



USING THE SAP NETWEAVER ENTERPRISE PORTAL AND NETWEAVER BUSINESS CLIENT

BUSINESS AND TECHNICAL ADVANTAGES:
AN SAP WHITE PAPER



CONTENT

Introduction	3
Project Muse	4
The future of browser-based access	6
Targeted business users	7
A day in the life of a business user	8
Underlying UI technology	9
Customer benefits	10
Road map and timeline	11
Glossary and references	11

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1 INTRODUCTION

Line-of-business leaders will become the driving force of enterprise service-oriented architecture. In order to enable and accelerate this change, SAP is making the benefits of enterprise SOA more visible and tangible for business users. The goal of this paper is to provide a clear understanding of the User Interface strategy SAP is pursuing, and how to take advantage of the personal productivity benefits that enterprise SOA can deliver.

The flexibility of the enterprise SOA model makes it easier to integrate business processes, adopt new business models, and deliver new applications. It makes it easier to do business in a way that is unique to your enterprise. This same flexibility and adaptability can be delivered not only to the enterprise as a whole, but to every end user. Each user is unique. Each person's work is unique. Enterprise applications must allow people to do their work, their way.

SAP is addressing this topic. The core UI technology in SAP NetWeaver is evolving to provide UI services and building blocks that can be consumed through multiple channels and clients while advancing the application user experience to become more adaptive, contextual and intuitive.

In the last 15 years, the SAP software serving the needs of accessing business application UIs has evolved from the SAPGUI to today's SAP NetWeaver Enterprise Portal and Web Dynpro. The customer investment in our existing UI technology will continue to be leveraged in the enterprise SOA era. The SAP NetWeaver Portal will continue to serve as the aggregation hub for governed, role-based content and will continue to deliver SAP's web-based user experience. But the portal will also be opened, to deliver content and services through new access channels, giving users many more options to support their natural way of work. Ensuring your strategic enterprise SOA platform supports this flexibility is critical as part of an integrated enterprise strategy to maximize user productivity while minimizing the total cost of IT.

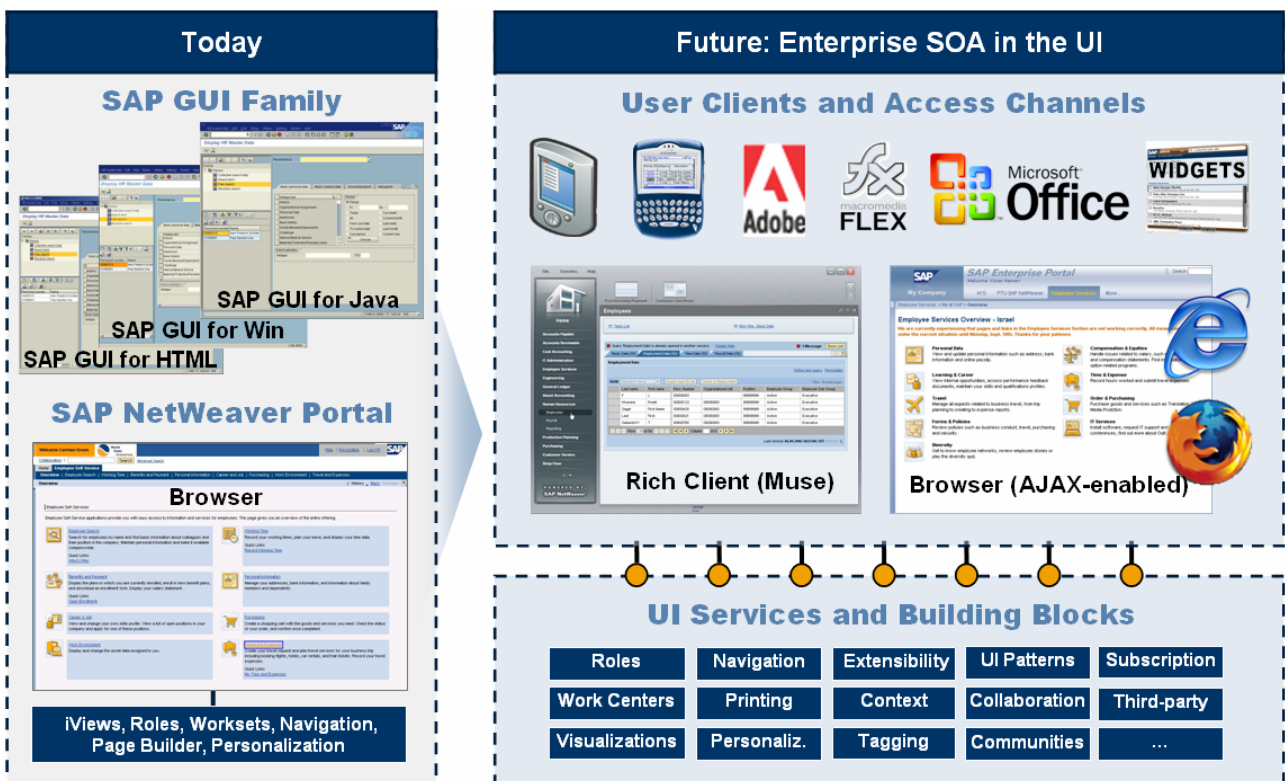


Figure 1 Enterprise SOA approach in the SAP NetWeaver UI Technology

2 PROJECT MUSE

Muse is a code name for an SAP project that has the following two large deliverables:

