



From Collaboration to Innovation: Leveraging Web 2.0 to Accelerate New Service Ideas

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Introduction

The telecommunications marketplace is challenging. The pace of consolidation has quickened around the world as telecom service providers look to bundle fixed phone service, broadband access, IPTV and mobility. Now, with the introduction of next-generation network platforms, the implementation of converged multi-media services has become a key telecom initiative. However, along with the combined challenges of responding to the actions of their traditional competitors and moving network transformation initiatives forward, a new threat has emerged – non-traditional entrants who leverage Web 2.0 technologies to deliver innovative new communications services.

Competition and moving the Web to a platform for composite applications and social communities pose the following question to telecom service providers: Is there a way to leverage Web 2.0 technologies to improve your ability to introduce innovative new services quickly and cost-effectively – combining your core strengths with new business models to compete more successfully?

This white paper is intended to provide service providers with IBM’s point of view on the power of collaboration in a Web 2.0 environment and to introduce a new IBM solution that can help telecoms to use collaboration as a tool for enabling innovation.

Part 1 briefly discusses the value of Web 2.0 technology to telecom service providers, presents the need for collaboration and innovation for success today, and lists some of the key requirements for fostering innovation.

Part 2 introduces the IBM Innovation Factory for Telecom solution for Web 2.0-enabled service innovation. This solution helps foster a collaborative community of employees, business partners, software developers and subscribers to address the challenges facing telecoms.

Highlights

Web 2.0 shifts the Internet from static Web pages to a collaborative environment that can take advantage of concepts like the “long tail,” social networks, virtual worlds, and perpetual beta business models.

Part 1: The business challenge

Web 2.0 for telecoms

Web 2.0 addresses the change in the Internet as it shifts from simple electronic publishing and static Web pages to a more interactive and collaborative environment. Coupled with this shift are technological advances that allow a significant number of non-technical people to contribute Internet content. Web 2.0 concepts of interest to telecom service providers include:

“The long tail” – Because the cost of storing and distributing digital content is close to minimal, it is now reasonable for an Internet storefront to satisfy very low-volume needs. With their large subscriber bases, telecom service providers can deliver the reach necessary for this “long tail.”

Social networking – It is becoming easier to find and share information on the Internet through social networking sites, such as MySpace and Facebook, and with technologies like wikis, blogs and tagging. This sharing, in turn, allows communities of interest to form and collaborate easily. Telecom service providers are well positioned to provide the infrastructure to enable these communities to flourish. In addition, this white paper will show how telecom service providers can leverage social networking techniques to foster service innovation.

Virtual worlds – Second Life and other virtual worlds provide a new method of communication. While virtual worlds are still in their infancy, understanding how to use them can augment traditional ways of communicating and be critical to telecom service providers.

Highlights

Companies that focus on collaboration and innovation consistently outperform their competitors, but many telecom executives do not rate themselves as strong collaborators.

Perpetual beta – Interaction between vendors and consumers is now much easier, so, as new products and services are conceived and brought to market, it makes sense to turn consumers into continuous collaborators to improve the chances of a successful service. Telecom service providers must maintain an open channel with their subscribers to take advantage of feedback and improve the success rate of new offerings.

Collaboration: The key

Innovative collaboration is key to taking advantage of Web 2.0 capabilities, but telecom service providers have something to consider in this regard.

In 2006, IBM conducted in-depth interviews with CEOs and business leaders on the topic of innovation. As part of this study, IBM took a closer look at the 46 telecom leaders who participated in the research. The overall study concluded that, in general, companies that focused on collaboration and innovation consistently outperformed their competitors. But what about telecom service providers?

The market data showed that telecom executives concurred with business leaders from other industries that external collaboration for innovation is an imperative for business success. As depicted in Figure 1 (next page), 80% of telecom executive respondents believed in the importance of collaborating with a wide range of partners, especially in light of the converged services that are becoming the norm in their business environment. Further, they related that 51% of the ideas they choose to act upon come from external sources.

