

# Increase the Business Value of your Reporting

**Integrate IBM Cognos Business Intelligence Reporting  
with xPatterns™**



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## Executive Summary

The business value of reporting is simple – it communicates and helps you understand your company's performance. It leads you to take action on recent information. It creates a common context for decision-making across every aspect of your business at hand.

xPatterns and IBM Cognos have partnered to deliver customers a single integrated web-based, solution for all components of the reporting lifecycle: collaborative reporting; enterprise-wide report types; reports that can be authored once and consumed anywhere; and a solution that is adaptable to any data source.

The xPatterns platform enables enterprises to act upon the dynamic nature and richness of unstructured data in a way that makes it actionable while reducing solution time-to-market and reducing overall solution maintenance. xPatterns extracts semantic understanding of structured and unstructured data that is then applied against a consumers individual attributes stored in the xPatterns persona manager. This component of xPatterns can be integrated into Cognos BI for real-time access. Enterprises can empower their consumers to create and share their unique persona with them and third-party business partners; in order to receive the most relevant content and offers, instead of being improperly targeted by historic behaviors and static profiles.

Cognos Business Intelligence provides a platform to report on xPatterns persona data and content activity. Key Performance Indicators (KPI's) such as:

- Customers to content interaction activity
- Click-through rate
- Preference/profile attributes counts and completeness
- Aggregated reporting on common terms/clusters of terms
- Terms most commonly generating click- troughs on content
- Most popular content
- Most strongly associated content across partners
- Clicks that convert to relevant views or sales

IBM Cognos Business Intelligence provides a complete reporting solution for the xPatterns platform and the analysis of semantic understanding of structured and unstructured data that the xPatterns persona manager stores.



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## Introduction

Advances in both personal and commercial technology have created a disconnected web of data about people, companies and places with a variety of levels of security and privacy. xPatterns solves this complex challenge with a new breed of "intelligent" technology that connects disparate data in unique ways to create individualized interactions and experiences of unprecedented relevance while keeping the intelligence private.

IBM Cognos has a strong set of solutions for real-time customer insights that provides compelling and enriched ability to create actionable BI analytics and reporting. The xPatterns platform enables enterprises to act upon the dynamic nature and richness of unstructured data in a way that makes it actionable while reducing solution time-to-market and reducing overall solution maintenance. xPatterns extracts semantic understanding of structured and unstructured data that is then applied against a consumer's individual attributes stored in the xPatterns persona manager. This component of xPatterns can be integrated into Cognos BI for real-time access. Enterprises can empower their consumers to create and share their unique persona with them and third-party business partners; in order to receive the most relevant content and offers, instead of being improperly targeted by historic behaviors and static profiles.



**xPatterns** delivers on the promise of deriving actionable intelligence from an enterprise's disparate sources of structured and unstructured data.

Built on a loosely-coupled architectural approach that facilitates

straightforward communication and integration, xPatterns is able to represent data in unique ways, with emphasis on semantic understanding. In particular, xPatterns allows the creation of a dynamically learning semantic model of related themes and concepts to be discovered in large bodies of text data. This model can be used to expand on concepts of interest given a query, or used to establish the relevance of items of content to a particular query or profile attribute.

## xPatterns and Semantic Understanding

xPatterns provides a framework for modeling relevance through the mining of unstructured data, and uses Neural Network technology to dynamically learn and refine its relevance.

With xPatterns, we take a discovery approach to extracting relevant themes and concepts by mining a corpus of text content in a category of interest (a "domain expert corpus"). The content in the domain expert corpus is extracted from the internet and/or other sources in order to accumulate a majority of content and context in a category. The domain expert corpus remains updated and accessible to provide the most relevant level of context to the content. This allows us to develop a reproducible process for building domain expert relevance indices in a given domain and keeping them up to date with minimal manual intervention.