1. The SAP NetWeaver Business Client

- Built using state-of-the-art UI technology that can flexibly consume portal services, application content and tasks directly from the back-end systems (see Figure 2)
- A rich, service-oriented client that provides most optimal end-to-end performance, familiar desktop integration (e.g. drag-and-drop of a table to Excel) and dramatically improves user experience, as seen with couple of examples in Figure 3 and Figure 4
- Represents a new breed of clients that bridge the gap of today's thick clients (e.g. SAPGUI) and thin HTML clients, while catering to the high demands of business users with upcoming Rich Internet Applications (RIA) like those that will be based on [Adobe's Apollo](#), [Microsoft's WPF / Vista](#) or [IBM with Rich Client Platform / RCP](#)

2. Simplified and task-oriented mySAP ERP content

- The role-based ERP content and line-of-business applications will be accompanied with worklists that provide insight into the transactional systems and objects. Example in Figure 2 shows employment data worklist as a starting point for the HR administrator
- Rebuild main mySAP ERP UIs using intuitive floor plans (see Figure 3) and UI building block methodology based on [Web Dynpro](#) technology, to increase consistency and ease of use, but also the efficiency and speed to develop new applications UIs
- Harmonization and consolidation of UI technologies centers on Web Dynpro. Legacy UI technology like SAPGUI's Dynpro will continue to work and will adapt to the new environment and look-and-feel of the SAP NetWeaver Business Client

The screenshot shows the SAP NetWeaver Business Client interface. On the left is a sidebar with a 'Home' icon and a list of application areas: Human Resources (Employees, Payroll, Reporting), Production Planning, Purchasing, Customer Service, Shop Floor, and Strategic Planning. The main window is titled 'Employees' and contains a 'Tasks List' and 'New Hire - Basic Data' section. Below this is a tabbed interface with 'Basic Data (69)', 'Employment Data (68)', 'Time Data (69)', and 'Payroll Data (69)'. The 'Employment Data' tab is active, showing a table with columns: Last name, First name, Pers. Number, Organizational Unit, Position, Employee Group, and Employee Sub Group. The table contains four rows of data. At the bottom of the table, it shows 'Row 1 of 68' and 'Column 1 of 5'. The last refresh time is '10.10.2006 11:44:19 CET'.

Last name	First name	Pers. Number	Organizational Unit	Position	Employee Group	Employee Sub Group
AA	AAAAA	00123123	00000000	99999999	Active	Executive
Bach	Steffan	00000217	00000000	99999999	Active	Executive
Baker	Lisa	00999937	00000000	99999999	Active	Administration
Becker	Samuel	00000086	00000000	99999999	Active	Executive
	Sarah	00000784	00000000	99999999	Active	Executive

