

WHITE PAPER

CREATING A CULTURE OF CURIOSITY WITH
ENTEPRISE MASHUPS IN INSURANCE

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Overview



In the late 1990's, the (then) Chief Executive of Norwich Union stated his ultimate ambition was to create a 'culture of curiosity' in his enterprise. At the time, his comments were at odds with management thinking in a conservative, highly regimented industry. But today's insurance industry is in a very different place. The insurance industry is experiencing nearly perpetual change and the competitiveness of players is determined by their ability to harness corporate insights, get closer to customers and deliver value differentiating services.

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Consolidation and near-constant business change has resulted in complex data environment plagued by operating silos and moving stakeholder goalposts. 'Build communities' is the new battle cry of Insurance sector business leaders attempting to draw collaborative nets around staff, agents and growing numbers of online customers.

In the past decade *IT growth innovation* in the sector has been squeezed by other budgetary priorities to consolidate systems, sustain business continuity and achieve compliance. But today innovation is re-emerging in the form of **enterprise mashups** and, for the first time in a long time, the subject of *growth innovation in IT* is back in the insurance sector, being considered as a competitive differentiator in the board-room.

Silos - the business problem that spawned mashups

For decades, management thinking has been driven by a vision of operational excellence...

For decades, management thinking has been driven by a vision of operational excellence focused towards the mechanization of processes. Departmental managers have driven through innovations in their operational disciplines and IT systems have formed around them, but around these silos Chinese walls have been built that hinder cooperation, information sharing and corporate-wide thinking.

The way an organization builds silos goes like this:

- As the result of success, the organization grows.
- More people and internal processes demand more structure and formality in management practices.
- So silos evolve around core disciplines - sales, marketing, finance etc.
- To reward managers for keeping the machine *well oiled*, remuneration of managers becomes aligned to the performance of operational silo they're responsible for. Attention moves away from organizational outcomes towards the performance of the silo.
- Managers know that, unless the organization fails, underperformance in achieving corporate outcomes is unlikely to affect them.

Following the law of unintended consequences, leaders inadvertently encourage departments to form 'silos'.

Dr. Eli Goldratt's *Theory of Constraints* is well known to organizational consultants. It states that the core constraint of virtually every organization is that organizations are structured, measured and managed in parts, rather than as a whole. This behavior results in lower-than-expected performance with constraints; constantly shifting from one place to another and chronic conflicts between people representing different parts of the organization.

Silos cause information assets to become hidden...

The 'chicken and egg' consequence of operational silo cultures is that corporate information assets become hidden within the fragmented systems of operating silos making content difficult – if not impossible – to harvest.

A survey of 163 companies that had implemented enterprise resource planning systems conducted by Accenture in the early 2000's found that the mean number of instances (separate and distinct implementations of the same software across regions or business units) was eight, with 32% having implemented from six to more than 20 distinct instances.

For workers engaged in day-to-day activities that rely only on data from within their silo of operation, this phenomenon isn't a problem, but for those whose roles charge them with solving problems, growing the business, sourcing new products and harvesting insights to deepen relationships with customers and partners, such fragmentation creates sub-optimal processes and performance.

Curiosity and the corporals

Insurance organizations that have spent the last 30 years championing the business management belief that *'operational excellence equals effective process mechanization'* have seen their middle-managers (the *'corporals'* of the enterprise) squeezed out. These *curious thinkers* who at one time would have questioned the effectiveness of processes and might even have served unusual customer enquiries and requests by applying on-the-spot analysis and decision making have been discarded; replaced by telephone call scripts and document workflows.

'Concepts of single and double-loop learning'. Excerpt from the book 'Agilization' by Ian Tomlin

There are two main outcomes of using knowledge:

- 1. *Doing things better* - finding ways to improve the way things work now.**
- 2. *Doing better things* - finding different approaches that help to achieve an outcome, even though the process might be totally different to how things are done today.**

"Suppose an organization manufactures a product X. When the employees of that organization detect and attempt to correct error in order to manufacture the product X, that is single-loop learning; but when they begin to confront the question whether product X should be manufactured, that is double-loop learning, because they are now questioning underlying organization policies and objectives." Argyris, C. (1977). Double-loop learning in organizations. Harvard Business Review, 55(5), 115-125.

Whilst single-loop learning makes improvements possible, double-loop learning provides the opportunity for step-change.

... demands for leadership skills 'at all levels of the enterprise' are at their peak.

In a world where competitive differentiation is determined by customer service quality and the willingness of organizations to serve up new products and services to smaller communities of discerning buyers, demands for leadership skills *'at all levels of the enterprise'* are at their peak. Business leaders are now recognizing that corporals are not only *useful* in honing procedures, but *essential* because they are prepared to question why business processes exist as they do in the first place.

