP NetWeaver BW revenue accounts for the largest share of the BI platform market, with both SAP platforms continuing to support large enterprise deployments (more than twice the average for both data size and number of users). Similarly, a higher percentage of SAP customers than for most other vendors in the Magic Quadrant survey cite "corporate standards" and "integration with enterprise applications" as among the top reasons why they chose SAP for BI.
- SAP has one of the largest global direct sales, support, and channel and services ecosystems. Moreover, the combination of SAP and BusinessObjects constitutes the

largest installed base in the BI platforms market, which represents a significant and captive cross-sell and upsell market opportunity for SAP. SAP's product investments and road map are targeted at both the independent market and the SAP-centered market. Those product efforts that targeted the SAP base (particularly for SAP BusinessObjects BI 4.0 and HANA), when coupled with aggressive bundling and pricing, have resulted in strong product sales. Last year, 36% of SAP BusinessObjects customers in the survey reported having SAP as their primary ERP platform. In this year's survey, that percentage has increased to 42%.

- SAP has a compelling and comprehensive product vision that addresses many key future trends including mobile, collaborative analytics, and analytics on big data. SAP complements its BI platform with forward-looking capabilities in the areas of collaboration and decision support (with its StreamWork product), text analysis integrated with its enterprise information management products, and search-based data exploration with its SAP BusinessObjects Explorer product. SAP's product vision for its in-memory computing platform, HANA, promises to solve many of the perennial performance issues of large complex BI deployments in general (given its SQL and MDX access for third-party tools) and SAP BW in particular (HANA for SAP BW is in ramp-up status as of November 2011). SAP was one of the first of the leading BI vendors to introduce a SaaS offering, BusinessObjects BI OnDemand. The company has also made investments in mobile BI, leveraging assets from its Sybase acquisition into capabilities in SAP BusinessObjects BI 4.0 that deliver SAP BusinessObjects Explorer and SAP BusinessObjects Web Intelligence as a mobile application on multiple device platforms. However, there are many pieces to this vision. Clarity around the road map, demonstration of the value proposition, and execution will be critical to customer uptake and overall satisfaction with SAP.
- SAP is investing in industry- and domain-specific packaged applications built with SAP BusinessObjects that include a data model, ETL and business content. Although uptake of these applications is in the early stages, SAP has moved to optimize a number of these packaged applications for SAP HANA, and plans to port more of these applications to HANA throughout 2012. This could enhance the value proposition of the HANA platform beyond its capabilities for performance acceleration.

Cautions

- Customer inquiries with Gartner analysts about SAP BusinessObjects continue to express confusion about the BusinessObjects, SAP BW and HANA road maps, given the product changes to support optimizations with the SAP business applications and NetWeaver BW products, and the perceived unknown costs of migrating to the new road map. These customers have also told us that the migration, implementation and integration choices can be confusing. These sentiments are supported by survey responses to the "view of vendor's future" question, which indicates that twice as many of the SAP respondents (compared with the survey average) indicated that they are "more concerned" about the vendor's future. Many SAP NetWeaver BW customers and SAP BusinessObjects customers are still determining what role these products will play in their future architecture and BI strategy. This uncertainty may also be contributing to the sentiment that SAP is among the top three vendors whose software customers are thinking about discontinuing, a percentage that is almost three times the survey average.
- This is the fifth year in a row that our market survey data shows ratings for SAP's

customer experience (which includes ratings for support and software quality and for sales experience) as the lowest of any vendor in the survey. That said, SAP is building on last year's customer success initiatives, by stepping up its efforts to work with Americas' SAP Users' Group for customer input, and it has increased investments in programs to redesign the SAP support process to address customer issues, and to address the customer experience more broadly.

- While SAP's customers tend to have very large and global deployments, poor performance is mentioned twice as frequently as the survey average as a problem limiting broader deployment, while direct performance scores are among the lowest in the survey. This problem is more acute for SAP BW customers than for SAP BusinessObjects, but both products score near the bottom of the survey on this measure. Both SAP and SAP customers alike are hoping that SAP HANA can address this problem. Early adopters of HANA SP1 and SP2 (HANA on SAP BW) have reported positive experiences in this regard.
- Both SAP BusinessObjects and SAP BW scored below average, when compared to other vendors in the survey, across all 14 BI platform capabilities evaluated during the Magic Quadrant research process. Of those capabilities, SAP BusinessObjects' customers identified reporting and ad hoc query functionality as the platform's top strength. SAP BI 4.0, made generally available at the time of this year's Magic Quadrant survey data collection and therefore not included in the survey responses, is expected to provide a significant number of feature and usability enhancements, in addition to improved integration with SAP BW. As more SAP BusinessObjects customers upgrade to this latest version, we would expect to see better product scores reported in next year's Magic Quadrant.
- At the end of August 2011, SAP implemented its third license model change (Concurrent Session-Based Licenses [CSBLs] and Named User licenses) for SAP BusinessObjects since the Business Objects acquisition in January 2008. While there are many advantages for users in using CSBL, changing license models have contributed to confusion, and concern. Also, some customers are charged for upgrades when they expected to be provided with product at no/low cost — for example, SAP BEx Analyzer customers expecting to move to SAP BusinessObjects Analysis for Microsoft Office.

SAS

Strengths

- SAS gets high marks for its global footprint and broad industry initiatives. Unlike some other BI platform vendors, SAS focuses on advanced analytical techniques, such as data mining and predictive modeling, where references acknowledge it as a leader of the pack. SAS's clients also have above average complexity scores (for the depth of use of different BI use cases) on larger than average data sources. SAS customers also access and interpret unstructured internal and external data more often than any other vendor's clients surveyed for this Magic Quadrant.
- SAS's solution-oriented analytic application approach to the market is a differentiator, giving the company the advantage of having a wide variety of cross-functional and vertically specific analytic applications out of the box for a variety of industries, including financial services, life sciences and manufacturing. While others are also

adopting this approach, SAS remains in the lead. Customers also report an above average sales experience.

- The primary drivers for customers choosing SAS remain functionality and data integration. In addition, references reported that they select SAS because of availability of skills. In the past, we have heard concerns over a lack of available SAS expertise; we suspect that this improvement is linked to the aggressive stance the company has taken to forge substantial partnerships with services firms, specifically Accenture. This broadened ecosystem also expands SAS' sales channels with multiple partners positioning SAS-based solutions to their customers.
- On the software partnership front, SAS has partnered with a number of database vendors (such as Teradata) to push the execution of its models directly into the database management system without moving the data. Not only does this reduce data duplication and movement, it also allows SAS users to leverage the power and scalability features of the database to run predictive models against very large datasets with high performance.
- Overall, SAS has a wide and loyal user base, many of whom have built careers around these products. References have a solid, positive outlook for SAS's success within their organizations, as well as in the market as a whole. The company recently reported double-digit revenue growth for 2011.

Cautions

- References report that SAS is very difficult to implement — it was the No. 1 firm in this category. Companies also indicate that the product is considered difficult to use for business users (it was ranked No. 2 in this category). Its dashboard capabilities were rated lowest of all the vendors in this research. SAS is very much aware of these criticisms, and in 2011 embarked on a major development initiative involving hundreds of resources to improve usability and implementation activities. While it is too early to see the results of these efforts in surveys, we expect to see improvement in these areas in next year's reference assessment. If no improvement is noted, this will directly impact SAS's Ability to Execute scores for 2013.
- SAS's dominance in predictive analytics and statistics continues to be challenged on many fronts. In addition to the SPSS suite, IBM also acquired Algorithmics in 2011 to bolster its portfolio; we are seeing greater adoption of open-source "R" in some products and embedded predictive and statistical capabilities in others. New entrants to the BI platform Magic Quadrant Prognoz and Alteryx accentuate these capabilities as core components of their product suites. While SAS still remains the acknowledged front runner, buyers have more options now, and SAS must continue to defend its franchise. The company recognizes this and, for example, has reinvigorated its emphasis on placing its software products in higher education settings for student and teacher use.
- Customer references report that cost is the most common factor blocking further adoption. In fact, verbatim responses to the survey mention cost in many ways — leasing terms, expensive to maintain, ongoing costs and so on — and, again, the company is very much aware of this criticism. With more options now available, SAS should also remain responsive to customers and prospects in these areas. The average tenure of SAS's reference customers that participated in this survey was five years. Over 10% reported that they are planning to replace or are considering replacing the software in the next three years.
- Despite SAS's success and awareness as a leader in the predictive analytics space, the

company is still challenged to make it onto BI platform shortlist evaluations when predictive analytics is not a primary business requirement. While a little less than 60% of references indicated that SAS was their company's BI standard, functionality used in traditional BI areas (reporting, dashboards, OLAP and so on) was lower than for other BI leaders in this report. Like last year, ad hoc query remains the one exception, with clients aggressively using SAS BI for that component.