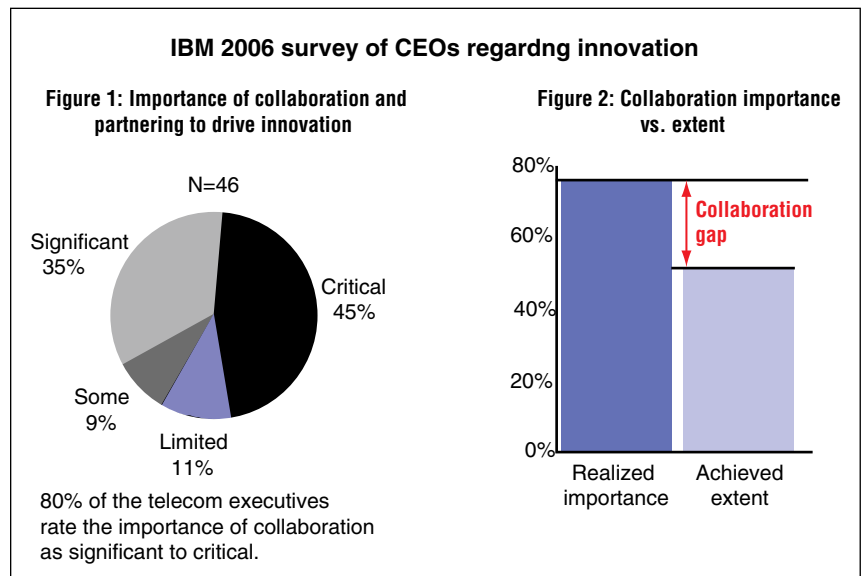


Figure 1. 80% of telecom executive believe in the importance of collaboration.

Figure 2. Only 50% rate their organizations as effective collaborators.

However, when looking at how well telecom service providers employ collaboration, there is a critical gap between the significance placed on collaboration for innovation and the extent to which they succeed in doing so. Figure 2 shows the “collaboration gap” – only 50% rate themselves as strong collaborators. The telecom executives cited complex business processes and inflexible infrastructures as two primary obstacles to effective external collaboration.

So, how can telecom service providers collaborate better in order to compete more successfully? One option is to explore new business models made possible by Web 2.0 technologies – in effect, taking a page from the book of new-entrant

competitors who are both creative and nimble in introducing services. By leveraging a Web 2.0 platform for service innovation, service providers can establish a collaborative environment that brings new ideas to market in a rapid and cost-effective manner.

Capabilities innovative Web 2.0 platforms

Key requirements of innovative and collaborative Web 2.0 platforms include:

- The ability to increase the funnel of new service ideas through collaboration internally (among employees) and externally (with strategic partners, software developers and subscribers)
- The organization of ideas with a documented process for requirements capture and portfolio management
- A reduction in the cost of innovation by providing a low-friction, cost-effective environment for collaboration
- An opportunity to validate market assumptions prior to the significant investments required for commercial launch
- Price experimentation to determine subscriber willingness to pay
- An environment for an iterative approach to service innovation – start with an idea, test its feasibility with customers, launch a market trial, capture customer feedback, implement enhancements, and launch again until confidence in commercial success is high
- A broad range of service concepts including new applications, content and devices such as new mobile phones and specialized industry-specific devices

Part 2: The IBM Innovation Factory for Telecom solution

Solution overview

To meet these requirements, IBM has developed an integrated solution based on Web 2.0 tools and techniques called the IBM Innovation Factory for Telecom. This solution enables telecom service providers to organize a community of employees, strategic partners, software developers, and subscribers to foster innovation for new telecom services.

Innovation Factory for Telecom is a new component of the IBM Service Delivery Platform (SDP) (see Figure 3). In general, Service Delivery Platform implementations provide tools for service creation, a service execution environment including portals for presentation, and integration with Operations Support Systems/Business Support Systems (OSS/BSS). However, many telecom service providers who made major investments in SDPs continue to struggle with the rapid introduction of new services.