...strategies to return agility to the enterprise are asking new questions of the efficacy of IT systems to support middle-managers.

But strategies to return agility to the enterprise in the form of curious middle-managers are being hampered by a shrinking talent pool. Such strategies also ask new questions of the efficacy of IT systems needed to support this important minority.

Middle managers spend more than a quarter of their time searching for information necessary to their jobs, and when they do find it, it is often wrong. Source: Accenture Information Management Systems sponsored survey, January 2007.

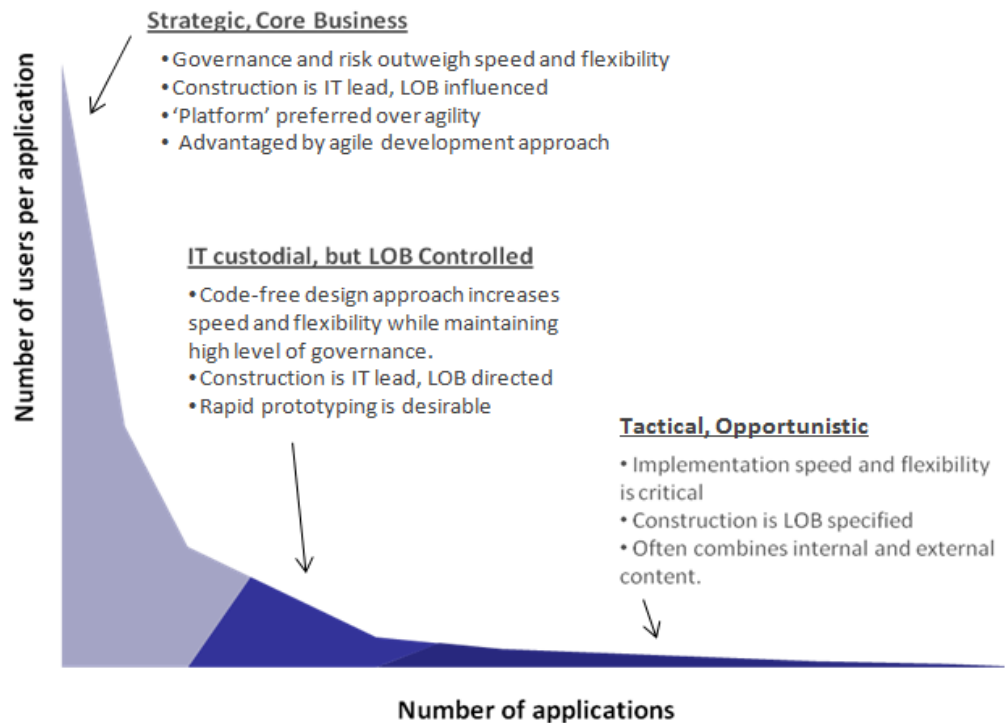
The long-tail of applications demand

It is this important minority of 'corporals in the enterprise' who today are seen to carry the torch of innovation now demanded by organizations

The long-tail of demand for applications requires a different approach to harvesting data and creating applications to use it better.

It is this important minority of 'corporals in the enterprise' who today are seen to carry the torch of innovation now demanded by organizations to achieve competitive advantage. In stark contrast with the majority of information workers operating in silos and happily being served by a small number of applications, this community of 'get things done' people feels underwhelmed by the ability of IT systems to meet their constantly changing demands for new applications. Their seemingly endless line of requests for software applications to serve the new business situations they encounter is today being described as the 'long-tail of demand for software applications'. It necessitates a different approach to first harvesting data and secondly, creating applications to use it better – often in ways that were never envisaged when it was first collected.

The long-tail of applications; a driver for 'situational applications'



The pace of change in the Insurance sector particularly is placing greater pressures on key workers across the enterprise to improve the quality of customer service and find creative new solutions to emerging business challenges. With so much content now available via the Internet, information workers (understandably) expect to be able to harvest data that's held by their own enterprise they need to

meet their role objectives. Yet resource constrained IT leaders find burgeoning requirements for compliance, security, system upgrades, platform support, customer support and administration are consuming their budget well before the opportunity for innovation and new ways to bring customer value are considered. This conflict has driven innovation to source better ways of delivering the volume and variety of new 'situational applications' that information workers are demanding.

Situational applications

Enterprise mashups are a relatively new concept in corporate computing. They've been around since the turn of the century but the application of the technology differs so greatly from conventional models of computing that it took the IT industry almost a decade to know what to call them. It was an IBM paper titled "Changing the corporate IT development model: Tapping the power of grassroots computing" co-authored by Luba Cherbakov, Andy Bravery, Brian D. Goodman, Aroop Pandya and John Baggett published in the IBM SYSTEMS JOURNAL, VOL 46, NO 4 in 2007 that first introduced the concept of situational applications.

IBM's Situational Application
- The first attempt to
describe an Enterprise
Mashup.