Tableau

Strengths

- For the third year in a row, Tableau is the "sweetheart" of the Magic Quadrant, with customers even more enamored with it this year than in the last two. It gained overwhelmingly positive customer survey feedback across the board in all measures in the survey, including ease of use, functionality, product quality, product performance, support, customer relationship, success, achievement of business benefits and view of the vendor's future. Indeed, it earned a top or near top score in most of these key categories — even with its high revenue growth (94% in 2011), when growing pains might be expected. These stellar results in part contributed to Tableau's strong Ability to Execute position, despite its relatively small size.
- Tableau is one of a number of stand-alone BI vendors delivering strong interactive visualization for analysis, dashboards, information delivery and managed analytic applications. Tableau's strong performance, even with an increasingly crowded competitive landscape, is evidence of its ability to meet the increased market demand for easy-to-use and intuitive interactive BI tools that are easy to deploy without IT assistance. Not only is Tableau benefiting from its "halo" image as a result of its strong performance in the Magic Quadrant customer surveys, it is also receiving collateral benefit from QlikTech's successful market awareness activities. In particular, most vendor selections that may start out with a primary interest in QlikTech also end up including Tableau as a competing alternative, with the win sometimes going to Tableau. Survey customers cited ease of use for end users and developers, and functionality, as the key reasons for choosing Tableau more often than those for most other vendors in the survey. Importantly, a higher percentage of Tableau's customers, compared with most other vendors, report that there are "no product issues to broader deployment," a key measure of satisfaction with customer experience.
- Tableau's self-contained BI platform provides purpose-built, business-oriented data mashup ETL capabilities with data connectors that leverage Tableau's own VizQL technology (drag-and-drop operations in Tableau create a query in VizQL, which interprets and packages an SQL or MDX query to the database and then expresses the response graphically). Its columnar, in-memory data engine, which can be used as an alternative to its direct query access, enables fast performance on large and multisource datasets and on complex queries, such as very large multidimensional filters or complex co-occurrence or multipass queries. Zero programming data mashup capability, combined with an in-memory database, allows users to blend and visually analyze large amounts of diverse datasets with auto-detect relationships between multiple sources (of any format). This allows users to connect to any data source and produce a series of interactive dashboards, and highlight and visually filter

and pass parameters directly from a graphic; or use filters (for example, check boxes, sliders, relative date filters and drop-down menus); or build in geographic intelligence to analyze their data. Interactive analysis can be shared with a report consumer equipped with a Web browser. The combination of exceptional ease of use ("fun" is often used to describe Tableau by its users), with the ability to conduct sophisticated analysis, is a key reason users are exuberant with the platform.

- Customer survey data shows that Tableau is chosen most frequently by its customers for functionality, with among the highest overall product functionality scores, and just edging out Tibco Spotfire for the No. 1 spot (of vendors on the Magic Quadrant) for interactive visualization — Tableau's main strength. Moreover, its mobile capability is gaining traction, with an above average percentage of its users either using, piloting or planning to deploy its mobile capability. Those who use its mobile capability have a very favorable, above average view of the functionality.
- The size of the data that its customers analyze with Tableau continues to grow. In fact, Tableau's implementations continue to feature larger data sizes, including content (Hadoop, for example), which this year are among the highest data sizes and highest percentage of analytics on unstructured data in the Magic Quadrant survey. Moreover, Tableau has a growing percentage of external users accessing externally facing Tableau applications. This is, in large part, due to Tableau's SaaS offerings, Tableau Public and Tableau Digital, which have enabled websites (such as CBS Sports' Fantasy Football and Baseball, Microsoft's DataMarket and other news, media, entertainment and government websites that embed Tableau Public visualizations) to share data in engaging ways with their audiences. This high-leverage go-to-market approach also contributes to Tableau's strong market awareness, and has the potential to expose substantially more users to Tableau products (to further drive Tableau's momentum) than would its traditional direct channels.

Cautions

- Tableau's product functionality is more narrowly defined around analysis and interactive visualization. It lacks broader BI platform capabilities, such as production reporting and predictive analytics. Tableau has introduced a shareable semantic layer — a key enterprise feature — in its 7.0 release (made available just prior to the publication of this year's Magic Quadrant), giving it a competitive advantage over QlikTech.
- Although Tableau's user counts remain below the survey average (albeit growing from last year), it is still largely departmentally deployed with smaller user counts. Tableau's products often fill an unmet need in organizations that already have a BI standard, and are frequently deployed as a complementary capability to an existing BI platform. Tableau is still less likely to be considered an enterprise BI standard than the products of most other vendors.
- Tableau's partner program, while expanding over last year, is still in its infancy, lagging behind that of similar vendors (such as QlikTech). But it continues to make progress, including outside North America, in increasing its resellers and OEM partners in the past year. As is not uncommon with a small vendor, Tableau is initially pursuing a horizontal platform strategy, and has not embarked on developing vertical or industry-specific applications, although it has a number of OEM partners that create domain and vertical solutions using its platform (for example, for healthcare, manufacturing and kindergarten through to twelfth-grade schooling). Moreover, it has a very limited international presence, and while the software is now available in

English, German and French, support services are available in English only.
- Given the success of Tableau and other interactive visualization vendors, other leading BI platform vendors including Microsoft, MicroStrategy and others, are trying to mimic its functionality, which could threaten Tableau's long-term prospects as an independent vendor.

Targit

Strengths

- Targit's intention is to make BI easier to use, with as few clicks as possible, and by far the strongest reason expressed by customers for selecting it is its ease of use for end users. Following the principle of "observe, orient, decide, act," the design of the Targit user interface delivers a consistent user experience, integrating components of the BI platform and so reducing the need to move between different tools.
- The Targit BI platform includes tools that help set up the environment with very little intervention. The platform does a significant amount of the setup automatically, ranging from scheduled report generation, drill-down and dashboarding to intelligent search, alerting and some level of data mining. Targit's customer organizations report that they are able to develop reports much more quickly than on average.
- Targit's prediction-based rules capability, called Sentinels, offers a means to support more complex analytic needs in organizations that may not have the skills to build out data mining models with other tools. This functionality is being rapidly taken up in Targit's user base, with a third of customers adopting it since its launch two years ago.
- Based on the survey, Targit is obviously attractive to those using Microsoft — 67% of its customers are using Microsoft as their primary ERP software provider and 88% for their primary data warehouse, much more than for any other vendor. It's notable that an above average proportion of Targit customers say that its ability to integrate with their ERP applications was a reason for selecting it.
- Targit has developed a strong OEM channel, with CDC Software, HP and Microsoft among its resellers.
- The company's cloud and collaboration vision is also a strength. In 2011, Targit added facilitates for end-user-deployed analytics, by allowing users to upload data to the Targit Cloud, which then automatically generates the best-fit visualization for further analysis of the data. Targit Cloud also facilitates social networking and collaboration around the data uploaded.

Cautions

- Targit still has limited brand recognition or presence outside Europe. However, it is showing strong growth in the U.S.: 40% of those completing the survey regarding their use of Targit originated in North America this year.
- While Targit is considered an enterprise standard by most of its customers, it is very much a midsize enterprise BI solution. On average, the smallest organizations surveyed use Targit, on some of the smallest data volumes and with the smallest numbers of end users in the survey.
- Targit customers cited problems with poor performance at more than twice the survey average. In some cases this is due to slow responses from the repositories feeding it.