Figure 2 Rich client access to tasks and applications on the user's desktop

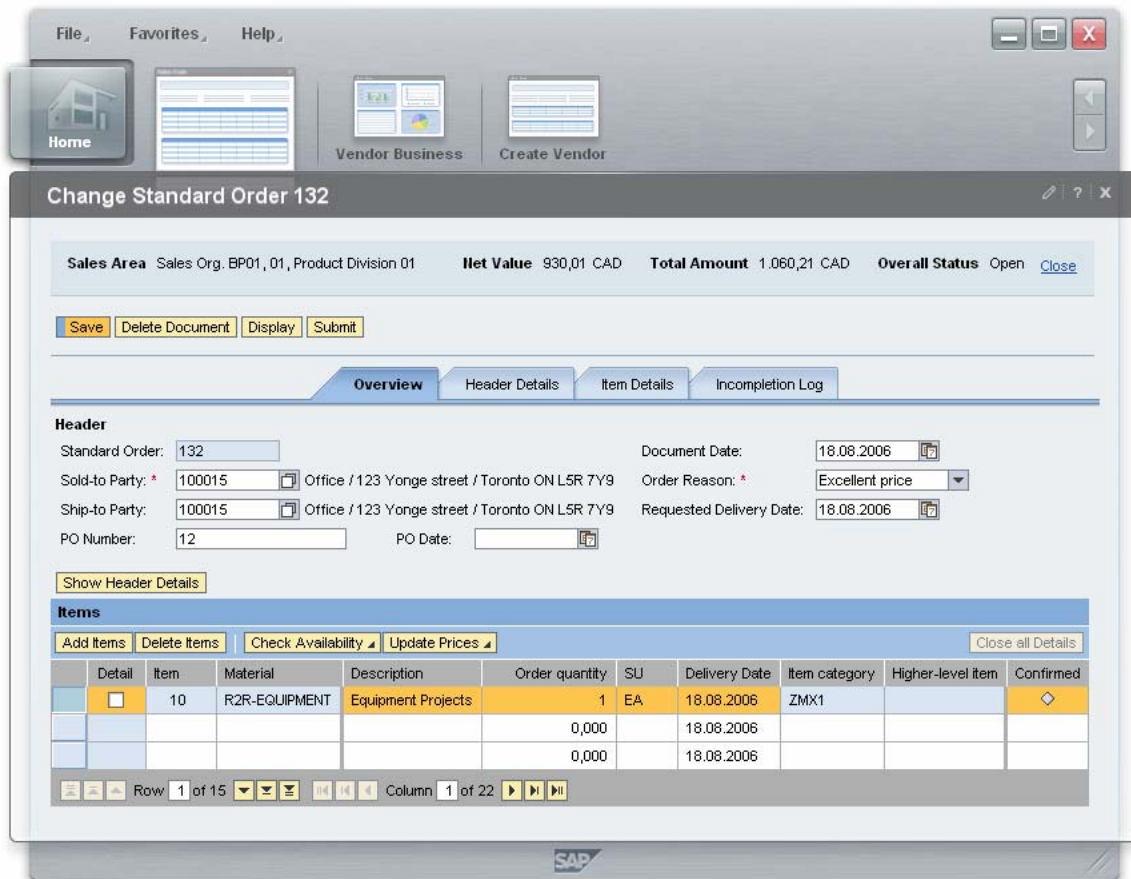


Figure 3 End user multi-tasking is now enabled via tabbed navigation of the user session instances (e.g. change standard order floor plan, vendor business report, create vendor)

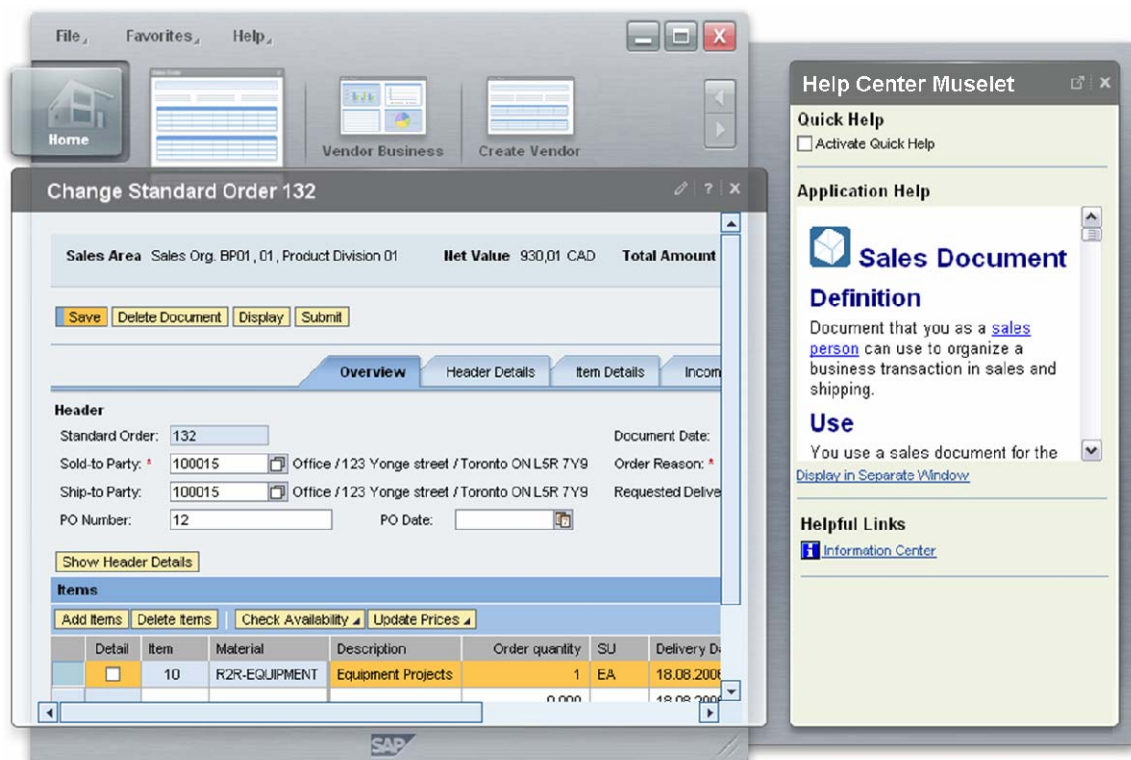


Figure 4 Contextual services or “Muselets” as extensions to the Muse user experience