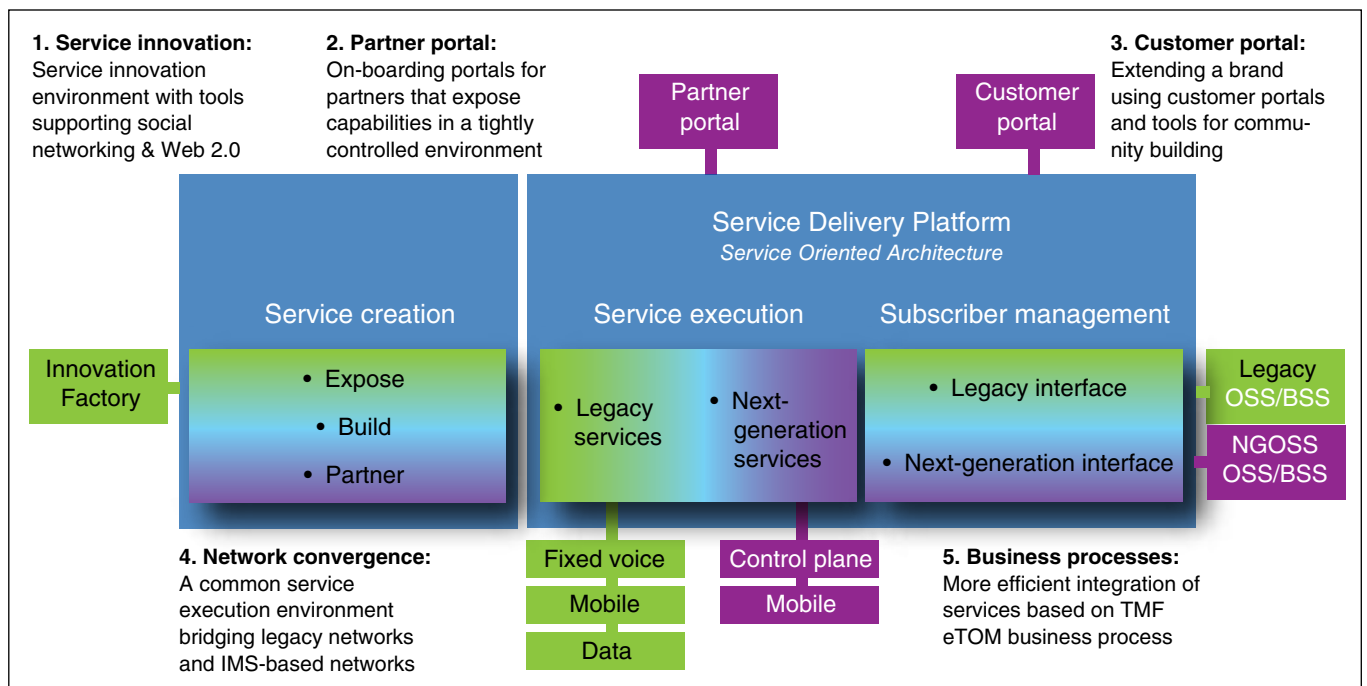


Figure 3. Innovation Factory for Telecom is a component of the IBM Service Delivery Platform.

Highlights

Innovation Factory for Telecom provides a Web 2.0 platform that fosters innovation by developing a collaborative community for new service introduction.

Innovation Factory for Telecom is designed to help address this issue. It provides a Web 2.0 platform to foster innovation by developing a collaborative community for new service introduction. Leveraging IBM best practices developed from numerous SDP client engagements around the world as well as our extensive internal experience with Web 2.0 concepts, Innovation Factory for Telecom provides:

- A robust collaborative environment to foster both internal and external collaboration for service innovation
- An open framework based on industry standards to maximize flexibility in the integration of Web 2.0 components based on client requirements
- A rich and consistent user interface through a common portal framework
- Support for agile, iterative trialing of new service ideas
- A role-based design to appropriately support telecom employees, business partners, and subscribers

Key Web 2.0 capabilities that Innovation Factory for Telecom can help service providers leverage include:

- The ability to harness collective intelligence by allowing employees, strategic partners, software developers and subscribers to participate in the service innovation process
- A rich user experience from a common and consistent portal framework for the innovation community
- An iterative process for new service introduction with real-time data access to support quantifiable decisions

Highlights

Innovation Factory for Telecom has been implemented in an IBM Telecom Solutions Lab and supports trials for new services and innovation.