However, Targit is adding new functionality in 2012 in areas such as on-demand loading and real-time OLAP, and via the use of in-memory database technology to improve performance.

- Ideally, for Targit to function well, it requires a data warehouse with defined dimensions and measures — according to the survey, just 4% of Targit customers do not have a data warehouse. This has the effect of reinforcing Targit's niche target market segment — there are relatively few small firms with high data warehouse maturity. As mentioned above, Targit's cloud strategy may ameliorate this inhibitor by offering an alternative means of deployment.
- References rated Targit in the lowest quartile for BI functional capabilities. Targit achieved above or close to average ratings in scorecards, ad hoc query, dashboards, OLAP and Microsoft Office integration in the survey, but was below average in all other functional capability areas.
- Targit's customers rated the support they receive as below average, with levels of expertise, response time and time to resolution in the bottom three of all vendors. Targit's lack of a direct sales channel, and therefore its relationship with its customers, may exacerbate this type of issue in its client base, particularly in markets where it is growing quickly via its indirect channel. The company is aware of this issue and has put in place a new customer service department in the U.S. to deal directly with end customers and improve their customer experience, an approach it has found effective in Europe.

Tibco Software (Spotfire)

Strengths

- Tibco Spotfire is a flexible and easy to use data discovery platform based on an in-memory architecture for self-service discovery, authoring analytic apps, and publishing interactive and highly visual dashboards. Like QlikView and Tableau, Tibco Spotfire's interactive visualization approach has become more widely accepted, and even a preferred, end-user paradigm, and represents a compelling complement or alternative to traditional BI platforms. This architecture has been particularly attractive for delivering on requirements where Tibco Spotfire fills a need not addressed by enterprise BI vendors. Customers choose Tibco Spotfire for its ease of use for end users and functionality more often than they do most other vendors, even though it is less likely to be their enterprise standard.
- Much like the other data discovery vendors that are addressing increasing market requirements for intuitive, highly interactive and lightweight BI platforms, Tibco Spotfire's customers are very satisfied with all aspects of the relationship. In fact, they rate it among the highest in the customer survey for support, customer experience, performance, positive view of vendor's future, vendor success, overall product functionality, sales experience and achievement of business benefits.
- Survey customers rate Tibco Spotfire's overall functionality among the top for vendors in the survey. In particular, Tibco Spotfire customers give among the highest marks and report more extensive use for predictive analytics and interactive visualization than for most vendors in the survey, with above average scores for ad hoc query and analysis. Because of Tibco Spotfire's ease of use, more users can leverage the benefits of analytics.

- Tibco Spotfire has among the highest complexity of user analysis score than any vendor on the Magic Quadrant, while at the same time customers rate it above average on ease of use, particularly for end users. This paradox typifies why data discovery tools in general, and Tibco Spotfire in particular, are so compelling and are proliferating.
- Tibco Spotfire's strong product vision is a key strength. Its focus on advanced and real-time analytic applications and dashboards delivered to mobile devices contributes to its strong vision. Its investments in mobile are beginning to pay off, as Tibco received among the highest marks for its mobile functionality; among the highest percentage of users of any vendor in the Magic Quadrant survey are currently deploying its mobile capability. Unlike the other data discovery platforms (for example, QlikView and Tableau), Tibco Spotfire is leveraging its acquisition of Insightful for data mining, as well as its integration with Tibco middleware and Tibco's social capability, tibbr, to broaden the possible spectrum of end-user-driven interactive analysis, to incorporate business events, predictive analytics and "what if" modeling. Moreover, Tibco Spotfire's low-cost cloud version of its software allows business users to author and share Tibco Spotfire visualizations and dashboards without having to install the software on-premises.
- Tibco Spotfire is well positioned to take advantage of the increase in market demand for packaged analytic applications and dashboards, which increasingly feature predictive analytics capabilities. A third of Tibco Spotfire's customers use one or more of its specific packaged applications for life sciences, manufacturing, financial services, process analytics, spend analytics, and sales and marketing analysis.

Cautions

- Even though the average employee size of a company that uses Tibco Spotfire software is the among the highest in the survey, and although Tibco Spotfire has some customer references with extremely large datasets and thousands of users, on average its deployments tend to be focused on a department or multiple departments, with below average data volumes and numbers of end users when compared with those of other vendors. Tibco Spotfire also scored among the lowest of all vendors in the reference survey on the percentage of customers that consider it their BI platform standard. The combination of this result with Tibco Spotfire's strong functionality ratings suggests that, while it is not usually the enterprise standard, it has been successful in augmenting the BI standard when more flexible discovery-based and sophisticated analysis is required.
- Tibco Spotfire is well suited to building analytic content ranging from basic interactive visualizations and dashboards to advanced, interactive analytic applications, and its customers are very satisfied. But the perception of Tibco Spotfire's license cost and packaging continues to be a factor limiting its consideration beyond a restricted set of users with high-end requirements. While a premium for Tibco Spotfire software may be justified given its differentiating features around collaborative, mobile, advanced and real-time analytics, Tibco Spotfire must overcome its high license cost reputation to capitalize on the significant buying momentum driving the growth of more mainstream and competitively priced and packaged data discovery alternatives. As further evidence of its high license cost reputation, like last year, license cost continues to be cited as a limitation to broader deployment more often than for most vendors in the survey, and its "total license cost per user" continues to be above the survey average. Tibco's above average pricing

may, in part, be explained by the fact that 35% of its sales are from its analytic applications, which tend to be more expensive. Tibco's introduction of new pricing and packaging options in 2010, as well as the launch of a low-cost SaaS offering in mid-2010, are evidence of the company's efforts to combat this market perception, but the perception still remains in 2011. We would expect to see this change in the future, as Tibco delivers on its marketing and sales strategy.

- Awareness of the Tibco Spotfire platform has been primarily limited to its traditional customer base — analysts and data scientist in industries such as pharmaceuticals, life sciences, financial services, energy and manufacturing. The survey data and Gartner inquiries continue to suggest that awareness of Tibco Spotfire for mainstream data discovery requirements is less than its primary competitors — QlikTech and Tableau — and it is not considered on shortlists as frequently to meet mainstream data discovery requirements. However, there is a significant opportunity for this to change, since this is a marketing investment priority rather than a product challenge. To capitalize on this opportunity, Tibco (the corporation) has stated that it views Tibco Spotfire as a key high growth area for the next several years, and that it has begun to invest in expanding Tibco Spotfire's awareness, sales, marketing and partner capabilities, all to capitalize on a much larger percentage of mainstream BI platform and data discovery market opportunities in 2012 than Tibco Spotfire has had in the past. For Tibco Spotfire to be considered a Leader in the future, it will need to execute successfully on these efforts by demonstrating larger and more pervasive deployments and stronger market awareness and shortlisting outside its traditional installed base of niche users.
- While Tibco Spotfire is rated highly in the survey for ad hoc analysis, interactive visualization and predictive analytics, it is rated in the bottom third of vendors for static and parameterized reporting, confirming that its true sweet spot is in providing a flexible, easy to use environment for advanced analysis.

Vendors Added or Dropped

We review and adjust our inclusion criteria for Magic Quadrants and MarketScopes as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant or MarketScope may change over time. A vendor appearing in a Magic Quadrant or MarketScope one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. This may be a reflection of a change in the market and, therefore, changed evaluation criteria, or a change of focus by a vendor.

Vendors Added

Alteryx, Pentaho and Prognoz were added to this year's Magic Quadrant, as they were able to meet all inclusion criteria.

Other Vendors to Consider

Even though they did not meet the criteria for inclusion in the Magic Quadrant, the following vendors are benefiting from the growth of the BI platforms market and may be worthy of consideration in BI evaluations.

Data Discovery

While three data discovery vendors (QlikTech, Tibco Software [Spotfire] and Tableau) had enough market adoption to earn a spot on the Magic Quadrant itself, there are a number of smaller vendors that could be considered when data discovery is a unique requirement. Three

of these vendors, Endeca (acquired by Oracle in late 2011), Advizor Solutions and Quiterian, provided customer references with enough survey responses to be included in the Magic Quadrant customer survey research notes that will publish as complements to this research, but did not meet the revenue requirement to earn a place on the Magic Quadrant in its own right.