3 THE FUTURE OF BROWSER-BASED ACCESS

Parallel to the new rich client environment for business users, SAP is continuing to support browser-based access (also known as “zero-footprint”) with new enhancements that embrace [AJAX](#) technology. The SAP NetWeaver Enterprise Portal client will be extended as part of the UI services evolution, and this approach will:

1. Improve performance of the SAP NetWeaver Enterprise Portal client

- The so-called L-frame containing the portal navigation tree can be cached in the browser for faster rendering while minimizing server load and network traffic

2. Increase attractiveness of the browser-based user interface

- The portal look-and-feel in the browser will receive a “face-lift” to modern, AJAX-based UI and behavior. See example in Figure 5.

3. Improve navigation usability

- [Top-level navigation](#) (TLN) docking will be allowed via user personalization
- TLN (Docking) configurations will be supported with multiple TLN views, according to business task / context
- One-click hierarchy access, allowing for rapid and intuitive launching of portal content

The client enhancements will be compatible with the existing SAP NetWeaver Enterprise Portal infrastructure (e.g. Portal Content Directory, Federated Portal Network, etc.) and would not require major changes to the portal assets of customers. Furthermore, this client will also serve as the browser-based access for the NetWeaver Business Client. As such, the simplified and task-oriented mySAP ERP content based on Web Dynpro will be available through the browser.



Figure 5 Concept for the SAP browser-based access, powered by AJAX

4 TARGETED BUSINESS USERS

One of the growth areas going forward for SAP and our customers is to reach out to more users within the company and beyond. These are business users who manage strategic, tactical and operational tasks in the enterprise. Their needs increasingly influence the enterprise software decisions.

In Figure 4, a framework is provided to categorize business users according to the frequency of business applications used (from casual to power users) and predominant work orientation / work styles (strategic, tactical and operational). To handle the many different needs of these users, a range of user environments is necessary, such as the browser, the NetWeaver Business Client, and Duet. The mobile client and voice access is orthogonal to the desktop usage. In addition, form-based access (i.e. SAP Interactive Forms by Adobe) and analytical dashboards are applicable to many users and will run in both the browser and SAP NetWeaver Business Client.

For casual users with intranet needs and access to enterprise-wide applications such as employee self-services (ESS), the browser would be preferred. For power users, a rich client is required that is optimized for transactional work. For operational type of workers, the client already used for basic time, contacts, and communication purposes will be utilized to access SAP. This demarcation doesn't mean that for example, a casual user should not be able to also take advantage and use the SAP NetWeaver Business Client. All in all, there can be overlap of some applications (e.g. Leave Request) and capabilities supported in these three major user environments with the goal to optimize and contextualize the user's interactions with SAP systems and data according to the type of business users and their respective tasks.