- The ability to take advantage of the “long tail” effect by efficiently capturing customer feedback to target wider audiences and micro-markets
- A lightweight model designed for cost-effective capture of subscriber input while expanding the breadth of feedback from a larger set of contributors

In addition, by providing a solution independent of the specific service platform, Innovation Factory for Telecom also provides support for trialing new services that support multiple devices (“the three screens”) as well as innovation in assembly through mashups that include network service capabilities.

Innovation Factory for Telecom has been implemented in the IBM Telecom Solutions Lab (TSL) in Austin, Texas, based on client experiences and comprehensive methodologies from IBM Global Business Services and delivery best practices. To accelerate the implementation of the solution in IBM client engagements, Innovation Factory for Telecom includes:

- A documented reference architecture including detailed component definitions and interface specifications
- Documented system configurations and installation procedures
- A portal server with pre-developed templates and workflows customized to meet individual client requirements
- A pre-integrated, pre-tested set of Web 2.0 components. While a set of products was selected for the Telecom Solutions Lab implementation, the architecture is designed to facilitate the replacement of components based on individual client requirements.

Innovation Factory for Telecom reference architecture

Innovation Factory for Telecom fosters collaboration for telecom service innovation by incorporating a self-service portal to provide a consistent user experience and integration point across all the solution components (see Figure 4). The reference architecture consists of three categories of components that are loosely coupled and integrated to provide an environment for collaboration on new service concepts, trialing new services, and IT infrastructure management.

These three categories are *Collaboration Services*, *Success Enablement* and *Infrastructure Grid*.

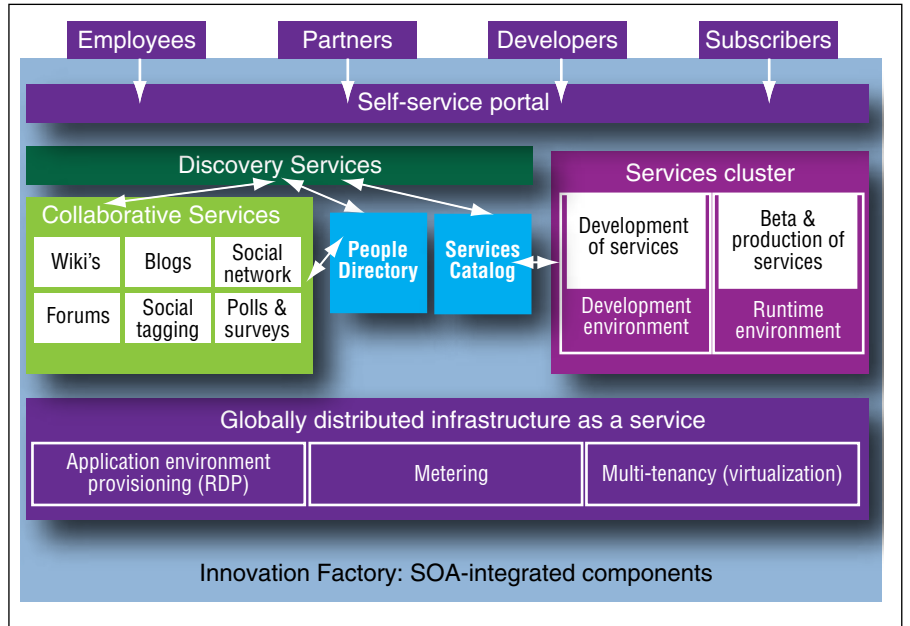


Figure 4. The Innovation Factory for Telecom fosters collaboration by incorporating a self-service portal for consistent user experience and integration.

Highlights

Telecom service providers can take advantage of new opportunities for innovation through Web 2.0 concepts like wikis, blogs, forums and social networks.

Collaboration Services

Collaboration Services offer telecom service providers opportunities to develop a community that employs Web 2.0 tools to foster new service ideas, including advanced search and discovery mechanisms such as tagged information and people directories. These components share an important common attribute – the contributors do not need to be programmers.

Wikis are an effective tool for the collaborative publishing of information. Innovation Factory for Telecom leverages wikis to enable multiple users to contribute in the development of supporting material associated with trials of new telecom services.

