

columba **exprimer**

In Government & Industry

Interpretation of data into information and the transformation of information into knowledge are essential to Government and Industry. Critical examples include the Security, eGovernment, Airline, Health, Telecommunications and Finance industries. **exprimer** acts as a gateway to multiple information sources and corporate databases, allows the easy integration of diverse and legacy systems, the rapid development of new applications and enables users to fully exploit the available information in an intuitive and user-friendly manner.

problem ∨

All Data, No Knowledge?

Typically, data held in organisations is spread across multiple, heterogeneous databases. This gives rise to two major problems.

- 1 Firstly, the **diversity** of data stored makes it extremely difficult to **rapidly** and **accurately** search for and aggregate information. Often organisations – out of necessity – require dedicated teams of analysts to acquire the required information. This activity notoriously creates bottlenecks in corporate processes and inhibits timely access – immediacy – to corporate information.
- 2 Secondly, organisations regularly face huge difficulties when integrating **multiple** databases with eBusiness systems that bring data to the internet or share information with other organisations. Ideally, eBusiness applications should retrieve and update data from **diverse** databases **without** exposing any data models.

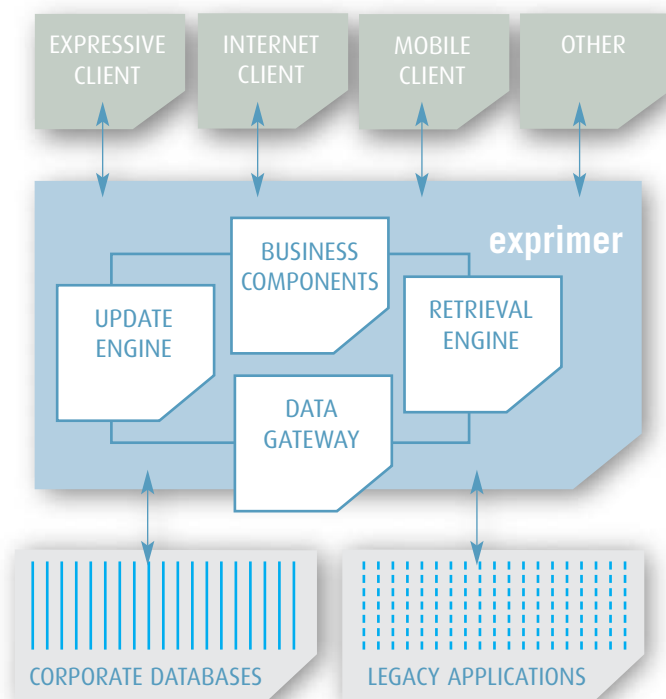
solution ∨

Create Intelligence, Simply

exprimer acts as a powerful, flexible and user-friendly gateway to multiple information sources and diverse systems. It is a state-of-the-art, open-standards based and **database-independent** retrieval and update system. **exprimer** enables organisations to quickly and accurately find and update information stored in multiple applications and databases.

exprimer allows the **rapid development** of feature-rich, browser or java-based applications. Legacy corporate systems can be integrated with modern open-source systems and databases as required. **exprimer's** intuitive and easy-to-use GUI, based on expressive principles, ensures that users can efficiently and easily interrogate and transform all available data.

- > State-of-the-art complex retrieval and update capabilities acting on diverse databases and legacy applications
- > Instantaneous ad-hoc reporting and multi-source data aggregation, independent of the database and data model
- > Separates retrieval and persistence of data from **both** the data model and the underlying database technology
- > Built on a J2EE platform – handles services such as load balancing, distribution, transaction support and threading
- > Complete open-standards support including ISO 23950, J2EE, XML, XSL, SOAP, UDDI, and WSDL
- > Significant reduction in development times for data-intensive applications through abstraction of the database and the use of EJBs for component development
- > Highly secure – no database information is transmitted (unlike SQL), transmissions are encrypted and User Profiles control access
- > Queries can be executed periodically and stored for later execution
- > User-friendly GUIs, extensive document management and workflow capabilities along with seamless integration with standard desktop applications allow easy deployment in the office environment



exprimer

features

exprimer has key features for successful deployments within and across organisations

- > Based on Expressive Principles and Noun-Verb standards, **User-Friendly GUIs** ensure minimal user training requirements through features such as drag & drop querying, mouse-over and context-sensitive menus.
- > **Sophisticated User Profiles** ensure that end users can view only those parts of the application that they are allowed to, whether these are simply menu items or full sections of the application.
- > **exprimer's** adaptive architecture allows for a full feature-rich application to be delivered through a browser for **rapid deployment**. **exprimer** also contains full support for remote access across devices and deployments across multiple sites and organisations as required.
- > Seamless integration with standard office desktop applications along with extensive **document management** and messaging capabilities ensure that office documents can be managed, controlled and stored within **exprimer** rather than locally by the user.
- > **Workflow** rules, tasks, reminders and alerts can be deployed and enforced through **exprimer**, ensuring that an organisation's procedures are consistently applied, information is centrally held and activity is fully auditable.
- > **exprimer** is a **robust, highly scalable** and **secure** solution designed for handling large amounts of data in real time on a 24/7 basis with minimal maintenance or support requirements.



