

Electronic Process - Executive Overview

Electronic business systems and their associated process integration aims have focused on enterprise level processes for the past twenty or more years. Individually companies have also integrated their own internal processes with office automation tools, customer relation management tools, sales force automation, and similar applications all supported with the ubiquitous use of spreadsheets. Within the past ten years we have also seen the development of web based e-Commerce systems that provide enhanced customer services.

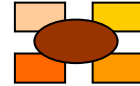
The challenge today as the digital world becomes pervasive and people integrate it into their daily lives is to enable broad integration of workflow for services including local and national government, along with health, education and then commercial applications. Coupled to this is a pervasive need to provide identity management for communities in a cohesive yet enabling way; avoiding this being threatening and restrictive. Indeed, implemented correctly identity management can be viewed as an open mechanism to empower communities to spontaneously collaborate in their citizens daily lives, saving them time and effort with interacting together for common goals (examples include running sports clubs, school activities, religious groups, hobbyists, and research teams).

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Against a backdrop of a world of custom built incompatible and inconsistent domain focused applications delivered over the past twenty years there emerges the need for consistent reliable and deterministic workflow processes that can collaborate and enable service providing communities. This is the foundation of the Electronic Process (EPR) work undertaken first in Norway. In a small county where over 250,000 people out of a population of 2.5 million are government employees and yet services struggle to meet the demands created by geography that distributes communities across 1,500 kilometers of coastline. Thus the need to have highly efficient administrative processes is accentuated.

The EPR approach is to standardize business workflow using the same proven techniques and knowledge gained from the enterprise process world. Included in this is a declarative approach that simplifies understanding and ensures direct known outcomes for rules and process details. At the heart of this are business pattern templates that create a portfolio of components that can be managed and shared within a community of interest. This provides a higher level of control not available in today's computer systems where these details are hidden and locked into individual programs and information stores.

All too often businesses are re-learning reliable workflow, or their in-place inefficient processes are crippling effective use of limited staff resources. Even when procedures and processes are optimal, the ability to take advantage of modern technology is restricted by the inability to integrate it quickly and easily. Examples of technology today that can liberate staff and provide seamless collaboration include: mobile



computing devices, wireless connectivity, knowledge agents, RFID and GPS tools.

This then is the focus of EPR - seamless front office enablement using electronic process tools coupled with the ability to easily integrate enterprise legacy business environments.

However unlike internal office automation systems the foundation of EPR also includes direct linkage to next generation back-office integration technologies such as ebXML and Web services.

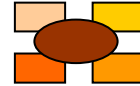
To enable the delivery of the EPR computing environment another key factor is the need to provide business level application development tools that are founded on open standards coupled to business models and patterns by using XML templates and scripts. This enables an EPR application to be configured, deployed and maintained without requiring significant levels of specialized software programming skills. The goal is to enable the business domain staff to be able to manage the rules and interfaces themselves and extend and grow these as needed. This especially applies to the daily task management areas where these need to be adaptive and responsive to events in a complex real world. Too often computer systems impose artificial limited responses where the real world demands flexibility.

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In addition as such process patterns evolve they should be shared across a community of users. Semantics then enable reuse and discovery to occur in a consistent way by referencing domain registries of such template components. This includes semantic domain knowledge systems with federated registries providing core knowledge services and integration support across a community of interest. An example is a shared registry of nursing procedures across a group of hospitals and associated with each procedure is information and topic maps that allow intelligent agent based searching to assist medical staff to locate the correct procedures.

The emergence of open source communities for software development supported by the Internet infrastructure has also provided the means to create such community shared application infrastructure in a way that was not possible ten years ago. Also by placing emphasis on community developed services it enables an affirmative action policy. Here communities themselves can take charge of their own EPR resources instead of having to rely on commercial or central providers where the economics inhibit what can be delivered and supported.