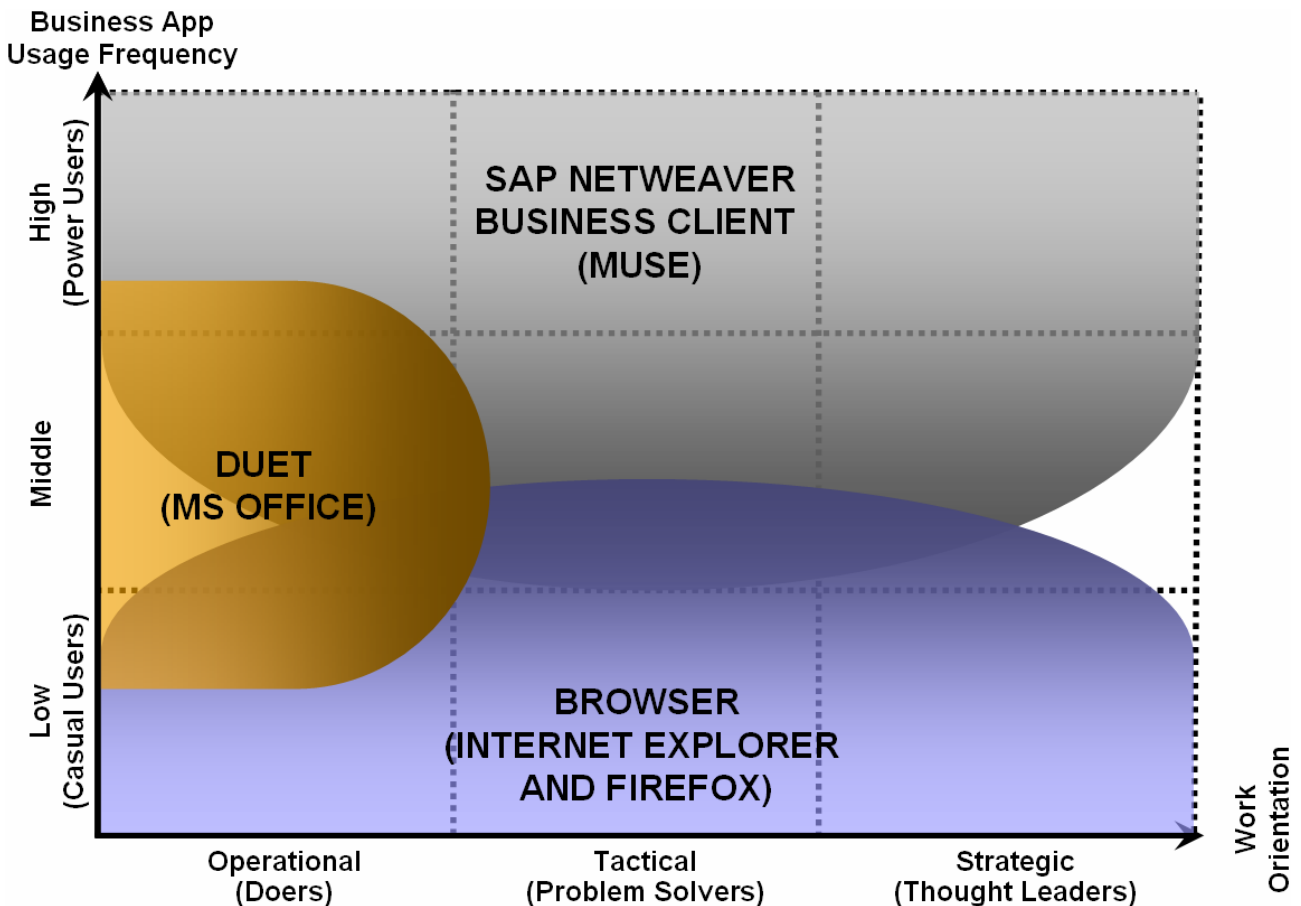


Figure 6 Matrix of business user segments and support from SAP access channels

5 A DAY IN THE LIFE OF A BUSINESS USER

A look at the user experience lifecycle and the four typical phases that business users go through when they work helps to highlight the value of different application interfaces (see Figure 7). SAP ensures that business context is available during the entire lifecycle so users don't lose track of information, decisions, events, people involved, etc.

During the **insight** phase, there are new opportunities, new findings, delayed orders, blocked billing documents, etc. that emerge as events from the organization in the form of a worklist. The user can track event history, further identify exceptional conditions and prioritize tasks in the SAP NetWeaver Business Client. Insights can also come from the user, and with SAP Enterprise Search, users will also have the ability to discover new insights across their enterprise assets.

During the **plan** phase, business users act on these insights – they plan, meet, and collaborate. Business context has to be available during event and task analysis. Connecting to social networks, communities and tapping the right expertise is critical for resolution.

During the **decide** phase, people require full context and information to make high-confidence decisions. SAP data and context need to be visualized in familiar and rich ways. The user can also extend the context or capture reusable best practices for the decisions reached.

Finally, business users **execute** on a decision, like price change, new partner, new product, new sales order. They carry out decisions in familiar, pattern-based applications. They also publish communication in form of blog or wiki entries to transparently inform others on the execution steps.

The SAP NetWeaver Enterprise Portal and NetWeaver Business Client will provide user-centric services (or “Muselets”) to augment the entire user experience lifecycle. One of the outstanding characteristics of these smart services will be their context awareness and ability for business users to enrich them with with personal, situational context.

