

## Technical background of the Be Informed platform

### Modules and technical specifications

Be Informed helps businesses to deal with the increasing complexity of digital and regulatory changes without having to revise the entire IT infrastructure. The approach, based on backward chaining, makes it possible to create context specific processes that comply to the constraints captured in models. Characteristics of the platform include:

- Goal-oriented with backward chaining
- Direct model driven methodology
- One ontology

Please visit our website for more information on these characteristics and an overview of all features: [www.beinformed.com](http://www.beinformed.com).

### 5 modules of the platform

The Be Informed platform uses semantic models capturing business concepts in an accurate, concise, machine executable, yet comprehensible way for business users. At the core of any Be Informed model is a shared vocabulary of business concepts describing the products, services, processes, activities and policies of the organization in business terms. Business concepts are defined only once in the ontology and this unique definition can be reused everywhere. Semantic models then provide structure, allowing organizations to deal with large rule sets. The Be Informed platform enables you to deal with real world complexity, and contains five separate product modules, which implement specific functions.

#### 1. Studio

Functions: edit, capture and express

Be Informed Studio is the tool for business users and domain experts to capture their knowledge, for application modelers to create and configure services and for administrators to deploy business applications. It includes a number of different model editors, using its own metaphor to represent the semantic models. These editors can be used interchangeably; users can choose the editor they prefer for the task they must perform. Be Informed Studio includes the following domain independent editors:

- Graphical, definition, language and tabular editors
- Meta model editor
- Profile editors for deployment and behavior profiles

#### 2. Test

Functions: verify and validate

Testing is an important part of any validation and quality assurance strategy. The Be Informed server by default supports the deployment and running of test suites. The studio contains a basic use for

creating test suites; the test module provides far more advanced functionalities for continuous validation and regression testing. Test results are collected over time, from multiple servers in a cluster if necessary, and aggregated into advanced test reports and drill downs. Test results can be compared over time and between servers. With the test module, users can create complex populations in the studio module, including generated populations using statistical rules.

### 3. Team

Functions: manage and maintain

The team module provides a team environment, consisting of a repository and studio integration, to share and manage the semantic models, content and behavior profiles. This module also provides the functions to define releases for controlled distribution.

### 4. Server

Functions: publish, apply and explain the use

The server is the runtime environment of Be Informed, which delivers complete applications via a web channel, or sets of Business Navigator services for third party systems and external portals. The server can best be described as a container, in which models, profiles and other resources like layouts, templates, test sets and batches are deployed. Examples of some services are:

- Customers can be advised using decision services;
- Employees can be supported in manual decision making;
- Users can browse the model catalog for business knowledge stored in the repository for reference.

### 5. Analyses

Functions: analyze, simulate and learn

The analyses module offers what-if analyses of the policy models. The analyses can, for example, be used to evaluate regulations under changing circumstances or to predict the outcome of new, intended policies. With the module, users can create populations in the studio module, manually or based on existing data, run the services against these populations and analyze the results generated. For large or complex runs, the execution of the analyses can be offloaded to available servers or clusters, and the results can be analyzed again in the workbench.

### Try the platform

Request a demo to explore the Be Informed platform yourself! Visit [www.beinformed.com](http://www.beinformed.com).

## Technical specifications of the platform

Stack, protocols, run-time topology, security, integration of systems, user interfaces

Below you find an overview of the technical specifications of the Be Informed platform. Please don't hesitate to contact us if you have any questions.



### Stack

The runtime environment of the Be Informed platform is a standard Java EE platform.

- Runs on every major application server: Apache Tomcat, RedHat Jboss, Oracle Weblogic and IBM Websphere.
- Supported by all major browsers: Google Chrome, Microsoft Internet Explorer, Microsoft Edge, Mozilla Firefox and Safari.
- Compatible with Intel-based operating systems: Microsoft Windows and Linux (RedHat, SUSE, Ubuntu, CentOS) and various virtualization platforms (VMWare, Azure, AWS).
- Database support includes: Standard JDBC (MySQL, Oracle, Microsoft SQL Server).



### Protocols

Protocols and underlying technologies of the platform include:

- XML/XMI for storage of models and other configurations.
- HTTPS as a primary runtime interface.
- HTML/Javascript/CSS/JSON for user interface.
- SQL/JDBC for data and Lucene/SOLR for search.
- WebDAV/CMIS for integration with document management systems (various DMS' connected).
- HTTP/XML (REST/SOAP) and HTTP/JSON for UI-based interfaces and system-to-system API's.
- Send/receive via email channels (SMTP/ POP/IMAP) and large files via FTP, etc.



### Dimensions of scalability: a business case

Scalability of the platform can be measured in several dimensions: number of rules, number of users, number of cases or the number of transactions. Be Informed handles for example these numbers for the Environmental Office (EO):