Retrieval and Update

The **exprimer** Retrieval and Update Engines are state-of-the-art components that enable users to search and persist data spread across multiple heterogeneous corporate databases. Both use the ISO 23950 protocol (see panel) to interact with

the databases and present a **unified** interface to the data.

exprimer Retrieval and Update Engines can be configured to support many indexes enabling users to express their search requirements in a very comprehensive and exact syntax. This technique removes the ambiguity normally associated with keyword searching.

Independence Through Abstraction

One of the key features of the **exprimer** Architecture is the use of abstraction to keep the three layers independent of each other:

The Data Layer

The details of the databases (location and particular database technology) and their schemas are captured in XML form in a Mapping Entity and are not exposed to developers or to the client application.

The Business Layer

The addition of databases or changes to database properties are not

reflected in the Business Layer - only in the Mapping Entity. The Business Layer presents a uniform ISO 23950 interface to the different client technologies. These interact with the Business Layer using XML-based ISO-standard queries.

The Presentation Layer

The architecture supports multiple client technologies including Java, HTML and WML. Each client technology is independent of the middle layer and auto-configures using an XML Profile, which is independent of the client technologies. The Profile also determines the security permissions for the user and how search results are to be presented.

Reduced Development Time

Making each layer independent also contributes the added benefit of reducing the time needed in developing new applications accessing corporate data - *by up to 70-80%* - for the following reasons:

- > Developers do not have to worry about how to search or retrieve data from heterogeneous databases. The **exprimer** Retrieval Engine exposes the information in the databases as EJB application components and performs all search and retrieval functions using the ISO 23950 protocol.
- > Developers do not need to directly store objects or update information in the database. The

exprimer Update Engine performs the update and presents a standardised component interface to the developer.

- > Developers are not responsible for making the system scalable or providing system services such as load balancing, distribution, transaction support, or threading. These services are handled by the J2EE Application Server.
- > Developers do not have to worry about re-programming the client every time new services or applications are introduced to the architecture. The client auto-configures based on an XML document. This XML document is edited with a wizard whenever a new service needs to be introduced.

Why ISO 23950 for Advanced Searching?

The great strength of ISO 23950 is that it provides a messaging system and query language for information discovery and retrieval that is **independent** of both the user interface application on the client and of the database technology on the server. ISO 23950 is a **very stable** standard with a large number of mature implementations globally, including some of the worlds' largest bibliographic search systems.

In ISO 23950 systems, in contrast to traditional database search applications, the client application is **not** coupled with the underlying database. The ISO 23950 server component sits between a client application that uses data and the database server that owns and controls the data. It abstracts the data models of the underlying databases and presents a unified interface to the rest of the system.

Changes to the data model or underlying database technology are reflected only in the ISO 23950 server component and not in the application code. There is currently no technology that approaches ISO 23950 in this independence - from both the client and the back-end server perspectives. This allows systems to be built that support either the most general and unfocused types of keyword searching **or** highly specialised application specific interrogation of structured and tightly controlled databases - in a language easily understood by the user.

ISO 23950 gives users control over when and where their queries are executed, who receives the results and in which format.

Queries can extend beyond the lifetime of the original client/server connection. They can be executed periodically, or when a change is made to the database.

The results of a search can be sent to multiple different recipients in multiple formats via multiple different media.

exprimer is ideally constructed for a wide and diverse range of organisations. High profile examples include Security, eGovernment, Airline, Health, Telecommunications and Finance industries. The examples shown below illustrate various applications of **exprimer**:



exprimer's highly graphical interface allows easy but comprehensive navigation and drill-down techniques to maximize the use of available intelligence across the full history of an organisation, investigation or incident and expose links that might otherwise remain hidden. Allied to these capabilities are facilities to manage key elements such as scenes, exhibits, tasks, persons, correspondence, intelligence, documents, chronology, cases and auditing. Real-time streaming of multiple data sources from different **intelligence agencies** can be securely integrated through Exprimer's federation capabilities, features ideally suited for eBorders and asset-tracking applications.



exprimer provides unified views or gateways to multiple sources of data, originating from various different departments or agencies. **exprimer** Profiles are used to ensure secure access to the data with users only able to view those parts of the application they are allowed to. **exprimer** currently links the diverse functionality of multiple **government departments** such as Social Welfare, Taxation and Justice in one unified, easily customisable browser-based application.



exprimer supports the concept of a One-Stop-Shop for data navigation. One-Stop-Shops in **exprimer** are windows that hold connected sets of searches that a user has performed. This is ideally suited to **CRM** applications and call centres, as it lets users navigate through extensive customer data from diverse sources. Users can store the navigation history for later use such as the follow-up of customer enquiries or segmentation analysis. The intuitive interface also allows for the interrogation of legacy applications as required, with minimal user training, ideal for call centre and high staffing environments.