Their definition suggesting a new breed of applications that:

- Is commonly developed by non professional programmers in an iterative and collaborative way.
- That shortens the traditional development process of edit, compile, test, and run.
- Are seldom developed from scratch but rather are assembled from existing building blocks.
- Are often used by a relatively small number of users (less than 50, according to a 2005 IBM-sponsored market research study on the growing popularity of such applications).

IBM's perspective on the impact of such applications was that developers could expect to improve productivity and functionality from their situational applications while greatly shortening the time from the identification of a need to using a productive application that fills it.

Enter the 'mashup'

While in businesses around the globe situational applications were being created in back-rooms using a blend of (some) purpose-built and (others) home-made technology, in the early 2000's, industry visibility of this mini-revolution in enterprise computing was subterranean. Meanwhile, out in consumer land, new

tools like Yahoo! Pipes and Microsoft Popfly were emerging that were much more visible and programming hobbyists were finding – with just basic scripting skills - they could create some quite creative new ways to re-use accessible information services like Googlemaps and RSS news-feeds to exploit existing information assets.

The ‘mashup’ had arrived, not as a robust technology with a bold future in the world of business, but as a play-thing for the computing hobbyist with some creative time to kill.

Mashup - A composite application that consumes ready-made building block components and information services to produce a new outcome.

The ‘mashup’ had arrived, not as a robust technology with a bold future in the world of business, but as a play-thing for the computing hobbyist with some creative time to kill. Meanwhile, the great and the good of the computing industry sat wistfully and contemplated whether there was an enterprise computing context to these new toys,

What is a mashup?

A ‘mashup’ is composite application that consumes ready-made building block components and information services to produce a new outcome.

There are three main elements of ‘mashing’:

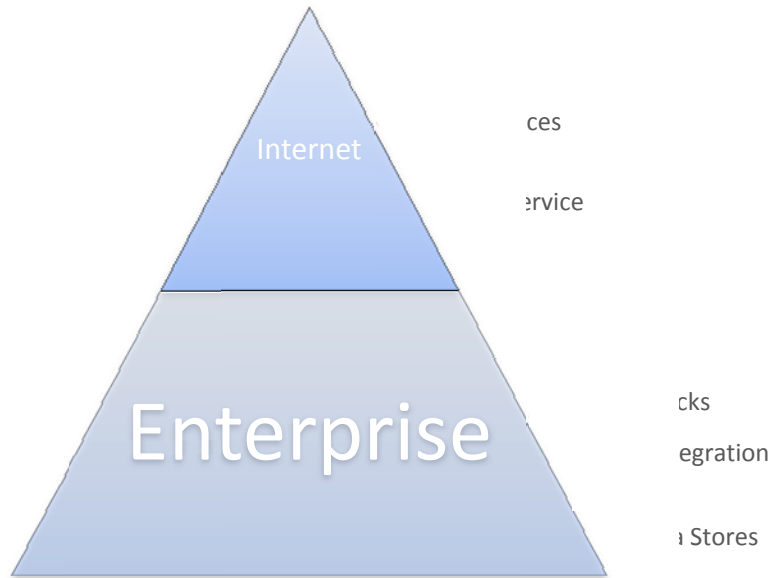
1. Harvesting the data from different sources (with data often held in different formats such as a database table, RSS feed, XML, CSV, document format etc.). Sometimes these are called specifically ‘data mashups’.
2. Creating new applications that enable ‘information consumers’ (the modern term for Users) to exploit the information services they want to use and make sense of what they’re seeing.
3. Sharing and re-using authored mashup applications

Not all mashup applications products support all three elements described above. Mashups software enables non technical authors to serve-themselves with applications that consume information services from data stores within the enterprise and reach out to additional sources beyond the enterprise. The net impact is to generate new perspectives of aging data.

Geo-spatial intelligence has proven to be the single most popular use of mashups.

Geo-spatial intelligence – i.e. the ability to bring a location perspective to data assets by displaying data records as ‘pins’ on maps – has proven to be the single most popular use of mashups. Products like Encanvas employ their own mapping technologies to enable designers to create their own unique mapping applications where both the maps and pins can be customized. It’s also common for mashup applications to provide data visualization and dashboarding features – like meters and charts – to enable users to analyze and work with the applications data they’ve mashed.

The simplest illustration of a mashup architecture



More of a genre than a single technology

Explore the different forms of mashup technology and it becomes abundantly clear that the term 'mashup' is used in computing parlance to describe a genre of product rather than a specific technology and approach. Some of the products intended for business use like Kapow focus on the aggregation and formation of new information services – making data and content more consumable – while other products like JackBe look something more like middleware for the Web 2.0 generation and presume applications are created by users with scripting skills. Explore the topic still further and one encounters applications that create an internal market-place for re-usable mashups like IBM Mashup Center.