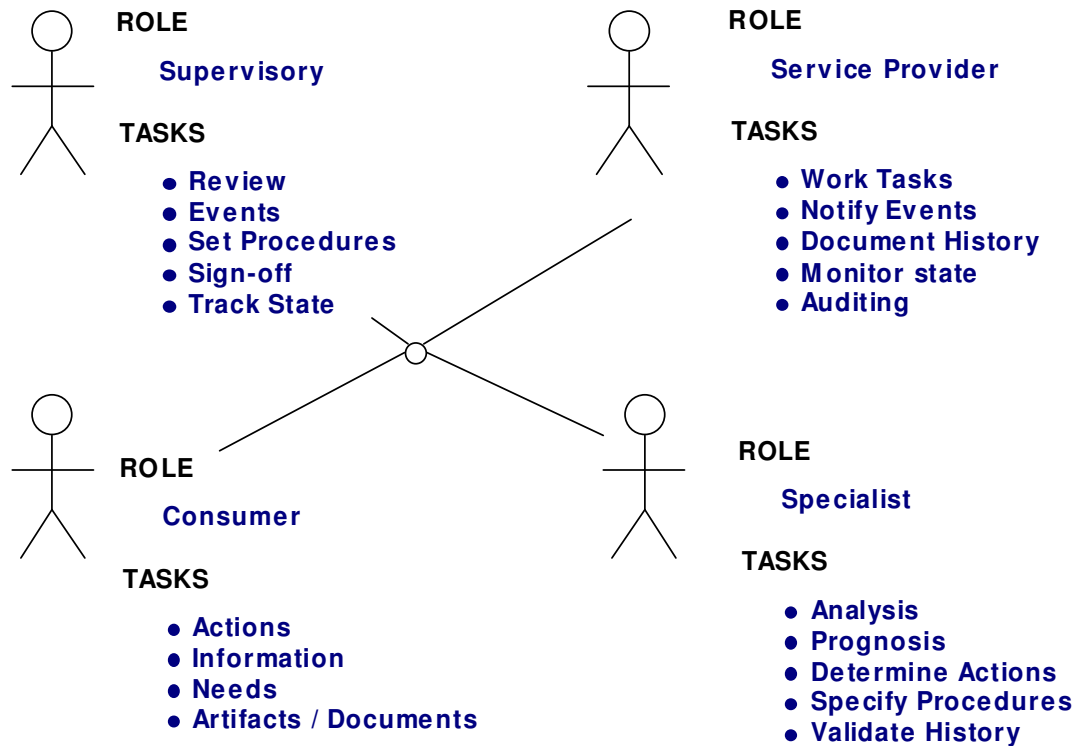
Put together the challenge today across Europe and North America is to enable communities of citizens and workers to exploit this potential to have an electronic process enabled world that will achieve open access to technology and the ability to create better societies for their members.



Understanding the EPR approach

Workflow and business process technology can be viewed as the interaction between a set of four actors - supervisors, service providers, consumers and interdictive specialists. Using this model then specific responsibilities and tasks can be determined, and electronic processing tools identified to support these roles (see figure 1).

Figure 1 – Example EPR Model of business service environments.



The generalized model can then be purposed for the specific domain, such as e-Healthcare, e-Construction, e-Learning and so on. This is the foundation of EPR, a model for enabling front office workflows that is deterministic and reliable by providing an electronic system that supports the fundamental mechanisms in a service environment directly. To do this EPR provides a series of electronic organizational metaphors based around folders and including documents, workflows and tasks. The relationships between each step and state in the process and workflow are then known and formally detailed by declarative pattern templates.

This ensures that outcomes are known, while providing an adaptive and flexible system of folders, documents, workflows and itemized tasks (see figure 2).

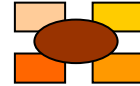
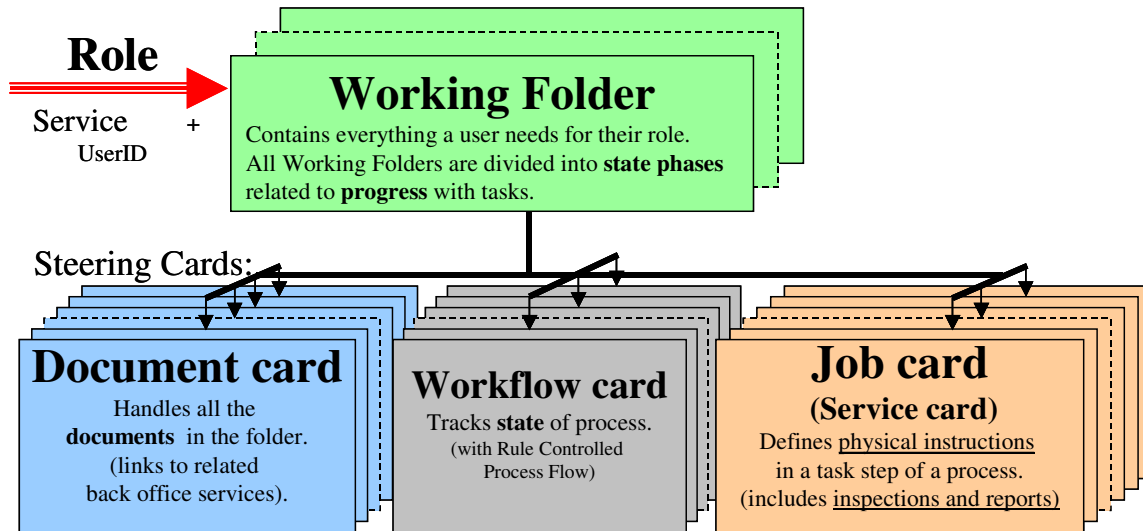


Figure 2 – EPR Front Office Collaboration Tools.



By providing a standardized set of interaction tools EPR reduces the overall training needs for staff and enables supervisory staff to have a coherent set of tools that are predictable and reliable for managing workflows.

Using open standards and specifications to implement the underlying software components will ensure as broad a deployment environment as possible.

Next the user interface components themselves are constructed in a standard way (see figure 3).