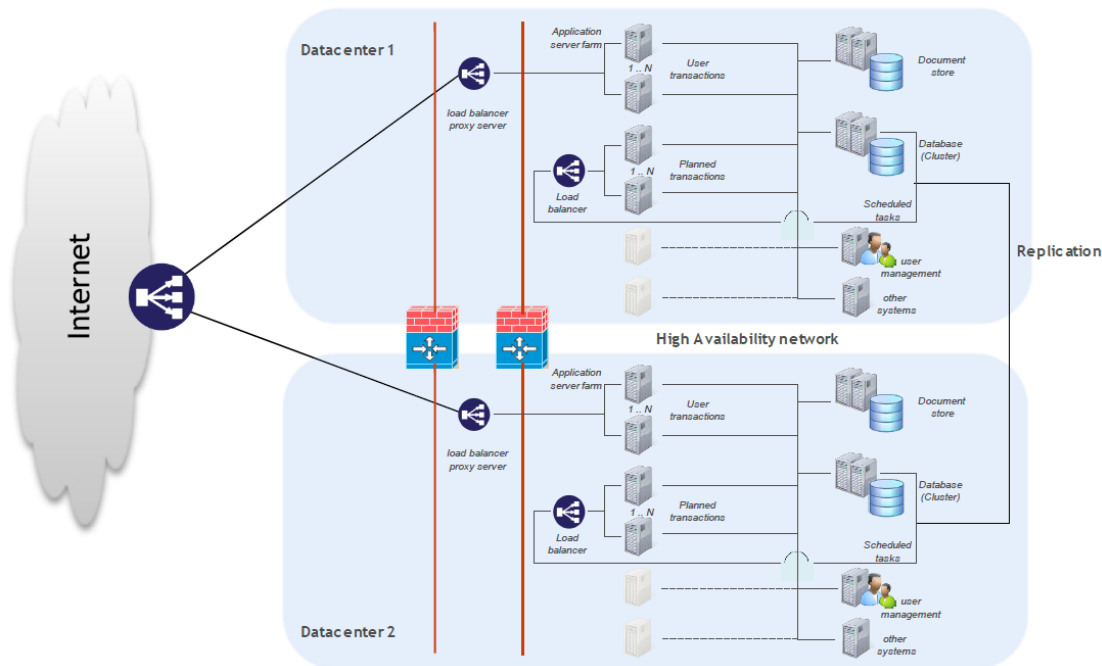
- ✓ 1.709,389 visitors with an average of 30 pages per visit.
- ✓ 300,000 digital applications per year.
- ✓ 500 local and regional governmental agencies and their advisors with 10 accounts per agency.
- ✓ 141,171 page visits (on average) by citizens and business users per day.
- ✓ 2,000 concurrent sessions.
- ✓ Size per case: 200 Mb.
- ✓ Size cases per year: 30 Tb.



### Run-time topology

The Be Informed production environment can be scaled to match the requirements on availability and concurrent use. This almost unlimited scalability can be created, due to:

- Horizontally scalable application servers that keep state in a shared database.
- Load balancers distributing traffic.
- Reliable common JDBC database connections.
- Optional: a twin-datacenter setup in an active-passive or active-active setup.



### Security

As a standard Java EE platform, Be Informed requires no special configuration and can be easily implemented in a secured environment. The security architecture of Be Informed is based on features provided by the infrastructure components used: LDAP based Directory Servers, JAAS, SSO (SAML, Kerberos/SPNEGO) and common application server access controls. To ensure the fine-grained authorization requirements, Be Informed extends these infrastructure capabilities with additional authorization mechanisms that combine role and rule based authorization constraints and protected interfaces with OWASP Enterprise Security API (ESAPI) and OWASP CSRFguard. To make sure there are no vulnerabilities, each product release is tested with IBM Security AppScan. Finally, during project tests the modeled application undergoes an attack and penetration test.



### Integration of systems

Be Informed is an open platform, that can easily exchange data with third parties. Be Informed uses the Apache Camel framework, a versatile open-source integration framework, to exchange, route and transform data using various known enterprise integration protocols. All functionalities provided by the Be Informed Platform can be rendered as a service to third parties. Be Informed is context sensitive and adds meaning to information from existing systems. The result is one model across all channels and services, which provides a consistent customer experience across all touchpoints. Here we share a visual example, applicable for financial companies.

Service and Delivery Channels				
Branch Service Delivery	Call Centre	Mobile Banking	Internet Banking	Automated Teller Machine
Self Service	IVR	Point of Sale	Corporate Desktop	Loan Origination

Be Informed Customer Centric Financial Services Platform			
Robo Advisor	Continuous Duty of Care	Process Factory	Business knowledge / Business Rules Client/Product/Regulation/Tax/Compliance/Advice

Master Data Management Customer Information File	Core Product Processing Systems						Payment Delivery Bulk Transactions Electronic Fund Transfer SWIFT, RTGS
	Loan	Deposit	Trade Finance	Remittance & Payment	Debit Card	Credit Card	
Supporting Systems KYC / AML Fraud Pricing Engine	Enterprise Data Warehouse						Information Delivery 3 <sup>rd</sup> Party Data Feed
	Reporting & Analytics Regulatory reporting Business Analytics Performance management		Risk Management Market risk Credit Risk Operational risk Legal Risk		Financials General Ledger Treasury		

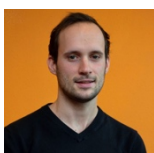


### User interfaces

Be Informed provides a standard, rich user interface that is completely driven by the business model. This single-page user interface is delivered through a modular Javascript client (using Javascript, React and (S)CSS) that consumes the dynamic REST/JSON UI-oriented business services of the Be Informed server. The user interface can be customized to adapt the look and feel requirements of the project.

### Contact Be Informed

Our developers are born with the talent to transform complex processes into digital solutions. Context driven outcomes, automated decision making, rule management, and integration of information is their second nature. That's why we proudly call them our engineers. And they are ready to help if you have any questions!



You can reach us during working hours (CET) at +31 (0) 55 368 1420 or send us an e-mail at [contact@beinformed.com](mailto:contact@beinformed.com). Would you like to be called back? Please leave a message on our website.