Blogs allow users to comment on items of interest with minimum cost. Innovation Factory for Telecom leverages blogs so that product managers can update trial participants on new information and get informal feedback from subscribers on service concepts and ongoing trials of new services.

Online *polls* are another vehicle to get feedback and opinions from interested parties. Innovation Factory for Telecom leverages polls from subscribers on Innovation Factory for Telecom content, as well as to get opinions about potential new features or services.

Forums are valuable tools for directed discussions and used by Innovation Factory for Telecom for support and feedback on new service trials.

Highlights

Web 2.0 Collaboration Services can be implemented as separate solutions or integrated into a broader SDP initiative.

Search capabilities across multiple sources allow participants to find information quickly and easily.

Online *surveys* are valuable tools to capture feedback, gather results, and do market analysis. Innovation Factory for Telecom leverages surveys as a tool for detailed feedback on new service trials.

Social networking uses powerful Web 2.0 concepts to identify and bring the various collaborative components together into a useful solution. For example, sophisticated profiles are leveraged in a user directory including social tagging of interests and skills to identify relevant contributors. Powerful information discovery tools are leveraged to provide relevant, contextual and targeted information for these contributors. Telecom Service Providers can also form targeted communities focused on specific service concepts, such as mobile gaming or location-based services.

Combined in a robust portal framework for a consistent user experience, these collaboration services provide a rich set of capabilities to foster innovation for new telecom services. The collaboration cluster can be implemented as a separate solution or be tightly integrated into a broader SDP initiative.

Highlights

The Services Cluster includes a Service Creation component and a Service Execution Environment optimized for telecom industry applications.

Services enablement

Service enablement components implement a “sandbox” for developing and trialing new services. The services cluster includes a service creation component and a service execution environment optimized for telecom applications. For applications where the telecom service provider is managing development, the services enablement components support a developer “sandbox” including a Unified Service Creation Environment and a platform for service execution that is optimized for telecom applications.

The service enablement component leverages the Eclipse-based IBM Rational® platform for Unified Service Creation, including plug-ins to support telecom application development for SIP, IP Multimedia Subsystem (IMS) and Parlay/Parlay-X based services. The Service Creation component of Innovation Factory for Telecom supports life-cycle management of new services developed internally by the telecom service provider or applications developed in collaboration with third parties.

Highlights include:

- Tight integration for the front end of the service life cycle with tools integrated into the Innovation Factory for Telecom portal framework for requirements capture and portfolio management across innovation projects, including the management of resources, risks and priorities.
- A logical handoff to development provided through Eclipse-based tooling to support the design, development and testing of new features or services. Artifacts from the front-end life-cycle tools can be easily imported into the development environment to ensure consistency between the business perspective and technical implementation. Development can be done by organizations internal to the telecom service provider, by third parties, or a combination of both – all within a common framework for service innovation.

For situational application development, mash-up tools like IBM QEDwiki can be leveraged as an additional approach to new service innovation.

Highlights

The Infrastructure Grid facilitates the dynamic growth of collaboration components as additional employees, partners and subscribers are added to the innovation community.

Service execution environment is based on a Java® framework that provides a robust platform to support telecom services and includes:

- J2EE application server including integrated SIP support
- A set of telecom enablers running on top of the J2EE engine to support value-added services:
 - Presence Server
 - XML Data Management Server (XDMS)
 - Telecom Web Services Server
 - IMS Connectors to support integration with the IMS Control Plane infrastructure

Infrastructure Grid

The Infrastructure grid components support the rapid provisioning of information technology (IT) in support of both the collaboration services and the services enablement components. The infrastructure grid facilitates the dynamic growth of collaboration components as additional employees, partners and subscribers are added to the innovation community. In addition, the infrastructure grid can also be leveraged to support dynamic allocation of IT resources to support trials of new services.

The infrastructure grid consists of a set of integrated components designed for the rapid provisioning of information technology infrastructure in support of the collaboration services or to support new trials on the service execution environment. The infrastructure grid can be integrated with the Innovation Factory for Telecom trial management process to support the automatic provisioning of IT resources. The infrastructure grid leverages IBM Tivoli® provisioning technology to automatically manage the deployment of servers, operating systems, middleware, and applications to support new service trials.