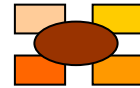
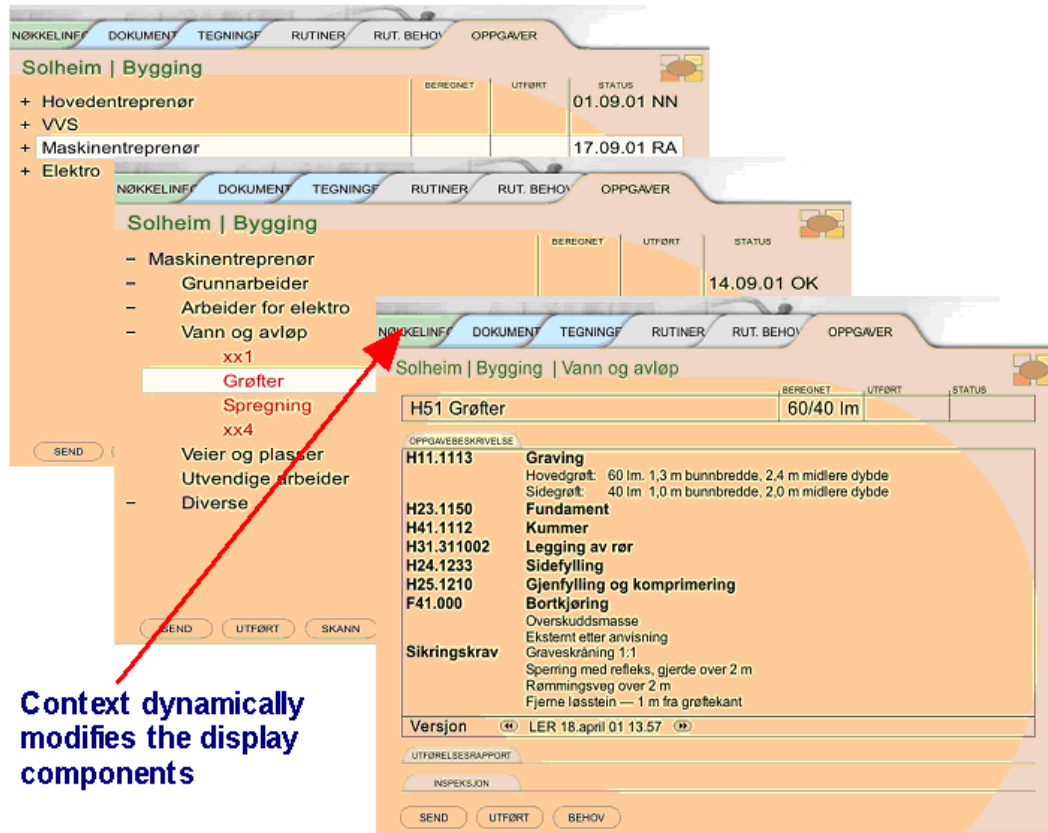
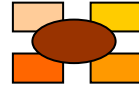


Figure 3 – EPR Example context driven user interface components.



The user interface metaphor is optimized to provide multi-lingual capabilities coupled to dynamically generated interfaces. This is essential to exploit the functionality that XML can provide. Essentially whereas in the past systems were hand-crafted by programmers using interface design tools, the EPR approach is to have machine driven dynamic interfaces that can be automatically delivered using rules applied to libraries of consistent domain vocabularies and nouns that are already pre-configured. As EPR implementations then develop this leads to libraries and pre-built solutions that can be quickly adopted and adapted for local purposes.

While the original EPR work focused on the workflow and user interface components, EPR itself within OASIS has grown to take advantage of the extended family of OASIS specifications for back office e-Business integration. This means that EPR is a collection of components including dynamic workflow forms and documents, a user portal with identity profiles, digital bags with database services, content transformation services, template management services, semantic registry services, directory services, legacy integration services, e-Business messaging services and wireless device services. Implementers can select as many of these components as needed for a particular application. This modern service oriented architecture (SOA) is the technology heart of EPR.



Summary

The opportunity is to provide a common open infrastructure that enables service-facing deployments to reach new levels of consistency, reliability, adoptability and interoperability.

Today we are faced with myriad incompatible bespoke vertical application solutions. In order for this situation to not be perpetuated into yet another generation of computing systems direct action is needed.

A unique combination has emerged today that presents an opportunity that can be exploited by applying clear vision and focus. The paradigm change that XML technologies have created means that systems must change to take advantage of the capabilities of agile information systems. The European Community is expanding with new members with little or no electronic infrastructure but severe needs and demands. The world is also challenged in ways never before seen by the need to ensure safe and peaceful environments for citizens while maintaining open and democratic processes. Simultaneously the necessary technology specifications, business drivers, community needs and new developments with the Internet, wireless access and open source methods all combine together to give a unique chance, a moment to be seized.

This is the vision that the EPR work provides a catalyst for. An open public specification and method that unifies front office service facing delivery. EPR is founded on basic principles that lay down the proven interaction mechanisms that ensure reliable service delivery, audit control, adaptive collaboration and staff empowerment.

Societies today have a common need for such an infrastructure and working together to deliver this in a consistent and reliable way is the first step towards making interoperability across domains at local, national and international levels a reality.