Gartner bifurcates the data discovery tool market into interactive visualization tools and search-based data discovery tools. All the vendors either on the Magic Quadrant itself or listed thus far in this section fall into the former category of vendors. Endeca, acquired by Oracle in December 2011, is one of the unique vendors that falls into the latter category. Founded in 1999 as an enterprise search vendor, Endeca is leveraging its search technology to renew its focus on the BI platform market. Its Latitude product combines the simplicity of a search interface and faceted browsing with the insight of BI by delivering interactive tools that support fast data exploration and discovery on top of its patented hybrid search-analytical database. With its unique platform, there is no need for an overarching data schema — every record and document has its own schema stored in a columnar store with text and data indices built in dedicated columns. As a result, the columnar architecture can support in-memory-grade performance without in-memory constraints. The data discovery mode is search-based, which enables navigation and analytics on both structured data and unstructured content, making documents and Web-content part of searchable decision data. Every summary is also a way to query the data, letting users iteratively explore data and ultimately reach conclusions that drive decisions. The acquisition of Endeca helps Oracle appeal to enterprises that want to search, combine, analyze and integrate structured and unstructured data types to optimize decision making, business processes and their online presence. In particular, the acquisition adds complementary search-based data discovery to Oracle's business analytics strategy, a capability Oracle lacked. The most notable positive potential from the acquisition is that Endeca will boost Oracle's "ease of use for end user" and "complexity of analysis performed" scores, areas which are among the highest for Endeca and below average for Oracle. When the Magic Quadrant process began in 3Q11, Endeca was an independent firm and provided references for this year's customer survey, but did not meet all inclusion criteria to get its own dot on the Magic Quadrant. Now, as part of Oracle, Endeca Latitude contributed positively to Oracle's Completeness of Vision scores. In next year's report, Endeca's capabilities and customer responses will be fully reflected in Oracle's position on the Magic Quadrant.

Advizor Solutions offers an end-user data discovery and analysis product suite with an in-memory performance layer, descriptive and predictive analytics and a user interface built around a library of sophisticated interactive images. Advizor competes directly against the likes of Tibco Software (Spotfire), Tableau and QlikTech, and maintains a long-standing OEM relationship with BI platform provider Information Builders, as well as other vendors supplying horizontal and/or vertical applications. Over 20 references responded for Advizor, and they paint a picture of the average customer: based in North America, largely in the higher education sector, using the products on relatively small amounts of data (approximately 100 GB), when compared to the average for all vendors, in small groups that average less than 40 in number. These customers select Advizor for four main reasons — functionality, ease of use for end users, data access and integration, and implementation cost and effort. The products get high marks for interactive visualization, and customers give the firm exceptional scores for support, sales experience and overall customer experience. The data discovery segment is expanding, with other existing BI platform providers delivering competitive products in 2011 and 2012.

Quiterian, based in Spain, provides data discovery tools with predictive analytics, and allows business analysts to conduct "visual data mining" without relying on the specialized skills of a data scientist. Quiterian and its Dynamic Data Web (DDWeb) product were introduced to Gartner in 2010, but have been available in the company's home market since 2003, where the company has a good presence and reference base. Effectively a large-scale data discovery offering, its core value proposition is easing the use of data mining and statistical analysis, and thus making these capabilities more broadly available. However, this means it'll be up against some stiff competition, notably from IBM (SPSS) and SAS (in particular JMP), as well as from Tibco Software (Spotfire), which offers a similar value proposition for complex data discovery and advanced analytics. Technically, DDWeb uses an intermediate processing layer on top of its own columnar database — Quiterian FastDB, released in 2011 — to enable BI functionality (for example, predictive analysis). Quiterian has been expanding its geographical reach, having opened offices in Portugal, Mexico and the U.S. in 2010, as well as through a growing international value-added reseller channel with 12 new partners in the U.S. and Canada, and other partners in the Asia/Pacific market.

Cloud/SaaS Business Intelligence and Analytics

SaaS remains a viable option for some buyers. Just 30% of respondents to the Magic Quadrant survey were currently using or had plans to use cloud-based BI and analytics within the next 12 months — a slight uptick from last year. The subcategory shows slow but steady momentum as a departmental, mid-market and/or analytic application approach to augment existing analytic capabilities and analyze data already in the cloud. Pure-play vendors such as 1010data, Birst, Domo, GoodData, myDials and PivotLink continue to compete aggressively for mind share and budget dollars. Cloud capabilities have emerged from traditional BI platform providers, with new capabilities regularly introduced over the past year.

1010data, headquartered in the U.S., has a different spin on cloud business analytics. By focusing on the challenges with "big data," the company cut its teeth in the financial services sector, working with one of the world's largest stock exchanges, analyzing detailed trade data. While focusing on complex, voluminous sources of data, it has also fostered a service to build out customer-driven analytic applications of that data, trademarking the phrase "the trillion row spreadsheet" to capture the breadth and scope of information analyzed on demand within the platform. Accordingly, references indicate that BI performance and ability to analyze large volumes of data are their primary reasons for selecting 1010data. Deployments average fewer than 200 users, but companies they sell to are some of the largest that responded to this Magic Quadrant survey. Customers also reported a high complexity of use cases (in the highest quartile of all vendors surveyed) with specific success in predictive capabilities within the platform; references indicated that difficulty of use was a concern blocking further deployments among a wider user community. The company has expanded its vertical focus to include telecommunications, and retail/consumer products goods where data volumes, performance and complex analysis are hallmark requirements.

U.S.-based Birst provides a SaaS-based end-to-end BI and data integration platform. In 2011, the company introduced an appliance option that allows companies to choose an on-premises or hybrid (mixed on-premises and cloud) deployment. With this addition, clients can choose to continue to license as a subscription or via a perpetual license/maintenance model. The company also recently made available an in-memory data store option complementing its traditional supported commercial SQL databases. Birst supplies predefined analytic application templates for sales performance and pipeline analysis, as well as financial services/insurance industry applications. Its reference clients indicate that it is used as the

enterprise standard BI platform above the average for all vendors in this Magic Quadrant analysis; use cases are heavily skewed toward consumption only and casual scenarios, to hundreds of users, on average. Companies choose Birst based on functionality, implementation cost and effort, and data access and integration capabilities.

Launched in 2011, U.S.-based Domo is based on the assets acquired in October 2010 from Corda Technologies, a vendor of solutions for building dashboards, rated as a Niche Player in the 2011 BI Magic Quadrant report. Corda's 900 OEM customers will continue to be supported; however, no new functionality will be added to the legacy products. Enterprise customers, along with OEMs, will be encouraged to move to the new Domo offerings. Corda developer tools, PopChart and OptiMap, will continue to be sold. With the Corda brand retired, and $43 million in funding, Domo is moving forward with an "executive management platform," and an attempt to solve the ease of use issues that some competitive BI solutions have. It is targeting executive-level users with dashboard and drill-down features that integrate information from across the variety of systems, such as ERP, CRM, HR and financials. This will be an interesting company to watch. The founders have a successful history of building specialized analytic applications and delivering them via SaaS, but competing in the BI market, as primarily a SaaS vendor, will be more difficult, especially when trying to address unique requirements found across enterprises.

GoodData, founded in 2007 and headquartered in the U.S., has developed an end-to-end ETL, data warehouse and analytics PaaS capabilities used by more than 2,500 OEM customers and over 150 direct clients to develop and deploy metrics-driven dashboards. The vast majority of customers were new in 2011. The company also packages predefined SaaS applications for common content areas such as salesforce.com sales, marketing and support analytics, Google Analytics, and Zendesk help desk analytics. The suite delivers integration capabilities to source data from within and outside the enterprise. A few references responded on behalf of the company, and those that did indicated that the top three reasons they selected GoodData were implementation cost and effort, ease of use for end users, and integration. The company received $15 million in new funding in August 2011 to further its expansion.