The mashup life-cycle

Where Encanvas differs is in its ability to offer the security credentials and scalability to meet enterprise computing requirements and support the full *lifecycle of mashing* which requires some explanation:

New business situations demand fresh perspectives that re-use existing knowledge and that might also need to be enriched with third party content to be useful.

In the modern world, mashup applications are used to create new federated views of data from across and beyond the corporate boundary.

Having created new insights, the usefulness of the composed mashup application might run its course – but often, successive stages of enquiry or indeed new business applications may be needed to discharge the business requirement.

While some of these applications will be consumed by enterprise systems architectures (i.e. Re-drafted or re-designed using Enterprise Portal Suites and Business Process Management toolsets) others will remain as important cogs in the enterprise machine for years to come.

Encanvas's Integrated Software Platform enables mashups to sustain to become core enterprise applications without having to re-build them again in what might previously have been considered 'more robust' enterprise computing technology. While other mashup products use third party components and can only go so far to meet business needs, Encanvas is a single integrated architecture with its own highly customizable building blocks for complex features like maps and business intelligence, which means that organizations can address 100% of their applications complexity without having to step outside of the Encanvas architecture.

Contributing technologies to the mashup world

A collection of innovations has made this step-change in computing possible and we summarize some of the more influential contributors here.

XML

XML (Extensible Markup Language) enables data about data to be included in a file necessary for encoding content electronically. XML-based files enable machine to machine transfer of information but they also facilitate process step to process step transfer. The Encanvas enterprise mashup platform uses XML-based files to describe software applications to deployment platforms, carrying a series of 'blocks' of code in a single container so they can be interpreted, transformed and loaded to the consuming web portal architecture.

AJAX

Web portals have since their inception been constrained by the limits of HTML programming. As any component on a web page changes, the entire page of data is refreshed requiring large volumes of data to be republished. The consequence of this is that web pages have traditionally been inferior in their user interfacing and presentation of content when compared to desktop embedded applications. But AJAX changes this. AJAX (Asynchronous JavaScript plus XML) is a group of interrelated web development techniques that enables components of a web page

"The Encanvas enterprise mashup platform employs XML-based files to describe applications to deployment servers".

to be refreshed asynchronously without requiring the entire page to be updated. This innovation has allowed applications design tools to offer richer interfaces with higher refresh performance and much greater uniformity across browsers.

Microsoft® operating systems

The unparalleled influence of the Microsoft Corporation in the computer industry has served to create a defacto standard platform for applications development that touches the majority (over 80%) of users around the world. Innovations by Microsoft® in Internet services and operating systems has put within reach for software companies the ability to develop mashups that large communities of users can instantly access securely.

Mobile communications

Today, according to the UN, there are over 4 billion mobile subscriptions; on average 60 mobile phone subscriptions to every 100 people in the world. The rise and rise of mobile technologies is giving more people around the world access to always on Internet. The mobile phone has become the world's most successful computing platform and promises to continue a major role in the future of computing.

Access to the Internet brings with it the potential for millions of people to become part of digital social networks and become the consumers of applications created using mashup software that doesn't require any client applications components installation.

Services oriented computing and data mashups

Until the last decade it hasn't been possible to acquire data from disparate sources and 'mash' it together in new applications so that information can be re-used for different people for different reasons. Instead of having to create custom connections (and many of them) to core data repositories, services-oriented architecture describes an approach where web services are created that uniformly take data from one system and post it in a way that it can be consumed by applications created using point-and-click 'mashup' design tools. The market for SOA software and services is expected to reach \$17.7 billion by 2011. Market growth comes because SOA enables the flexible IT architecture that is needed to respond to market shifts brought by speeded product cycles and competitive challenges.

Social networking

150 million people around the world are now actively using Facebook and almost half of them are using Facebook every day: serving 300 million unique experiences with people spending 8 billion minutes a day and sharing over 2 billion pieces of content. Social networking has moved on from being a popular pastime and is now seen as a vehicle to grow social capital, expose personal opportunities for advancement, increase the usefulness of collaboration and drive business results.

Services-Oriented

Architecture - removes the necessity to repeatedly build custom data connections to core back-office systems

Social networking is no longer just social. Businesses too are exploring how social networks can realize the potential of people, reach out to new prospects and deepen relationship ties with customers and suppliers. It is the Social Operating System that supports these activities that is progressively driving demand for massively scaling portal architectures.

Insurance business drivers for enterprise mashups

Enterprise mashups meet the demand of *curious middle-managers* to serve themselves with ways to use and consume information. Whilst the technology has relevance to most industries, the information-centricity of Insurance makes mashups particularly relevant as a competitive differentiator in the sector. Some of the key areas of use are described here.