Implementing Innovation Factory for Telecom

Innovation Factory for Telecom has been implemented in the IBM Telecom Solutions Lab (TSL) in Austin, Texas. The packaged solution is based on commercial-off-the-shelf (COTS) components including the leveraging of LAMP infrastructure (a software stack consisting of Linux, Apache, MySQL, and PHP) where appropriate. LAMP components are complemented by IBM software products to provide a flexible yet robust IT infrastructure.

The server platform is IBM BladeCenter® technology, a cost-effective platform consistent with telecom service provider packaging requirements. IBM HS21 high-density server blades with dual-core Intel Xeon® processors running Red Hat Enterprise Linux were used for each component (see Figure 5).

While selected products were used for the TSL implementation, the portal framework is architected to support alternative products for specific client requirements.

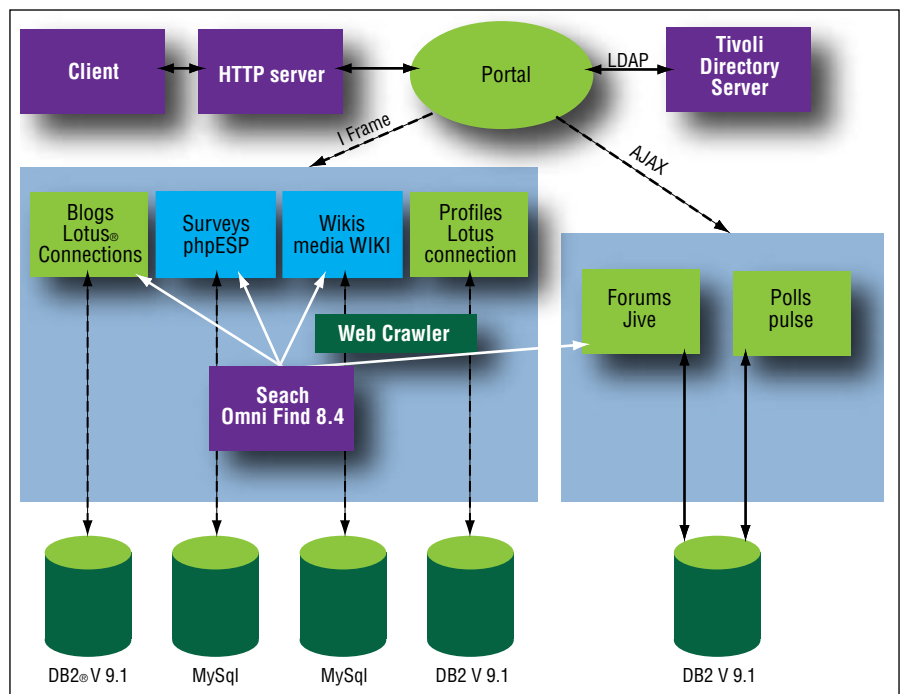


Figure 5. The Innovation Factory for Telecom service platform

A typical scenario: Managing service trials

The most common scenario for Innovation Factory for Telecom is the launch and management of trials for new services. Innovation Factory for Telecom includes customizable templates and workflows to support this scenario (see Figure 6).