Content indexed by xPatterns includes various forms of text: documents, articles, meta data from images, calendar items, event descriptions, products, etc., treated as different instantiations of a "content corpus." In general, a given content corpus has a specific domain of



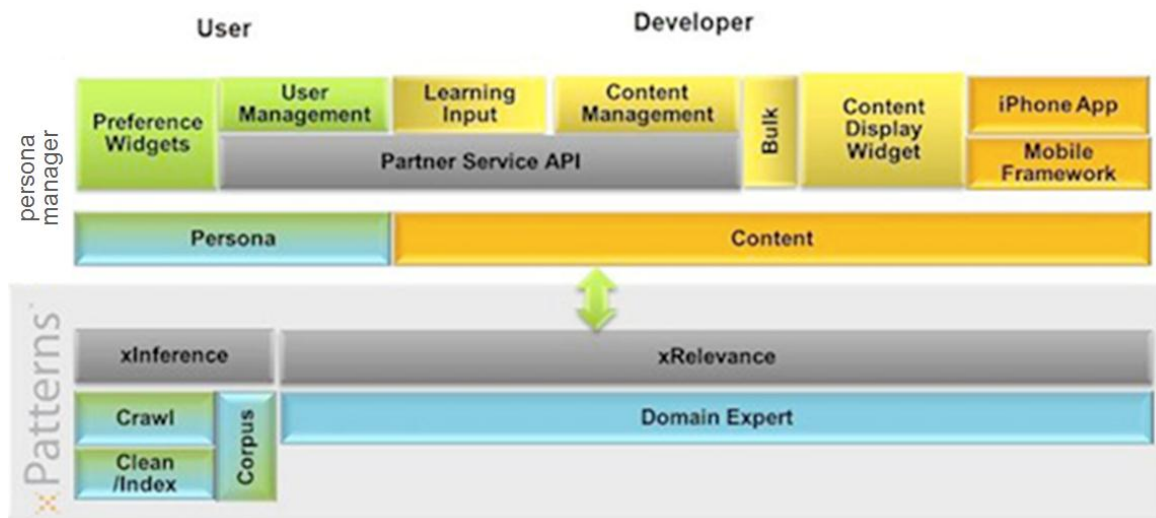
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expertise in which it falls, specifying essentially the domain expert corpus that xPatterns should use to help determine relevant items in the content corpus to the query or profile provided. Content corpuses can be created and managed via standard web services protocols. A content corpus might be rich descriptions of Twitter feeds and Facebook information, with offer relevance from an organization being determined as a combination of individual relevance for a given user, or collectively across a social group.

A major component of the xPatterns platform is the ability to manage individual user personas. Enterprises are now able to deliver personalized experiences to end-users based on each individual's preferences, user history, and current context. Consumer controlled personas that are portable across devices add a new dimension of privacy, insight to explicit preferences, and meaning to the display of relevant content.

## xPatterns Architecture



**Diagram 1: xPatterns Architecture**

As noted in Diagram 1, xPatterns persona manager acts as a profile broker Web service. It is the repository for user profiles, focused around free-form expression of preferences. xPatterns persona manager applies the user profile to a corpus of indexed content from an organization on behalf of the user and reports the relevance of that content to a given user.