The battle for communities

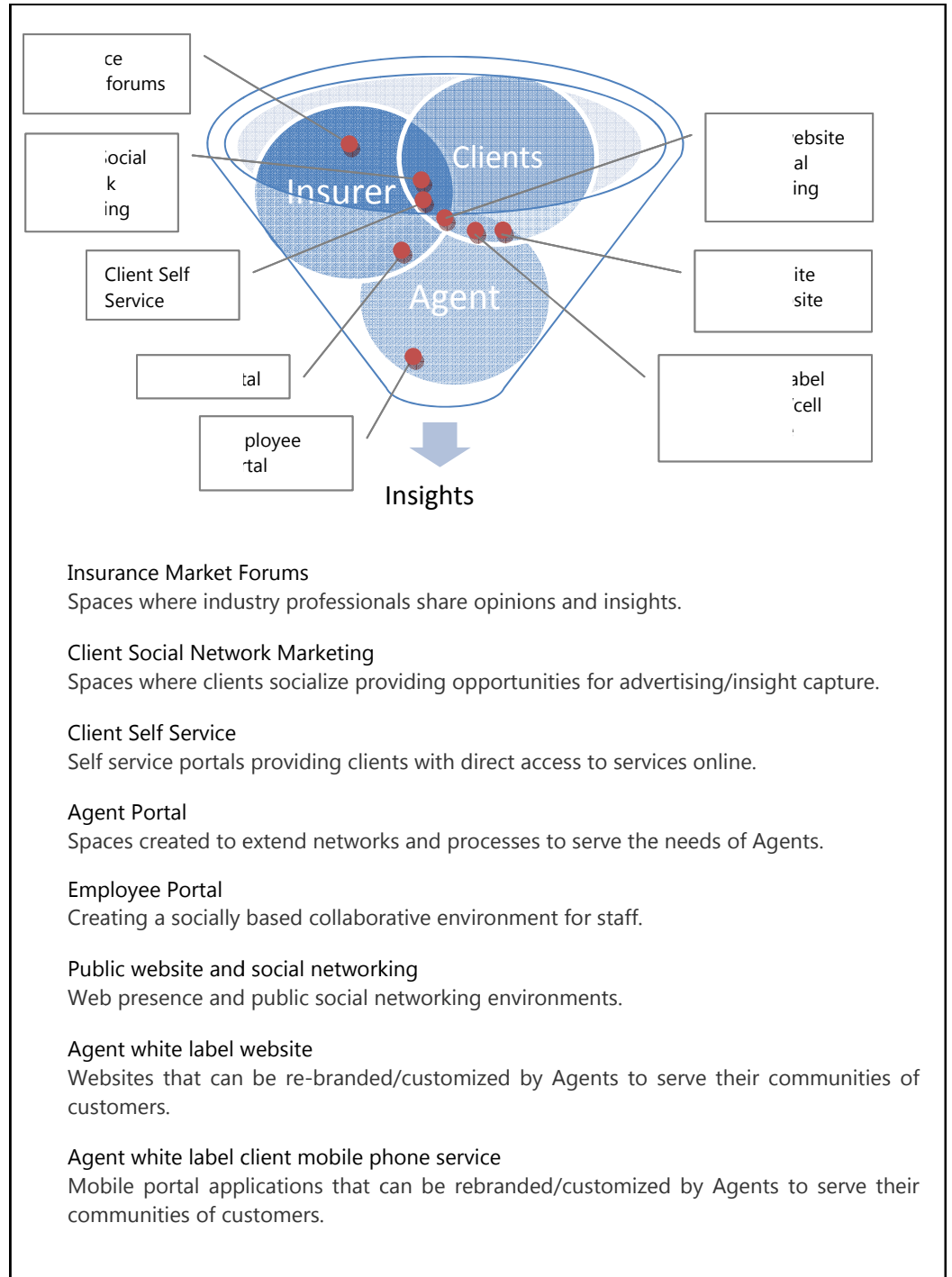
Insurance organizations depend on the goodwill and energies of their agents to achieve success. The complex relationship between insurers, their agents and customers has recently been dramatically affected by Internet sales strategies. A new balance in the industry is emerging between consumer needs for a 'personal service and relationship' on one hand, and 'economy' on the other.

Business has become a battle for communities where engagement with individuals has to be achieved on 'their' terms. Fuelled by the always-on participative behaviors of 21st century society, social operating systems are set to have a dramatic influence on both agency communities and customer communities. The ability to get closer to customers and agents today is often determined by the effectiveness of collaborative systems to acquire and harness insights.

Social operating systems benefit from willing contributions of content and insight from participants and produce a richer depth of knowledge on nature of interest topics, relationship behaviors, buying preferences and contact preferences. Across the landscape of Insurance sector activities there are several touch-points where social interchange become business critical (see diagram below). While social operating systems provide the collaborative spaces that join communities together, Enterprise mashups provide the essential building tools to enable users and communities to gather information services and re-purpose information in forms they find valuable.