Another interesting BI SaaS vendor is myDials, headquartered in the U.S. The company was founded in 2006 and delivers myDials Performance Management Platform, a Web-based, easy-to use, highly interactive dashboarding system. The platform features built-in business-user-oriented statistical capabilities for identifying trends, forecasts with error ranges, and patterns with support for drilling into the data while context is maintained, to identify the root cause of a problem. In 2011, the company introduced dynamic integration capabilities to support mashups, as well as a personalization mode that leverages the underlying security model to tailor the end-user experience. While relatively few references responded on behalf of myDials, those that did indicated that they selected the product for functionality and ease of use for end users. Feedback was stellar, with very high ratings for dashboard, scorecard and visualization capabilities, and overall top-quartile product functionality ratings. Customer and sales experience marks were in the top quartile too, indicating a satisfied customer base. While the average tenure of references was less than two years, none indicated any plans to replace the software in the foreseeable future.

In 2011, U.S.-based PivotLink, a cloud-based PaaS provider for business analytics, recommitted itself to the retail sector — the place where it got its start over a decade ago. The company plans to maintain customers in other sectors indefinitely. PivotLink's management team was refreshed with key appointments such as CEO and chief marketing officer (CMO) during the year. Existing references indicate that the product is used, on average, in

workgroups of about 200 users analyzing a relatively modest amount of business data — less than 300 GB. Companies choose PivotLink for ease of use for end users, functionality, and implementation cost and effort. As a PaaS for business analytics, the company employs a subscription license scheme. The average tenure of references is four years, with none considering replacement of the product in the foreseeable future. Some firms note that the product is missing key functionality, which impedes broader deployment. But customers rave about support, where ratings scored in the top quartile. References reported that they think highly of PivotLink's recently introduced mobile BI platform, with exceptionally high product and use scores. Overall product functionality is rated above the average of all vendors in this report, with specific kudos for the product line's Microsoft integration options. In the increasingly crowded cloud/SaaS analytics space, PivotLink must continue to differentiate its products in order to remain competitive.

Departmental, Workgroup, Midmarket and Other BI Providers
A number of other vendors have gained market traction, but do not have the same market awareness as the BI market contenders. A few such companies, including Altosoft, Bitam, InetSoft Technology, JackBe, MeLLmo, Phocas and SpagoBI, should also be considered for specific types of workload and/or business use cases.

U.S.-based Altosoft offers a BI platform which is engineered to provide rapid, no-coding development of reporting and dashboard applications with high performance through the use of a data integration and analytics engine (MetricsMart) that utilizes server-side in-memory and incremental preprocessing techniques. It also competes by promoting its data mapping, real-time metrics, outlier identification, user-defined alerts, and incident management features. Shipping product since 2006, it has its roots in the business process management space, and 80% of its 500 customers come from vendors that license Altosoft products to provide both conventional BI capabilities and business process intelligence functions. The other 20% of its customers are gained by competing against traditional BI platform vendors, especially in the financial services and healthcare markets. Altosoft's solution offers both traditional on-premises and a SaaS-based option which can be deployed in a hybrid configuration to allow data to be collected and pre-filtered behind a customer's firewall, then use a MetricsMart with dashboards/reports in the cloud. References indicate that they select Altosoft for end-user ease of use, implementation cost and effort, along with its data integration capabilities.

Founded in 2000 in Mexico, Bitam is a BI and CPM vendor. Regional headquarters are located in the U.S. and Spain. The majority of its business is sold in Latin America. The Artus product's current version is G6, and includes new functionality for offline interactive dashboards and user-driven mashup capabilities. Customers choose Bitam primarily for functionality, ease of use for end users, and license costs. Bitam's SaaS option — KPI Online — is targeted at SMBs, and consists of predefined financial and customer applications, as well as CPM functionality, and a development platform to create custom BI applications. Customers pay for the service on a monthly basis based on number of applications, users and amount of data stored in the system. References continue to flag support as a concern (a noted issue last year), and the product received lower than average product functionality ratings compared to other vendors in the Magic Quadrant analysis. The company's brand recognition is very low outside its home markets in Latin America, which further limits its ability to expand its customer base outside those markets. Unfortunately, Bitam did not receive the required number of references to be included in the main section of this report. We hope to see it return in 2013.

InetSoft Technology is headquartered in the U.S. and is a dashboard and reporting vendor with more than 3,000 clients in many geographies. The company sells directly as well as through more than 200 OEMs. In addition to a paid version of its software, the company also makes a free download available for evaluation and individual use. References report that the product is used by relatively small groups of users (approximately 160 on average, compared with other vendors profiled in this report) on datasets of less than 200 GB. In 2011, support for mobile devices was broadened, allowing users to access dashboards on iOS devices. Prior to this, dashboards could be accessed on any Flash-enabled device. Companies select InetSoft for functionality, as well as ease of use for developers and end users. In 2011, dashboards — an acknowledged specialty for InetSoft — were rated in the top quartile for functionality by references.

U.S.-based JackBe delivers real-time BI product capabilities through its Presto product line. The firm is very clear about its real-time BI mission, and provides integration and mashup functions that are deployed in operational intelligence scenarios. Clients create applications such as real-time data center monitoring, sales and service performance, and program management — often integrated within a portal or mobile application. No client references claim that Presto is their BI standard, but references report exceptionally broad deployments, in the thousands of users — something many "standard" BI platforms can't always claim. Customers indicate that they select JackBe Presto for its data access and integration capabilities, its development ease of use, and its strengths in information infrastructure integration, indicating that the products are used to develop easy to use applications for business users. Not surprisingly, clients give high scores to Presto's development tools, and top-quadrant ratings to overall product functionality. Concerns were noted over the product's capability to support large numbers of users; this was a surprise, given that the average reference deployment exceeded 3,500 users. The products appear well suited for intended use cases, and we expect to see more from JackBe in the upcoming year as it fleshes out its real-time BI messaging.

MeLLmo was founded in 2008, is headquartered in the U.S., and was included in Gartner's "Cool Vendors in Analytics and Business Intelligence, 2011" for its flagship product Roambi Analytics — a native application that brings a set of intuitive and engaging BI visualizations to the iPad and the iPhone, as well as some BlackBerry devices. Customers can select from three options — the cost-free Roambi Lite, for individual use, and Roambi Pro, for workgroups, are both delivered in a hosted architecture as entry-level tools with limited connectivity options. The enterprise option — Roambi ES — is delivered on-premises and integrates with the megavendors' (IBM, Microsoft, SAP and Oracle) BI platforms, among others. The product is able to provide offline navigation of previously downloaded information from those sources. MeLLmo has recently introduced Roambi Flow, a tool for embedding Roambi Analytics outputs with other text and multimedia content into a digital magazine or presentation format for iPad consumption.

Phocas, headquartered in the U.K., is a subscription-based BI platform, positioning its products directly to business users. Defined integration to many major ERP and CRM systems, including Epicor, Microsoft Dynamics and Infor, is noted as a specific strength; a whopping 87% of references indicated that they selected Phocas for its ease of use. Average deployments of Phocas incorporate less than 100 GB of data and fewer than 50 users, which is not surprising given the applications it integrates with most frequently. The named-user subscription license is term-based (a minimum of six months), and the average tenure of reference customers was 4.4 years, indicating long-term use of the platform. The company

will entertain a server-based license model, but only suggests it when more than 100 users will use the software. Use-case complexity scores are above average for all vendors in this Magic Quadrant analysis, and clients rate ad hoc query and metadata management in the top quartile. With over 750 customers throughout Europe, Australia and North America, the product is available in major European languages, with Chinese slated for inclusion in 2012. Customers are bullish about Phocas' future, and we expect to hear more about the firm throughout 2012 and beyond.