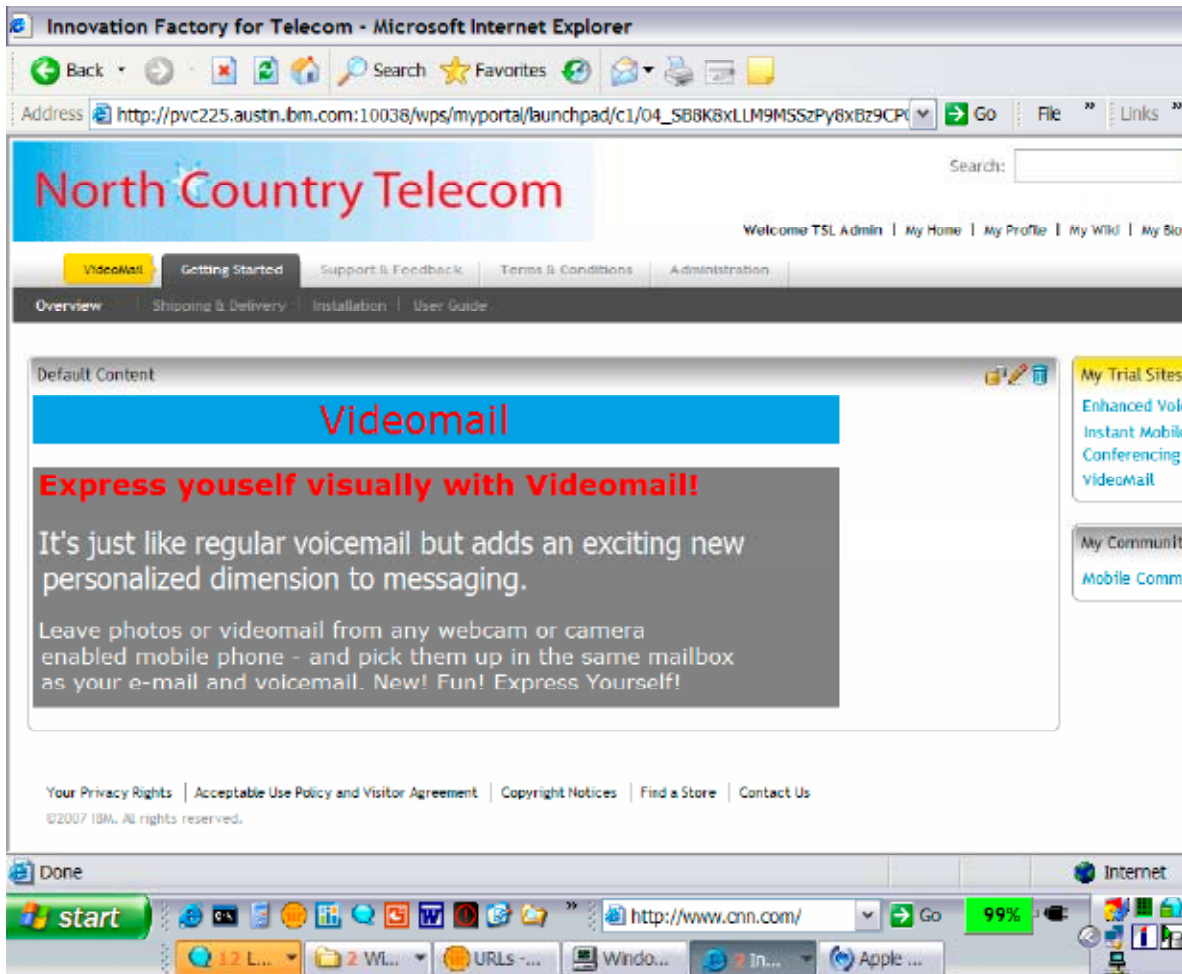


Figure 6. Innovation Factory for Telecom includes customizable templates and workflows.

Highlights

By leveraging a portal framework and Web 2.0 technologies, Innovation Factory for Telecom supports a lightweight, cost-effective process to foster new ideas for service innovation and to efficiently capture and analyze subscriber feedback on new services.

A typical roll-out scenario would follow these phases:

Idea phase

The telecom service provider product manager captures feedback from Innovation Factory for Telecom which stimulates an idea for a new service. The requirements for the new service are documented, the project is entered into the portfolio manager, and a business model of the new service is developed. The new service concept is then handed off to an internal IT organization or third-party developer for implementation.

Trial phase

The product manager accesses the Innovation Factory for Telecom portlet to launch a new trial. A template for the trial site is chosen which defines a specific layout and selected Web 2.0 components. The service innovation team then collaborates on the creation of trial content, such as the description of the service, a tutorial, frequently asked questions (FAQs), polls and survey questions. The content is developed using tools that do not require programming skills, although telecom service providers may use a Web developer to enhance the look and feel. The product manager then invites subscribers to participate in the trial.

Feedback phase

Subscribers enroll in the trial, getting information about the service from the trial site and Web 2.0 components. For questions, the subscriber searches the wikis, blogs, and forums for information with the opportunity to ask questions online. The questions may be answered by another subscriber or the product management team, promoting online support by the innovation community. The subscriber may also provide feedback on the new service by blogging.

participating in a feedback forum, or be polled for specific responses by the product manager. Upon completion of the trial, the subscriber answers an in-depth online survey.