Enterprise mashups provide the essential building tools to enable users and communities to gather information services and re-purpose information in forms they find valuable.

The collaborative landscape in the Insurance sector is constantly changing



So, what sort of applications would you expect to be able to design for use in social operating environments? A series of mashup examples are described overleaf.

Information bridging (internal)

Many mashup applications simply re-use content held in silos across the enterprise to enable middle-managers and leaders to access the insights they need to make better activity, resource management and planning decisions. Examples might include news ways of analyzing and interpreting claims behaviors to determine new trends, and visualizing client locations on geo-spatial maps to signpost customer displacement and more cost effective means of canvassing.

Examples of information bridging mashups in Insurance



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Information bridging (external)

Some of the most useful insights come through comparison of data sourced from third party providers. For example, data sourced from organizations like the International Standardization Organization and National Council on Compensation Insurance can be used by Actuarial departments to decide whether it's appropriate to adopt or modify their own rates. External data sources can also be used to build a competitive intelligence portal able to benchmark competitive rates and track behaviors over time.

Data capture and forms

The same core technology used to create enterprise mashups can also serve data capture needs through online forms-based capture. Insurance companies receive thousands of insurance applications on paper, but with online forms agents can enter data directly into databases. Similar forms can be created to serve self-service portals. The impact on online forms filling can be dramatic as organizations move from pure paper to pure electronic process, freeing agents' time. Key stages

in underwriting and proposal development can be automated from this point, as can proposal pack printing which means policies can be issued faster and with more complete and accurate information. Time savings are achieved by killing unproductive processes associated with paper forms completion such as the re-keying of data and having to re-validate submitted forms where errors exist.

Enterprise mashups introduce a new dynamic to business intelligence in the Insurance sector.

Really adaptive business intelligence

Enterprise mashups introduce a new dynamic to business intelligence in the Insurance sector. Whilst traditional business intelligence tools are expensive to buy and difficult to change without IT skills, enterprise mashups are easy to setup and deploy to respond to new questions as they arise. Enterprise Mashups provide wider access to useful intelligence across the enterprise – including the critical layer of middle-managers charged with product innovation and market share growth. Commercial underwriting, actuarial, and claims departments are areas that employ enterprise mashups to good effect. Claims departments frequently use data mashup capabilities to examine exposure to loss and risk, and to better understand liability and fiscal damage exposures.

Enterprise mashups make geo-spatial intelligence accessible to the entire enterprise.

Mapping mashups

Producing enterprise mashups that capture, analyze and present data in its geo-spatial context can have huge dividends in identifying geo-specific risk and profiling client communities. Enterprise mashups today make geo-spatial intelligence accessible to the entire enterprise without having to employ dedicated GIS personnel to create and manage spatial data assets.

Mobile mashups

The demand for mobile applications has been driven by a sustained growth in cell phone subscriptions (on average there are now 60 mobile subscriptions for every 100 people in the world). Accessibility to the Internet provided by cell phones presents new opportunities for client self-service applications and remote access to portal sites. Enterprise mashups are well suited to the mobile market because they satisfy the common requirement of mobile applications to source content from disparate systems and populate new data tables without demanding a new 'specialist' application purely for mobile that creates a new silo in enterprise architecture.

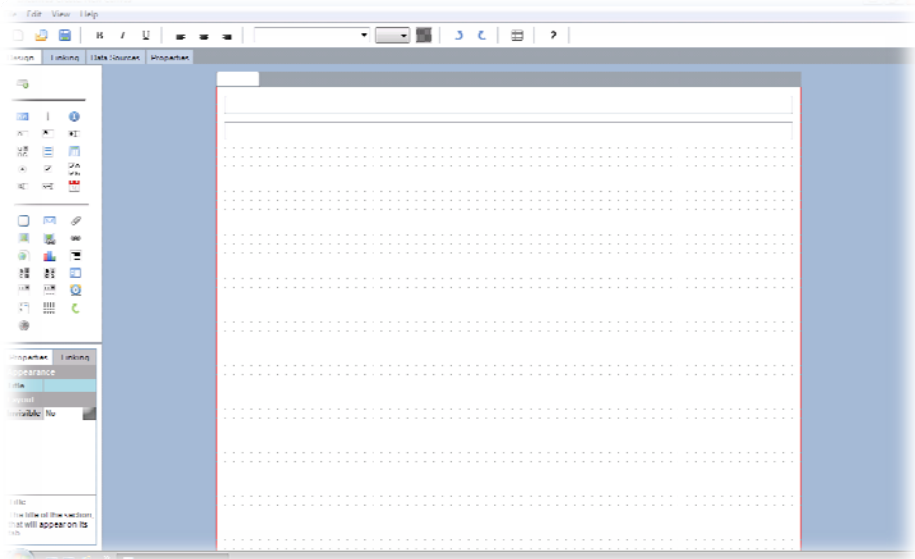
Encanvas – an example of how enterprise mashups work

Encanvas is one of the most sophisticated business mashup platforms available today and serves as an example of how mashups work in a business context. The system uses a three step process to publish mashups:

Step 1. An XML-based integrated application describer file is created.