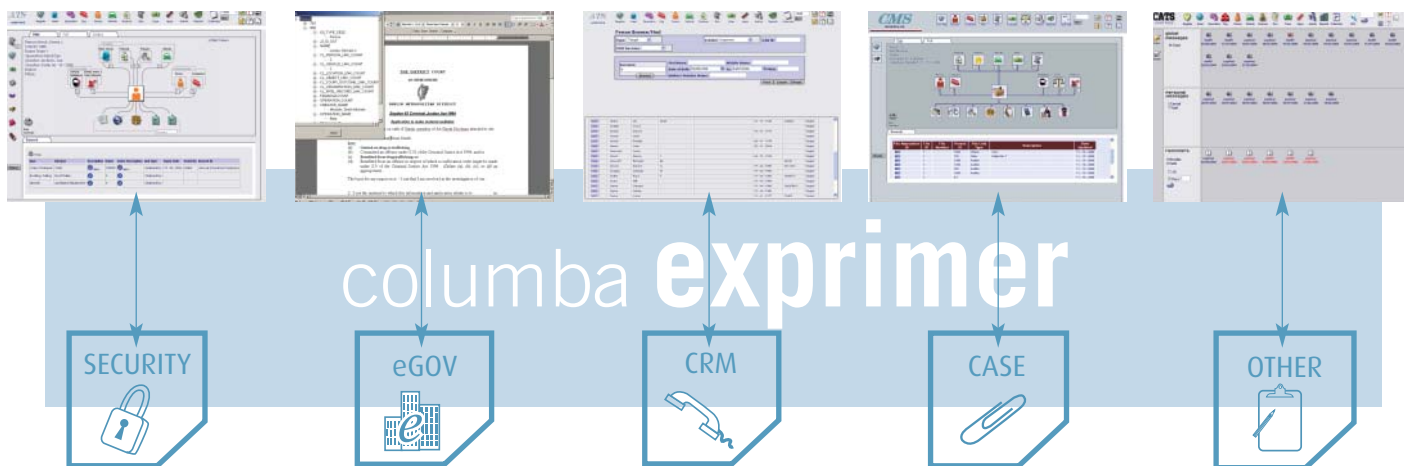
exprimer offers extensive **case management** capabilities. Person, Organisation and Case centric views allow immediate representation of all related entities and data. **exprimer**'s extensive document management, workflow, publishing and messaging tools ensure that cases are managed from end-to-end in accordance with standard operating procedures and legislation as required. Seamless integration with standard office desktop applications ensures that all documents are captured and organised within **exprimer**.



exprimer's technology facilitates the linkage to **airline** information. Through data being transferred in real-time from an airline's host TPF system into an RDBMS, immediate, flexible and up-to-date reporting can be made available. This provides clear benefits from marketing and business perspectives whilst it also has significant benefits for airline security applications, allowing itineraries to be tracked from booking to embarkation. Historical analysis is also available, allowing current and future decision-making to benefit from trend and pattern analysis.

exprimer solves key data-access, semantics and interoperability problems for a range of diverse industries. Due to **exprimer's** unique adaptive architecture, only small customisations (comprising up to approximately 10%) of the **exprimer** code base are required for each different project or application. The majority of these customisations are localised in the Mapping Entity (incorporating the database schemas and their mapping to user objects) and Style-sheets (specifying the look and feel or 'skin' of the graphical user interface).

Because the same **exprimer** architecture works across diverse data, it is a highly appropriate technology for large government agencies or multi-national organisations requiring the capability to coherently oversee and interrogate the multiple individual divisions or agencies of which they are composed.



key benefits of exprimer ∨

- > Consolidation of data from multiple, diverse sources
- > Single architecture for multiple applications
- > Rapid turnaround times for developing new applications
- > Sophisticated search and drill down capabilities
- > No exposure of the data model to applications or end-users
- > Context-sensitive mouse-over and right-click menu actions on results-set data items
- > Wide platform and database support
- > Performance and scalability
- > Multiple channels – ready-to-go client software for web and Java
- > Retrieval and update capabilities exposed as Web Services
- > Based completely on open standards
- > Strong security: encryption, authentication, authorisation, profiling, and non-transmission of SQL over the network
- > Sophisticated CRM and Content Management Capability

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