The Web 2.0 style environment is lightweight and cost-effective as no call center or expensive focus group involvement is required. The breadth of Web 2.0 components supported provides a wide range of capabilities to secure subscriber feedback.

Evaluation phase

Upon completion of the trial, the product manager searches Innovation Factory for Telecom and captures and consolidates specific feedback from the trial. The product manager gets this information from the online survey, polls, the feedback forum, and informal comments in the blog. With this information, the product manager decides from the following choices:

- The new service is attractive as is and will readily gain market acceptance – proceed to commercial deployment in as little as a few days. The key here was the ability to streamline the formal process of new product introduction by including a business case based on valuable insights culled from Innovation Factory for Telecom.

- Feedback suggests the new service would be successful if certain enhancements were made such as an improved user experience or the addition of new features. These insights are captured and the iterative process managed through Innovation Factory for Telecom results in a new cycle of refinement.
- Subscribers are not really interested in this service. The project is discontinued before significant investments in commercial launch are made.

By leveraging a portal framework and Web 2.0 technologies, Innovation Factory for Telecom supports this lightweight and cost-effective process to foster new ideas for service innovation and to efficiently capture and analyze subscriber feedback on new services.

Highlights

Three key points of integration between Innovation Factory for Telecom and IBM Rational Unified Service Creation (USCE) are project portfolio management, requirement and change management, and quick simulation of new service concepts.

Innovation Factory for Telecom and Service Creation

The previous section showed how Innovation Factory for Telecom can be used to manage trials. As service providers launch and manage trials for new services, the service creation component of their SDP will be used to deliver prototypes, trials and, eventually, the production application.

IBM offers a Unified Service Creation Environment designed to address the complete service delivery life cycle, beginning with product concept and ending with deployment. More than a simple toolkit, the IBM Rational Unified Service Creation (USCE) solution is specifically designed to help service providers improve their performance in delivering products and services.

While Innovation Factory for Telecom is agnostic with regard to service creation vendors, IBM leverages touch points with the USCE as it uniquely addresses the speed and quality needs of both line-of-business and service delivery teams. Three of the key points of integration between Innovation Factory for Telecom and USCE are:

- *Project portfolio management:* As Innovation Factory for Telecom gathers feedback for new trials and trial results, project proposals must be documented and weighed against competing initiatives. IBM Rational Portfolio Manager is a project portfolio management system that helps managers evaluate the risks and rewards of new proposals and, ultimately, manage the projects that implement them.

- *Requirement and change management:* Innovation Factory for Telecom reveals requirements from users very rapidly and accelerates the change request feedback. USCE provides common repositories to manage and track delivery requirements and change requests, helping service providers manage the continuous flow of change and avoid becoming overwhelmed by the volume generated through Innovation Factory for Telecom.
- In the emerging environment of rapid product delivery, product managers must be able *to quickly model and simulate new service concepts*. The USCE includes the IBM WebSphere® Business Modeler and IBM Rational Software Architect, enabling product managers to describe their vision for the composite service using an easy-to-understand model and even simulate the service. This model is used for assessment and then handed to the delivery team along with requirements for build-out and delivery.

Highlights

Innovation Factory for Telecom supports the fast-track process required by service providers to meet their needs and compete more effectively against both traditional competitors and new entrants.

Conclusion

By employing Web 2.0 technology, Innovation Factory for Telecom supports the fast-track process required by service providers to meet their needs and compete more effectively against both traditional competitors and new entrants. With Innovation Factory for Telecom, service providers can create the community of employees, strategic partners, software developers, and subscribers they need to foster and bring new service ideas to fruition. Finally, as a packaged solution with pre-integrated and pre-tested Web 2.0 components, Innovation Factory for Telecom can be delivered with less risk and at a lower cost than homegrown solutions.

With a lightweight and more cost-effective platform to launch trials of new services and efficiently capture a broad range subscriber feedback, Innovation Factory for Telecom provides an environment that improves the opportunity for market success and differentiation based on service innovation.



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