SpagoBI is a 100% open-source BI platform sponsored by Engineering Group, one of Italy's leading IT consultancies. Engineering Group delivers services on top of SpagoBI, using the product to build out vertical applications and specific projects on behalf of customers. Gartner sees demand for open-source solutions increasing, especially from the public sector. SpagoBI is freely available, with no license fee. Consulting or support charges are separated from free software availability, with no user lock-in and no customer obligation to buy. Support is offered in English, French and Italian. A small number of SpagoBI references responded to the Magic Quadrant survey, but we can derive some information about the product and its uses. References — all from Western and Central Europe — indicate that they use the product in small workgroups of approximately 50 users on small amounts of data (slightly less than 50 GB on average). Larger user communities (in the hundreds) are also using the product. References report heavy use of report viewing and interactive exploration functions. Clients indicate that they select SpagoBI for performance considerations, followed by license cost and implementation costs/efforts.

Vendors Dropped
Bitam and Domo (formerly Corda Technologies) were dropped from this year's Magic Quadrant as both vendors did not meet the minimum number of reference survey responses required.

Inclusion and Exclusion Criteria

To be included in the Magic Quadrant, vendors must generate at least $15 million in BI-related software license revenue annually. Gartner defines "total software revenue" as revenue that is generated from appliances, new licenses, updates, subscriptions and hosting, technical support, and maintenance. Professional services revenue and hardware revenue are not included in total software revenue (see "Market Share Analysis: Business Intelligence, Analytics and Performance Management, Worldwide, 2010").

- Those that also supply transactional applications must show that their BI platform is used routinely by organizations that do not use their transactional applications.
- Vendors must deliver at least nine of 14 capabilities detailed in the Market Definition/Description section above.
- They must be able to obtain a minimum of 30 survey responses from customers that use the vendor's product as an enterprise BI platform.

This year's Magic Quadrant customer survey included vendor-provided references, as well as survey responses from BI users from Gartner's BI Summit, as well as respondents from last year's survey. There were 1,364 survey responses, with 120 (8.8%) from non-vendor-supplied reference lists. To ensure the integrity of the survey data, each survey response was checked by company respondent email. For survey responses from non-identifiable email accounts

such as Gmail or Yahoo accounts, the respondent was contacted and had to provide Gartner with a company email address, a company role and other contact information (this amounted to fewer than five responses, all of which were vetted and ultimately included). Further details of the survey results will be published in the forthcoming reports: "BI Platforms User Survey, 2012: How Customers Rate Their BI Platform Vendors;" "BI Platforms User Survey, 2012: How Vendor Customers Rate Their BI Platform Functionality;" and "BI Platforms User Survey, 2012: How Customers Rate Their BI Platform Ownership Costs (BIPOC)."

Evaluation Criteria

Ability to Execute
Vendors are judged on their ability and success in making their vision a market reality. In addition to the opinions of Gartner's analysts, the scores and commentary in this document are based on three sources: customer perceptions of each vendor's strengths and challenges derived from BI-related inquiries with Gartner; an online survey of vendor customers conducted in late 2011, yielding 1,364 responses; and a vendor-completed questionnaire about the vendor's BI strategy and operations.

- **Product/Service:*** How competitive and successful are the goods and services offered by the vendor in this market? This includes current product/service capabilities, quality, feature sets and skills, whether offered natively or through OEM agreements/partnerships.
- **Overall Viability:** What is the likelihood of the vendor continuing to invest in products and services for its customers? Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood of the individual business unit to continue to invest in the product, continue to offer the product and advance the state of the art within the organization's portfolio of products.
- **Sales Execution/Pricing:*** Does the vendor provide cost-effective licensing and maintenance options? This covers the technology provider's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support and the overall effectiveness of the sales channel.
- **Market Responsiveness and Track Record:** Can the vendor respond to changes in market direction as customer requirements evolve? This covers the ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the provider's history of responsiveness.
- **Marketing Execution:** Are customers aware of the vendor's offerings in the market? This assesses the clarity, quality, creativity and efficacy of programs designed to deliver the organization's message in order to influence the market, promote the brand and business, increase awareness of the products and establish a positive identification with the product/brand and organization in the minds of buyers. This mind share can be driven by a combination of publicity, promotional, thought leadership, word-of-mouth and sales activities. This criterion was not rated separately this year and therefore was given a "no rating" in the Magic Quadrant model. Instead, our assessment of Market Execution was combined with Market Responsiveness and Track Record into one criterion on this year's Magic Quadrant.

- **Customer Experience:*** How well does the vendor support its customers? How trouble-free is the software?
- **Operations:** What is the ability of the organization to meet its goals and commitments? This criterion was given a "no rating." Assessment of a vendor's ability to meet its goals and commitments is incorporated into the Market Responsiveness and Track Record criterion.

* These criteria are scored either in part or directly from input from the Magic Quadrant customer survey.

Table 1. Ability to Execute Evaluation Criteria	
Evaluation Criteria	**Weighting**
Product/Service	high
Overall Viability (Business Unit, Financial, Strategy, Organization)	high
Sales Execution/Pricing	high
Market Responsiveness and Track Record	standard
Marketing Execution	no rating
Customer Experience	high
Operations	no rating

Source: Gartner (February 2012)

Completeness of Vision
Vendors are rated on their understanding of how market forces can be exploited to create value for customers and opportunity for themselves. Like the Ability to Execute criteria, in addition to Gartner analysts' opinions, the Completeness of Vision scores and commentary in this document are based on three sources: customer perceptions of each vendor's strengths and challenges derived from BI-related inquiries with Gartner; an online survey of vendor customers conducted in late 2011, yielding 1,364 responses; and a vendor-completed questionnaire about the vendor's BI strategy and operations.

- **Market Understanding:*** Does the vendor have the ability to understand buyers' needs, and to translate those needs into products and services?
- **Marketing Strategy:** Does the vendor have a clear set of messages that communicate its value and differentiation in the market?
- **Sales Strategy:** Does the vendor have the right combination of direct and indirect resources to extend its market reach?
- **Offering (Product) Strategy:** Does the vendor's approach to product development and delivery emphasize differentiation and functionality that maps to current and future requirements? The major business analytics market growth drivers described in the Market Overview section of this report were used as a rubric to assess both the Offering (Product) Strategy and Innovation criteria, which are combined into one score this year.
- **Business Model:** How sound and logical is the vendor's underlying business proposition? Note that this criterion has been given a "no rating" because all vendors in the market have a viable business model.
- **Vertical/Industry Strategy:** How well can the vendor meet the needs of various

industries, such as financial services or the retail industry?

- **Innovation:** How well does the vendor direct related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes? How well does the vendor exploit current or new technologies and combine them in a novel way to address a market need? Innovation and Offering (Product) Strategy are combined into one score for the purpose of this year's Magic Quadrant.
- **Geographic Strategy:** How well can the vendor meet the needs of locations outside its native country, either directly or through partners?

* This criterion is scored either in part or directly from input from the Magic Quadrant customer survey.

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	**Weighting**
Market Understanding	high
Marketing Strategy	high
Sales Strategy	high
Offering (Product) Strategy	high
Business Model	no rating
Vertical/Industry Strategy	standard
Innovation	no rating
Geographic Strategy	standard

Source: Gartner (February 2012)

Quadrant Descriptions

Leaders
Leaders are vendors that are reasonably strong in the breadth and depth of their BI platform capabilities and can deliver on enterprisewide implementations that support a broad BI strategy. Leaders articulate a business proposition that resonates with buyers, supported by the viability and operational capability to deliver on a global basis.

Challengers
Challengers offer a good breadth of BI platform functionality and are well positioned to succeed in the market. However, they may be limited to specific use cases, technical environments or application domains. Their vision may be hampered by a lack of coordinated strategy across the various products in their BI platform portfolio, or they may lack the marketing effort, sales channel, geographic presence, industry-specific content, and awareness offered by the vendors in the Leaders quadrant.

Visionaries

Visionaries are vendors that have a strong vision for delivering a BI platform. They are distinguished by the openness and flexibility of their application architectures, and they offer depth of functionality in the areas they address, but they may have gaps relating to broader functionality requirements. A Visionary is a market thought-leader and innovator. However, it may have yet to achieve sufficient scale — or there may be concerns about its ability to grow and provide consistent execution.