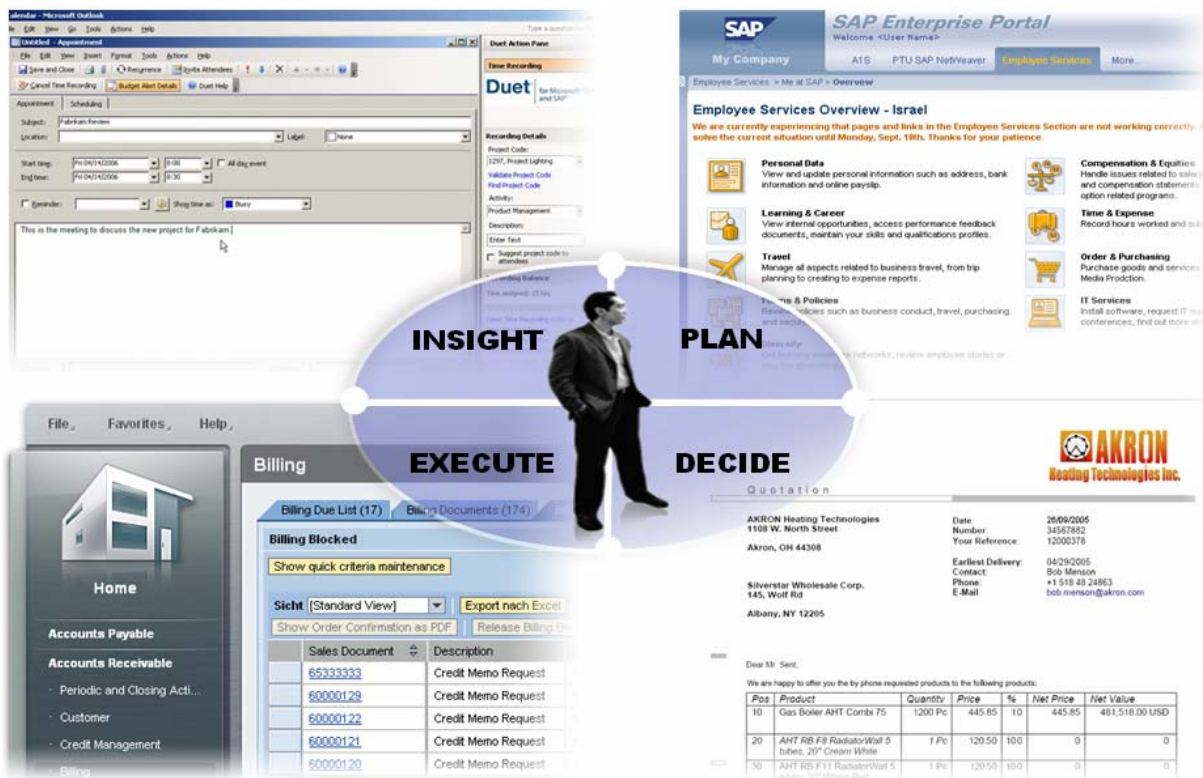


Figure 7 Typical lifecycle of tasks business users are performing in their environment

6 UNDERLYING UI TECHNOLOGY

The advantage offered by SAP is that all of these UI capabilities fit together and are powered by one platform. One integration platform, with one enterprise service repository (ESR) and advanced UI tools, sitting on a set of UI building blocks and UI services, delivering business solutions and data to users through the access channels they choose. User needs are met by the four rich layers and components of the SAP NetWeaver UI technology (see Figure 8). They will provide:

- Flexible **UI frameworks and tools** for Developers and Business Analysts to build, code, adapt and compose service-oriented UI logic, interaction, and best-practice UI patterns in ABAP, Java and modeling environments.
- **UI building blocks** for transactional, analytical, collaboration-oriented tasks and other function-specific building blocks like enterprise search, service map, worklist, KM and communities – all catering to the growing demand of end-users.
- A robust **UI runtime** that executes application models while providing contextual runtime **UI services** with rich business metadata such as roles, navigation, printing, personalization and extensibility, internationalization, application help, value (F4) help, state and session handling, error handling, accessibility (section 508), W3C standards, etc.
- A range of new **clients and access channels** to support the most appropriate user experience via that enable simplified interaction, fast user response, rich rendering and visualization, desktop integration, drag-and-drop, smooth scrolling, local caching, data validation and manipulation, strong security, etc.

Independent of what UI tools are used, the unified application runtime of SAP NetWeaver Web Dynpro and Enterprise Portal is powering the SAP business applications with flexibility to be rendered in both the browser via HTML/DHTML or in the rich client environment (i.e. Muse) via the SAP [Business Client Protocol](#)'s XML.