Encanvas Create design studio is the desktop point-and-click application used to create 'canvases' (Encanvas's XML-based describer file format). The canvas is authored using four closely coupled design layers. The first layer is the Design layer where the application UI is created using point-and-click tools and pre-built application components (called design elements). Then logic links are formed between onscreen components using drag-and-drop functionality of the Linking layer. Data is gathered from existing sources or a new data source is created using the Data Sources layer. Finally the Properties layer is used to simplify the creation of meta-information about the canvas – who designed it, what version, help notes etc.

Illustration of Encanvas Create design studio

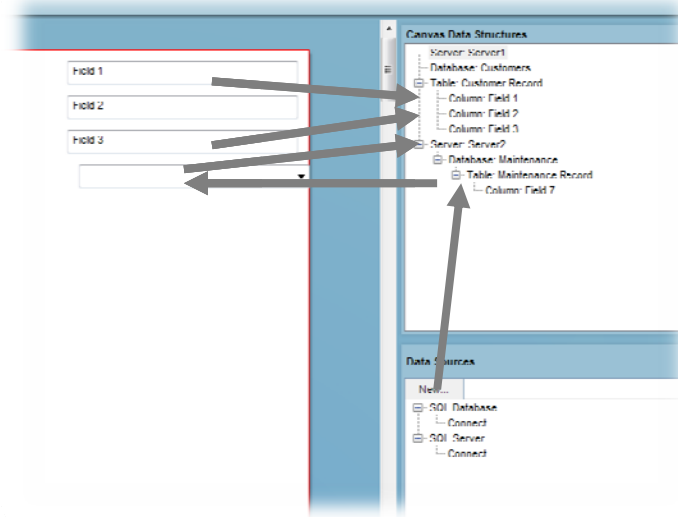


Data mashups

An essential function of mashups is to humanize IT and make it possible for non technical people to author applications. Perhaps the most complex aspect of IT for non technical people is how to design and operate databases. Whilst mashups don't remove the need for IT knowledge, they do significantly reduce demands placed on skills levels. With Encanvas, multiple sources of data can be bound together using simple drag-and-drop tools. New data structures are created by people with a

lower level of computing competency. Gathering data is made easy by upload and flow automation tools that create connections to offline systems using scheduled events and data transformations.

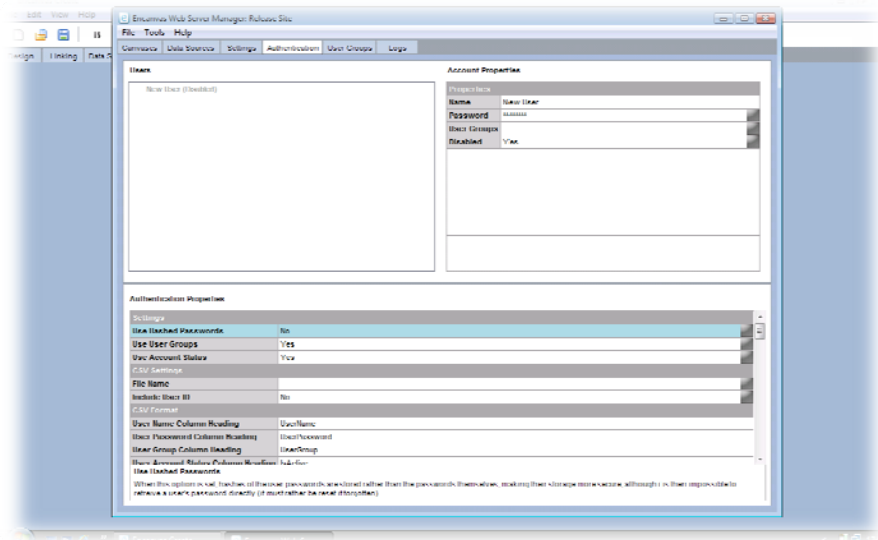
Illustration of data mashup environment



Step 2. Applications are deployed

Encanvas Web Server Manager™ is the publishing component that takes the integrated applications describer file ('canvas') and orchestrates its publication to the Internet service platform; which in the case of Encanvas is Microsoft® IIS.

Encanvas Web Server Manager™ orchestrates the publishing of applications



The publishing environment removes the complexity of publishing applications to web portal spaces. It enables administrators to take complete 'remote' control over their cloud deployment environment without having to use a combination of administrative tools. Every aspect of site configuration (i.e. User identity and access control, integration with data sources, site presentation, settings, authentication, user groups, languages and log file management) is managed from a single administrative dashboard that doesn't require any coding or scripting knowledge to use.