Niche Players
Niche Players are those that do well in a specific segment of the BI platform market — such as reporting or dashboarding — or that have limited capability to innovate or outperform other vendors in the market. They may focus on a specific domain or aspect of BI, but are likely to lack depth of functionality elsewhere. Or they may have gaps relating to broader BI platform functionality. Alternatively, Niche Players may have a reasonably broad BI platform, but have limited implementation and support capabilities or relatively limited customer bases, such as in a specific geography or industry. Or they may not yet have achieved the necessary scale to solidify their market positions.

Context

This document presents a global view of Gartner's opinion of the main software vendors that should be considered by organizations seeking to use BI platforms to develop business analytics applications. Buyers should evaluate vendors in all four quadrants and not assume that only those in the Leaders quadrant can deliver successful implementations. Year-to-year comparisons of vendor positions are not always useful given market dynamics (such as emerging competitors, new product road maps, new buying centers, and/or additional market influences) and changing client concerns/inquiries since our last Magic Quadrant. Therefore, we have evaluated vendors based on these new market dynamics and have reflected the changes in our Magic Quadrant criteria evaluation weights for 2012. Any comparison to prior-year survey results reflect differences in specific customer feedback. For further guidance on the Magic Quadrant evaluation process and on how to use a Magic Quadrant, see "Magic Quadrants and MarketScopes: How Gartner Evaluates Vendors Within a Market."

Moreover, while it is tempting for the reader to apply his or her own definitions for the Ability to Execute and Completeness of Vision evaluation criteria in order to judge vendor positions, such assumptions will likely lead to incorrect conclusions. For the purpose of this analysis:

Ability to Execute is a function of a vendor's score of five measures that Gartner believes customers care about most in vendor selection. It does not equate to revenue or market share; it is highly influenced by customer responses to the BI platforms Magic Quadrant survey.

Completeness of Vision is based on the scoring of six key measures, including, but not exclusive to, "Offering (Product) Strategy." Customer survey input does influence the overall vision rating; the Magic Quadrant methodology also includes marketing and geographic strategy in this rubric.

It is important to understand these criteria while judging vendors' positions on the Magic Quadrant. These evaluation criteria are detailed in the Evaluation Criteria section of this document.

Market Overview

Gartner's view is that the market for BI platforms will remain one of the fastest growing software markets, despite sluggish economic growth in some regions. Organizations continue to turn to BI as a vital tool for smarter, more agile and efficient business. According to Gartner's annual survey of CIO technology priorities, BI and analytics has once again been named the top priority for 2012, a position it has held in three of the last five years. That said, however, slow economic growth, increasingly viable low-cost alternatives and consolidation are expected to keep BI platform growth in the single-digit range in 2012 and beyond. The BI platform market's compound annual growth rate (CAGR) through 2015 is expected to be 8.1% (see "Forecast: Enterprise Software Markets, Worldwide, 2010-2015, 4Q11 Update").

In 2011, the BI platform market expansion was influenced by significant increases in demand from a wide array of "users": line workers, business analysts, advanced analytic professionals, business executives, customers/constituents, partners, regulators, and IT professionals. Each user type, along with their associated use cases, brought lots of variety to BI, well beyond the core query, reporting, and analysis capabilities BI platforms have long been known for. Not surprisingly, those demands often conflicted; IT leaders collaborated with business leaders to prioritize efforts based on availability of budget, people, skills, technology and (hopefully) strategic alignment. With purchases rapidly expanding in lines of business, vendors are challenged to serve multiple masters. This expansion is not a temporary aberration, but a sea change for the business analytics marketplace, and by extension for the BI platform market.

Gartner has identified the following six trends that directly impact the direction of the BI platforms market.

1. Differences Between Business Users and IT Drive Product Preferences

The crux of the conflict remains the same as last year: business users demand easy to use, flexible products that put analytic power into their own hands, against IT's desire to maintain standards and create a supportable BI environment with predictable performance and quality data. These different points of view are evident in the results of the Magic Quadrant survey, with business users identifying "ease of use" as their primary buying motivation 52% of the time, and where IT ranks "functionality" as its No. 1 priority. But the differences don't stop there.

Respondents to this year's survey identified themselves by role. The 1,364 organizations were split as follows:

- IT — 38.9%.
- Business user — 20.8%.
- Blended business and IT responsibilities — 40.3%.

As stated above, IT (as well as the blended group) indicated functionality as the primary driver, followed by end-user ease of use and data access/integration capabilities. A majority of business users flagged ease of use, followed by functionality and integration. The responses are different — but not that different. What follows are some observations that

point out unique points of view that contribute to the business vs. IT conundrum. In all cases, the blended business and IT group was somewhere between business and IT attitudes.

- Standards matter to IT, but not so much to business users. Business users are more willing to find products that suit the use case(s) at hand. IT wants to leverage a standard platform as broadly as it can, often viewing potential solutions primarily through the "standards" lens.
- License cost is a big concern for IT, less so for business users. While every purchase is cost-sensitive, business users are more willing to pay for what they want. IT wants to get functionality at the most modest cost.
- Integration within the BI platform is important for IT, but much less so for business users. IT sees immense value in taking the platform approach to business analytics, where common metadata and metrics can be codified and reused. Business users are more flexible in their approach to using different products for different functions.
- Functionality limitations are a sensitive area for IT, less so for business users. IT is often held to task when designing and developing BI applications. When functionality is weak or missing, it puts a wrinkle in deployment plans and makes its job more difficult. Business users recognize these limitations, but can (and often do) resort to work-arounds to get the job done.
- Business users are far more open to SaaS/cloud products, especially when augmenting existing functionality and analyzing data already in the cloud. They are anywhere from 60% to 100% more likely to follow that path. IT is far less likely to entertain SaaS/cloud analytics as a potential option.

2. Data Discovery Momentum Continues to Accelerate

Data discovery alternatives to enterprise BI platforms offer highly interactive and graphical user interfaces built on in-memory architectures to address business users' unmet ease-of-use and rapid deployment needs. What began as a market buying trend in 2010 has only continued to expand. Sales results for vendors in this sector have been stellar and well above the market average. The two branches of BI can be defined as follows:

- Enterprise BI platforms:
    - Key buyers: IT.
    - Main sellers: megavendors, large independents.
    - Approach: top-down, IT-modeled (semantic layers), query existing repositories.
    - User interface: report/KPI dashboard/grid.
    - Use case: monitoring, reporting.
    - Deployment: consultants.
- Data discovery platforms:
    - Key buyers: business.
    - Main sellers: small, fast-growing independents.
    - Approach: bottom-up, business-user-mapped (mashup), move data into dedicated repository.
    - User interface: visualization.

- Use case: analysis.
- Deployment: users.

The chasm between these segments continues to deepen because business users find the benefits of using data discovery tools so compelling that they make this choice despite the risk of creating fragmented silos of data, definitions and tools. This has further accentuated the need for IT organizations to back away from a single-minded pursuit of standardization on one vendor to a more pragmatic portfolio approach. Specifically, IT has been challenged to put in place new enterprise information management architectures, development methodologies, and governance processes that accommodate and bridge the gap between the different buying centers, architectures, deployment approaches and use cases of both segments into an enterprise BI portfolio that can meet both business user and enterprise requirements. Enterprise BI providers have been slow to adapt; in 2011, some of these firms either released or announced new products in this category — most prominently MicroStrategy's Visual Insight, Microsoft's PowerView, and IBM Cognos Insight. Oracle's acquisition of Endeca also signals an intention in this space. While some of these products may not have all the bells and whistles out of the box, they have staked a claim in the data discovery realm. Some buyers with a strong platform purchase orientation will have alternatives in their chosen environment. If you look into the crystal ball, you can possibly see a future where data discovery is not a separate branch, but part of a broader BI platform solution set.

We are often asked if data discovery is a separate and unique market from enterprise BI platforms. While there are many facets to this debate, we hear buyers looking for a combination of analytic capabilities (descriptive, diagnostic, predictive and prescriptive) to meet a broad set of business use cases and requirements. We see buyers having many options across a broad array of product capability — it's not A or B, but A plus B. This leads us to conclude that the different BI styles do not constitute distinct markets today, but are variations on a broader theme...for now. See "Gartner's Business Analytics Framework" for a longer discussion of this topic.