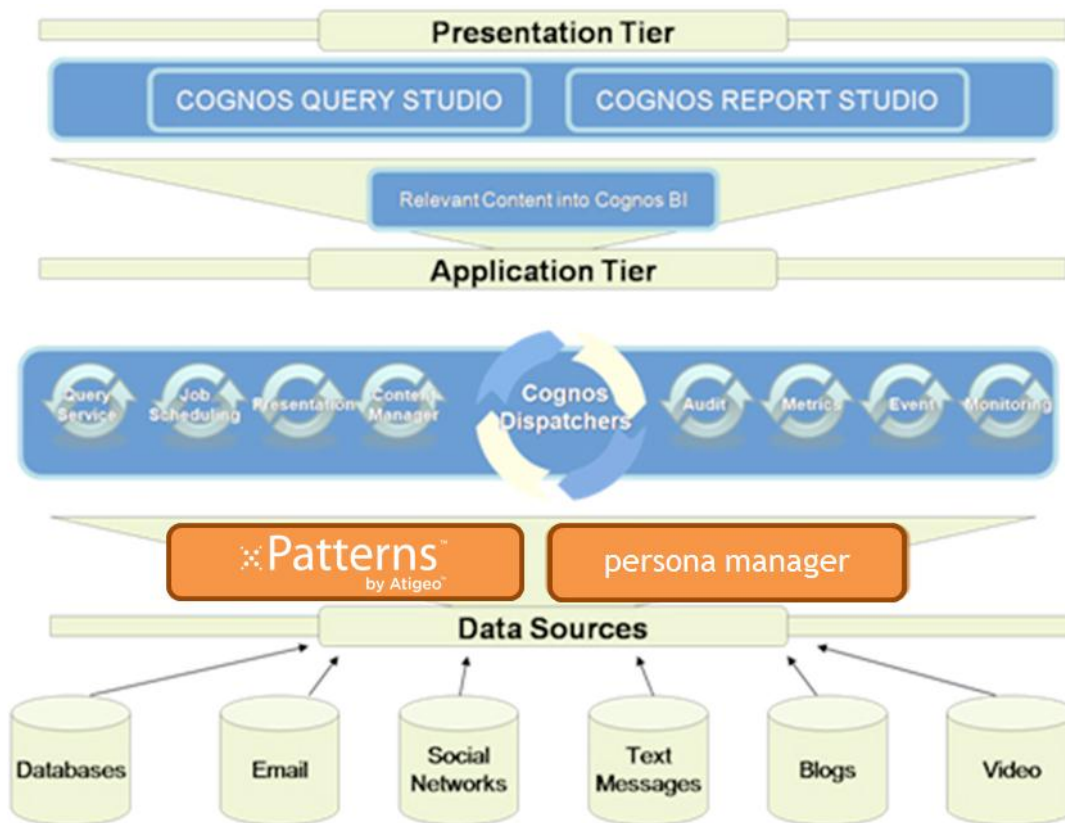


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## IBM Cognos BI and xPatterns Integration

xPatterns persona manager is presented to the user as a preference manager that tracks and manages their likes and dislikes, choices, data, and social networking content and interactions. As the user interacts with xPatterns, it learns more about their personality and interests, resulting in smart insightful recommendations about products, special offers, events, entertainment, and other relevant items. Both the implicit and explicit preferences are recorded as part of the user's xPatterns profile. Interactions, content, and feeds from social networking sites can be analyzed and indexed real-time to gain relationships and semantic understanding of text relative to a the user and social graph. Implied preference profile attributes can be derived - including through findings derived from Cognos BI and xPatterns. IBM Cognos has dispatchers that can involve many services depending on how the administrators want to set these settings. The content is based on the transactions within the xPatterns persona manager that is then pushed in the presentation layer and can be selected and displayed within the Cognos Query Studio or Cognos Report Studio.



**Diagram 2: xPatterns Integration with Cognos BI**



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## xPatterns and Cognos Query and Report Studio

Cognos BI uses xPatterns persona manager to report on the rich profile data to discover content interaction activity— click-through rates, preference/profile attributes counts and completeness, aggregated reporting on common terms/clusters of terms, terms most commonly generating click-throughs on content, most popular content, most strongly associated content across partners are all examples on how Cognos enables analysis of xPatterns content.