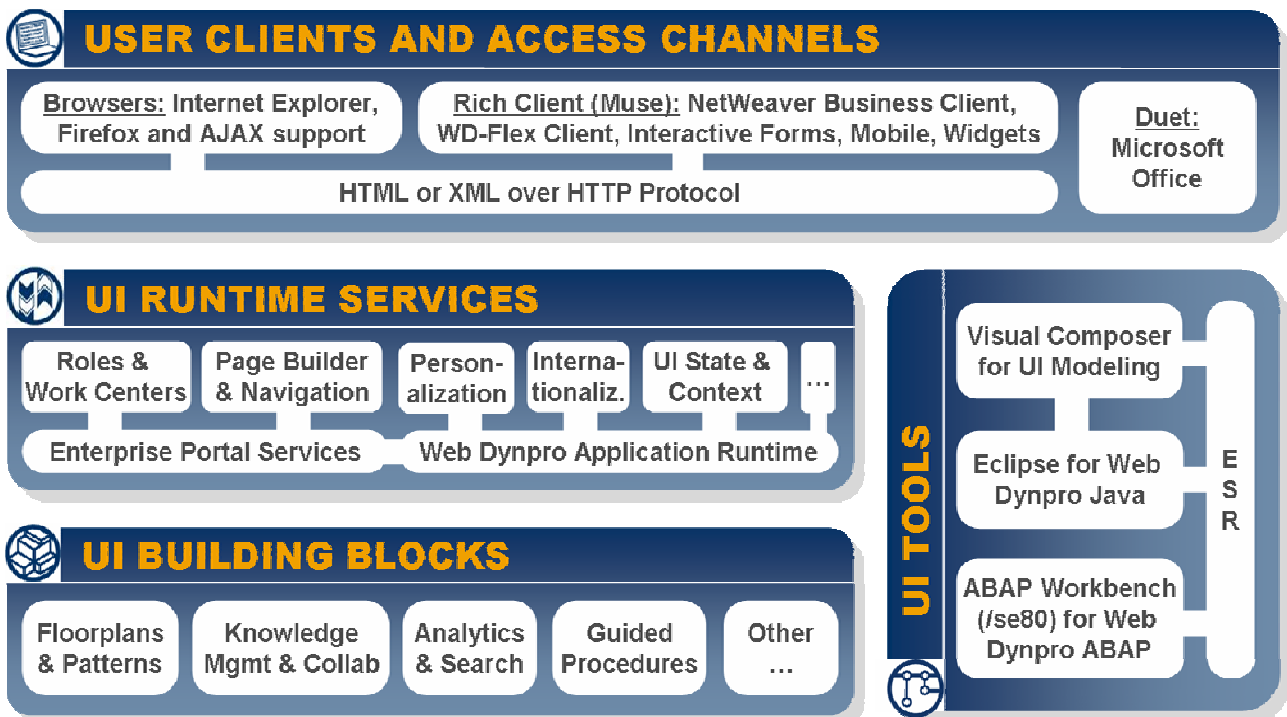


Figure 8 Integrated SAP NetWeaver UI technology, assures consistency and low TCO

7 CUSTOMER BENEFITS

From our interaction with customers so far, we hear a concern from IT departments that 2x the UI clients = 2x the cost (or more). But an integrated approach leveraging enterprise SOA in the UI technology can minimize the added cost of a multi-channel enterprise, so the benefits can far outweigh any cost involved. A common example today is how we access a laptop computer (via touch pad, mouse stick, regular mouse, keyboard, screen reader, remote machine access, etc.) that shows similarly why it's desirable for users and affordable for IT.

Another IT concern relates to existing investments customers have made in the SAP NetWeaver Enterprise Portal or Web Dynpro, and whether this can be leveraged going forward. We are committed to protecting customers' and SAP's own investment in applications and technology. Furthermore, we want to extend these assets customers have today with future value-add capabilities without a negative impact on the applications.

For example, Visual Composer with portal modeling can tap into the existing portal content from customers and allow for simpler creation of new Work Centers, easier adaptations of existing content, and smoother packaging. The portal platform can also support consumption of WSRP compliant content from multi-system landscape (SAP and non-SAP content producers) using the Federated Portal approach over LAN & WAN with continuous availability. Another example where existing custom applications built in Web Dynpro can run in a rich environment like the SAP NetWeaver Business Client, and take full advantage of the "smart" services (i.e. Muselets). Whether the benefits come from the enterprise SOA's "back-end" or "front-end" scenarios (see Figure 9), there is no doubt that this evolution in UI technology sets a new level of excellence that is desirable to business users, feasible for IT and viable for the company to embark on.