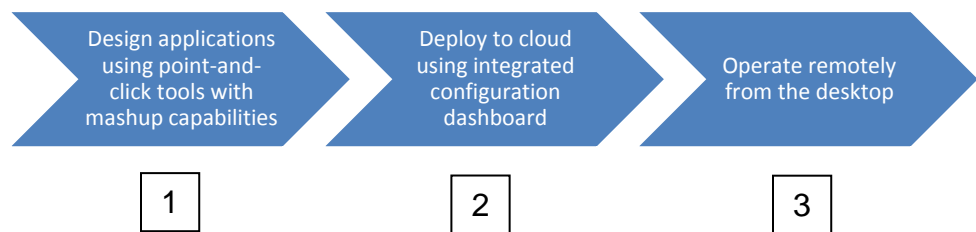
Deploying to the cloud

Encanvas Web Server Manager may be configured to publish the web portal sites it creates to dedicated customer spaces on cloud computing platforms such as Microsoft® Azure™. In such cases the process of deploying applications is fully automated.

Step 3. Operation

Operation of deployed applications is placed more in the hands of users and user groups through their Social Operating Systems. Emerging Social Operating Systems enable users to add their own information services and applications to secure workspaces. It is in these virtual workspace environments that many of the applications are consumed. Applications developed using Encanvas Secure&Live™ are maintained using Web Server Manager. No further software tools are required.

Simple cloud publishing process for software applications



Lessons learned

From its track record of major blue-chip installations of Enterprise Mashups, Encanvas identifies the following key learning lessons:

Fail to plan, plan to fail

Just because it's iterative doesn't mean you can do away with planning and basic project management principles.

Garbage in, garbage out

Whilst much can be done to improve and enrich data with enterprise mashups, it's often the case that organizations are blissfully unaware of the poor quality of their data and it only takes a simple data mashup to uncover years of neglect in data quality management.

Internal politics can kill mashup value-add

Whilst enterprise mashups overcome many of the technology obstacles to creating composite federated applications, departmental politics can soon scupper projects. Small mindedness over 'who owns the data' can immediately determine the viability of projects.

Achieving quick-wins

Seek out quick-win opportunities that bring rapid value back to stakeholders. If it's a big project, compartmentalize and identify deliverables that you can roll out to meet quick-win expectations.

Selecting a mashup platform that can see the game through to the end

Many mashup platforms are built on platforms where key building blocks are sourced by third parties and this often means that the vendor is unable to make changes required to deliver end-game requirements as they emerge. This can lead to a reversal of strategy half way through a development when designers realize that their mashup platform does not have the capacity to sustain to deliver a complete solution to the business need.

Conclusion

In the battle for communities (and the rich pockets of customer insights they expose), Enterprise Mashups are set to have a role in the front-line of new innovations set to transform the competitiveness of the businesses that adopt them.

Leveraging the opportunity provided by Enterprise Mashups requires a fundamental rethink in enterprise information management architecture, where a services oriented approach is the first step on a new journey.

While it's easy to see Enterprise Mashups as the latest in a long line of IT silver-bullets, successful players in the Insurance sector will recognize that the start-point for new strategies is to consider the 'human' sides of enterprise behavior and the critical roles that middle-managers and communities have to play in reaching out to customers (and Agents) and in delivering organizational agility.

About Encanvas

Encanvas[®] software makes the workplace work better.

We bring added value to the Microsoft[®] enterprise platform by creating the technologies organizations need to spend less and receive more from their software investments.

We've created the world's first Integrated Software Platform for business. Our Secure&Live[™] platform enables the design, deployment and operation of applications without coding or scripting all made possible by a single tightly coupled architecture. It facilitates the massive scaling of portal architectures; so users can communicate, share information and their applications in real-time while operating in 'secure spaces' that protect systems, data, identity and intellectual property.

Similar to the influence of the micro-chip in electronics, our integrated software platform is creating a mushroom of innovation around the world as individuals and organizations realize they now have the tools to design and publish right-first-time software applications to cloud computing platforms at very low cost and risk – serving the long-tail of business applications needs.

Encanvas also creates Social Operating Systems (see Encanvas Squork[™]).

In the digital era a network is a group of people tied by relationships, not a set of computer systems strung together by wires. User-centric computing enables web workers to 'work efficiently anywhere' while organizations can achieve a step-change in productivity by harnessing the enthusiasm, skills and collective intelligence of social networks.

Intellectual property

All information of whatever kind contained in this documentation remains the property of Encanvas Inc. Encanvas Inc.'s appointed data controller is Mr Nick Lawrie. Further information is available on request.

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