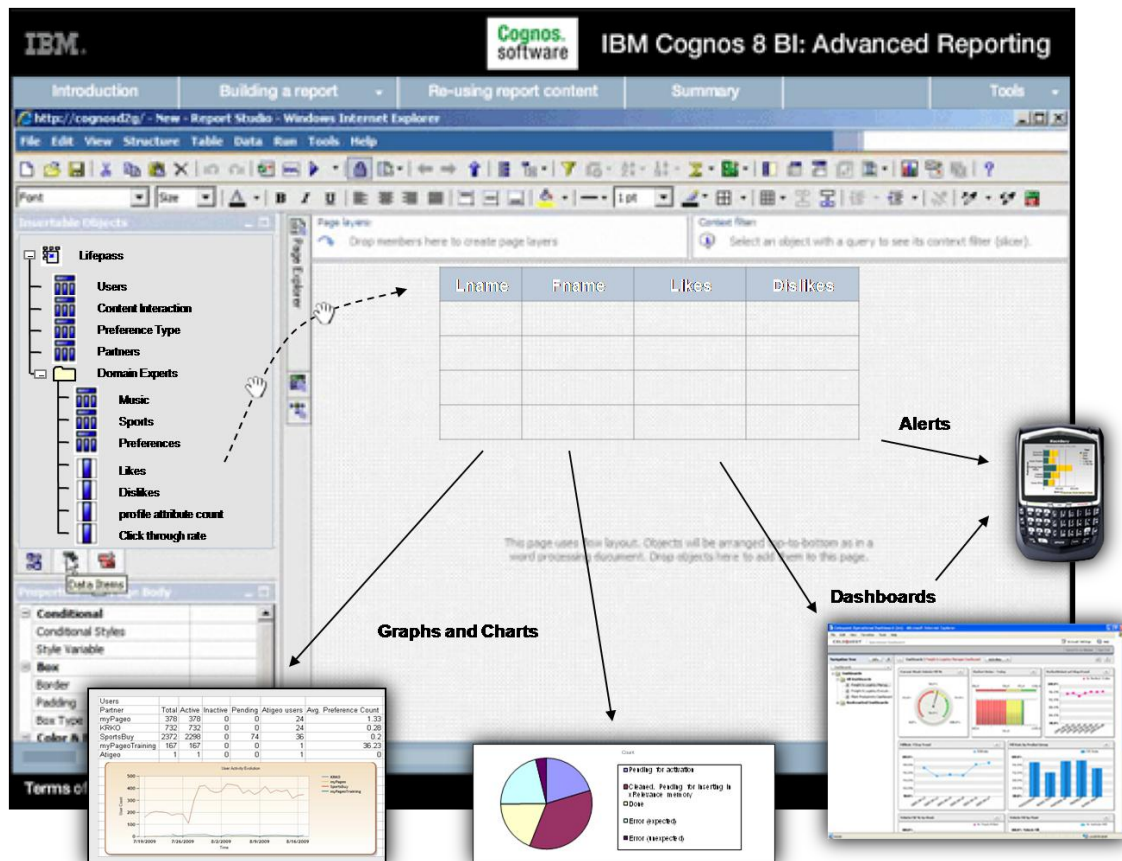


Diagram 3: xPatterns Reporting Metrics Displayed Using Cognos 8 BI: Advanced Reporting

Cognos Delivers:

- Reporting - Write and deliver any type of report, adaptable to any data source, quickly and easily.
- Analysis - Analyze and report against online analytical processing (OLAP) and dimensionally aware relational sources.



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- Scorecards - Build scorecards to align teams and tactics with strategy.
- Dashboards - Communicate complex information quickly with a range of easy-to-build dashboards.
- Extend BI - Increase BI's reach and user adoption rates through search, mobile access, and more.

#### xPatterns Delivers:

- Ability for Cognos BI to report against the xPatterns database in terms of users, preferences, content access, content indexed, click-through rates, etc.
- Optional industry-leading consumer managed privacy model – a Private Personalized Profile. This provides rich consumer managed profiles, which exceed the highest standards for legislative regulatory environments (i.e. Germany).
- Availability via productized web services and stand-alone appliances allows the xPatterns platform to integrate easily with enterprise and IBM Research and deployed solutions.
- xPatterns persona manager creates actionable profiles enriched by interactions through learning that enable new insights and revenue opportunities.
- xPatterns covers users of multiple industries in Fortune 500 accounts creating an exponential relevance multiplier allowing for unprecedented user to content association.
- Multi-dimensional intelligent data experience platform containing well-documented APIs exposing unique relevance learning, graphing and inference technologies providing connections with IBM LanguageWare, InfoSphere Streams, etc.

## CONCLUSION

Organizations are accumulating massive amounts of data - originating and residing in a wide array of sources. Managed effectively, this data becomes information that enables people at all levels of an organization to gain a clear understanding of how they are performing, why, and what they need to perform better. The result can be an organization where processes and people are aligned; driving higher performance and building a competitive advantage.

Social media is a new channel that demands attention from your organization because your customers are talking – to each other. The customer experience increasingly includes interaction over “hot” new social sites. Organizations must understand how to participate in these



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conversations, while frontline agents need guidelines for how and when to respond to gain a competitive advantage.

Customers are talking about their experiences and opinions of your organization - to other customers and prospects. Social media sites have drawn a critical mass of consumers. Their comments about your products and services are easily shared and visible to more and more people which can carry a lot of influence. In short, the social web empowers everyone to be an author. Social media has emerged as a prominent platform in the Web 2.0 revolution and has a direct impact on how companies engage with their customers.

With the partnership of IBM Cognos and xPatterns, we have enabled a BI offering that incorporates the xPatterns profile relevance to any source of structure or unstructured data. The xPatterns platform extracts semantic understanding of structured and unstructured data that can integrate into Cognos by exposing the metadata in the Cognos content store. xPatterns empowers consumers to create and share their profile with a business; in order to receive the most relevant content and offers, instead of being improperly targeted by historic behaviors and static profiles.

Simply put, xPatterns enables IBM Cognos to analyze any disparate source of structured and unstructured data. xPatterns provides the content and IBM Cognos BI supplies the delivery platform to report against the xPatterns persona manager database.



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