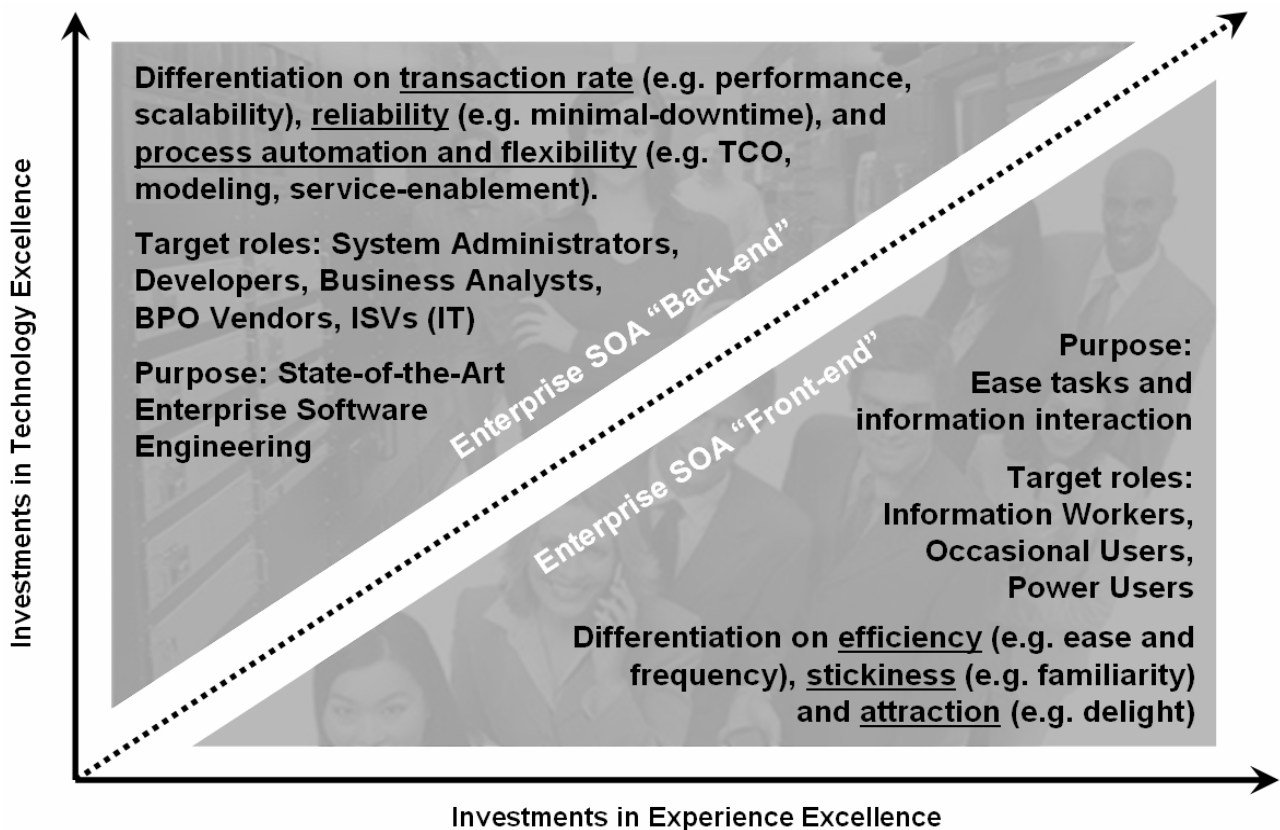


Figure 9 Market leaders demanding the best of technology and user experience excellence

8 ROAD MAP AND TIMELINE

The foundation of SAP's UI technology is available in the SAP NetWeaver 2004s release. Some newer capabilities described here will be available in a Support Pack, especially to support the new value enhancements coming from the mySAP ERP 2005 release. Other new capabilities mentioned will be available in the next releases of SAP NetWeaver.

A detailed roadmap and timeline will be published by SAP in the near future.

9 GLOSSARY AND REFERENCES

Adobe Apollo is the next generation, universal client for desktop applications based on Flex, PDF and HTML. For more information, see the official Apollo wiki [link here](#).

Microsoft WPF (Windows Presentation Foundation) is the new graphical subsystem of Vista for desktop applications based on XAML (Microsoft's new UI markup language). For basic information, see Microsoft's [homepage](#) on WPF.

IBM with Rich Client Platform (RCP) is based on the Eclipse framework for running rich client applications like IBM's Lotus Notes, Sametime, Workplace Managed Client and Forms. For more information, see announcement in the [link here](#) or visit IBM's homepage.

Web Dynpro is the SAP UI framework with design-time and runtime support in ABAP and Java for developing and running business applications in the browser (based on HTML) and in the rich client-Muse (based on XML). See [SDN information](#) section on the basics of Web Dynpro.

AJAX stands for Asynchronous JavaScript and XML, and it is a popular, web development technique for creating more interactive, browser-based applications. See [link here](#).

Top-level navigation is a part of the portal framework-page, holding the information about worksets / work centers and the visualization (in-between the portal masthead and page).

Business Client Protocol allows for an XML file format to be consumed by the NetWeaver Business Client over HTTP protocol. It describes and contains the UI and data instance of an application. It provides us with client abstraction that does not limit us to HTML browsers for running an application. The object model keeps a clear separation of the View elements, Context data and Data types that unlocks innovative ways of flexible consumption and enhancement on the client side in rich environment like NetWeaver Business Client (e.g. BCP's XML can be interpreted into Flex on the client for delivering Flash-based, analytical dashboards, or mobile devices like Blackberry can render natively the BCP XML, or Mindjet MindManager client can consume the BCP's XML format to generate a MindMap for the business user). For more information on BCP (formerly known as Web Dynpro Protocol), see [link here](#).