3. The Rise of Mobile Computing Changes the Face of BI

The expansion of mobile computing devices — tablets and smartphones — has revived mobile BI by solving most of the problems that prevented success in the past. Gartner predicts that, by 2013, 33% of BI functionality will be consumed via handheld devices (see "Predicts 2011: New Relationships Will Change BI and Analytics"). That's one reason why we included it as a fourteenth platform capability in this year's BI platform definition.

The survey data bears out this rapid acceleration. More than 20% of survey respondents report that they are already using mobile BI or are piloting it. A whopping 33% plan to deploy mobile BI in 2012. By the end of 2012, a majority of organizations should have some mobility solutions in place, catapulting it to the same usage level as Microsoft integration and above predictive analytics. Use cases on deck are heavily skewed toward executive and management support using mobile devices. But there are signs that mobile BI is making inroads into other user communities — specifically field and knowledge workers — as it becomes a common mode of consumption for many. But it's quickly moving beyond consumption to a primary interaction model as well. Advanced mobile capabilities such as

location awareness, write-back and native gesture support will strongly influence the types of applications developed, and buyers will demand mobile interfaces to core BI functionality sooner rather than later.

There are many mobile BI solutions in the market today. Most are extensions of existing BI platforms, others independent vendors making a name for themselves as mobile BI experts. See "Who's Who in Mobile BI" for a detailed discussion of mobile BI providers.

4. Putting the Focus on Decision Support

BI platforms have long been defined by "how" they operated. With such intense focus on the mechanics of BI, many organizations lost sight of what they set out to accomplish — to make better decisions. Decisions are the life blood of all organizations. Effective decision making at all levels of an organization separates high-performing companies from poor ones. Decision making is such a fundamental activity to the success of any organization, whether it is a for-profit, not-for-profit, or government organization, that improving it is by far the No. 1 driver of BI and analytics investment. Yet, despite significant investments in BI and analytics made in the name of improving decisions, the vast majority of organizations make thousands of decisions each day that, without consistency across decision makers and without insight into how decisions are made or their effectiveness, often have poor outcomes.

Most BI platforms are deployed as systems of performance measurement, not for decision support. This is changing as organizations are recognizing that analytic capabilities are just one (albeit critical) piece of the decision process. We see more use cases where user-designed scenarios/models simulate possible performance outcomes and contributors iterate on the model until there is consensus on the best decision to take. Some are beginning to automate repeatable, operation decisions in analytic applications — intelligent decision automation — and implement collaborative decision-making platforms around analytic capabilities to improve the quality and transparency of tactical and strategic decisions where collaboration between decision makers is critical to the outcome.

Putting the focus on the outcome is making decision support all the more critical. See "Decision Support Capabilities in Gartner's Business Analytics Framework" for more information on this topic.

5. An Avalanche of New Use Cases and Content Types

In the Magic Quadrant survey, respondents indicated business process areas where BI was in use. The "big three" came as no surprise — more than half of all respondents indicated that finance, sales and operations analysis were implemented within their organizations. Other common application areas include marketing, supply chain and customer service. But the interesting responses were categorized as "other": risk management, social media, quality management, and industry initiatives (specifically healthcare and retail).

This points to a facet of BI platforms that Gartner hears about often in inquiry — customers are expanding the use of BI products in new areas, and looking to vendors to support those

moves. These areas often promulgate new requirements above and beyond the more traditional management information analysis most often associated with BI, such as:

- **Real-time data access:** The more operational the use case, the more likely it is that real-time data becomes a necessary facet of the information infrastructure. The need to store and transform such data in a data warehouse becomes less critical, as it may require direct connection to operational applications, or analyzing information in flight and taking action on it. That data may be internally generated or come from external sources.
- **Hybrid content:** The rise of social media analytics has given voice to the need for accessing vast, voluminous, semi-structured data — largely text-based — and analyzing the meaning/sentiment of the data. "Big data," be it technically associated with Hadoop/NoSQL data sources, or just a recognition that there are large untapped information sources out there just waiting to be understood, looms large for both business and IT leaders.
- **Analytic applications:** Predefined analytic applications have been part of the landscape for decades. But we now see an increasing interest from buyers in evaluating whether they can buy as well as build BI-based applications on a common analytic framework in addition to custom applications from specialty vendors. These take the form of horizontal business applications tied to specific sources of data (such as Oracle's BI applications); vertically oriented applications (such as retail merchandizing systems from QuantiSense or Manthan Systems); industry data models that prescribe sources and uses of data for industry, such as healthcare or financial services; or optimization applications to forecast supply based on demand signals (such as supply chain optimization applications from SAS Institute and a variety of supply chain vendors).
- **Geographic-intelligent functions:** When you need to know where to place a new retail outlet, or how to market to a population based on location (anyone in a specific postal code, for example) and demographics, you need to combine lots of market data from external data providers (such as Experian) and use forecasting and predictive analytic models to effectively target the right buyers. It's more than just plotting results on a map; it's getting a fuller view of prospects/customers and using that knowledge to drive business process.

While these are just a few examples, they depict use cases and the variety of data that BI platforms are being asked to accommodate, and represent a far broader perspective than most of today's implemented BI environments. They also portend a new set of skills that need to be fostered within business and IT organizations, as advanced analytics increasingly become the norm rather than the exception.

6. Removing Complexity From the BI Equation

There's one theme that runs through many of the BI platform Magic Quadrant survey responses: complexity. BI and analytic environments are often described as difficult to implement, maintain, develop, and use. Inquiries reinforce this, as clients describe many hoops they must jump through to manage a high-performing BI environment. This complexity factor is one of the main reasons why BI isn't more broadly deployed in more firms. Many innovations in the data discovery segment have had a direct impact on how easy these products are to use. But there are additional layers of analytic sophistication — causal

analysis, predictive modeling and so on — that also need to be simplified so they can be consumed by business users, not just analytic experts. We see the beginnings of this trend emerging and expect it to have a significant impact on this market in the years to come — both for consumers and authors of business analytic content.

Cloud services may also play an important role in removing complexity from the equation. While only 30% of this year's respondents indicated that they were using or planning to use cloud-based offerings for business analytics, the number is growing, albeit slowly. Many who do use cloud analytics augment existing BI capabilities — some with specific business applications purchased from cloud analytic providers, others with PaaS options to move analytic processing to an elastic computing environment where they can scale up or scale down capacity at will. Some choose to store data in the cloud, others keep it on-premises where they feel it is more secure. Moving workloads to other providers can simplify the environment, as buyers contract for a service at an agreed-to level — all for a monthly subscription fee.

Where Is Innovation Coming From in Today's BI Platform Market?

When reviewing the 2012 BI platforms Magic Quadrant, you will notice that there are no "Visionaries" and few "Challengers." Why is that? The enterprise BI platforms market is a mature market, but it is also a constantly expanding one, with innovation coming from many quarters.

Looking back to the last big wave of market consolidation in the latter half of the past decade, large brands acquired best-of-breed products (Oracle acquired Siebel and Hyperion, SAP bought Business Objects, IBM purchased Cognos) and incorporated assets into their existing portfolios. This trend certainly continues. Large vendors continually acquired and subsumed innovative product into their portfolios. In 2011, for example, Oracle acquired Endeca, and IBM purchased Algorithmics to expand capabilities and address more use cases/industry requirements. These aren't small tuck-in acquisitions, but strategic purchases that expand market opportunity.

Smaller specialty vendors also innovate in specific functional areas or industries. They target a set of functions, such as predictive analytics, advanced visualization, geospatial analysis or cloud analytic platforms; they go deep into the healthcare of consumer packaged goods to deliver a spot-on solution to a targeted set of users. Large vendors also have the financial heft and technical breadth to fund research and development activities that innovate and broaden the appeal of their portfolios. They combine hands-on experience with thousands of customers to develop mobile applications, expand in-memory platforms, and develop function-specific engineered systems. This innovation dynamic impacts the "shape" of the Magic Quadrant participants in 2012. We expect it to continue to influence the market for BI platforms for years to come.