



IBM. **Rational** software

IBM. **WebSphere** software

with analysing, specifying, building, modernising, integrating, and deploying software and creates one standardised process. Information flows seamlessly throughout the process and ensures that the output is directly related to business transformation efforts. It enables a software production line, as shown in the diagram on the left.

Introduction

7irene Archetype is a solution that enables organisations to create an audit-compliant software development environment. It is a proven solution for managing the implementation of multiple regulatory compliance requirements and for adopting multiple standards — whether your goal is to build systems that demonstrate compliance with regulatory requirements such as Sarbanes Oxley or with process standards such as CMMI and Six Sigma.

Any organisation that regards software development as a strategic business process will benefit from using the 7irene Archetype.

Standards and Best Practice for Software Development

A business process is simply how an organisation does its work. It is the set of activities it pursues to accomplish a particular objective for a particular customer, either internal or external. Organisations are always trying to standardise on processes, so that they can achieve the following benefits:

- Clear understanding of how a process operates
- Smoother transition between process boundaries
- Ability to measure and compare process performance
- Easier integration with third parties
- Ability to outsource process activities

In order to realise the above benefits, successful business processes should always have the following standards defined:

- Process Workflow standards
- Process Performance standards
- Process Management standards

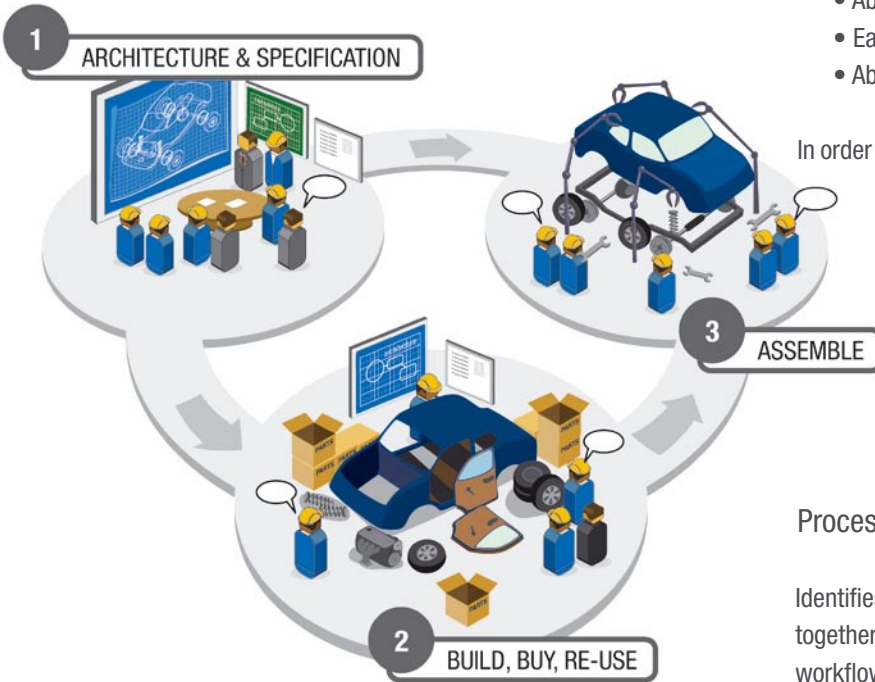
The following is a brief description of these process standards:

Process Workflow Standards

Identifies and defines the various activities that need to take place together with the order in which the activities need to flow i.e. the workflow. Also defines the information that is exchanged between each activity and the status of each activity.

Process Performance Standards

Once agreement is reached on what activities and associated flows constitute a given process, performance measurements can be taken. Benchmarks can be established and comparisons made with other organisations.



Organisations that strongly believe in applying the same amount of foresight, planning, and attention to the software development process as they do to their other strategic business processes, will find that the 7irene Archetype bridges the gap between business imperatives and IT.

The 7irene Archetype provides a blueprint for the business process of software development. It takes the traditional activities associated

Process Management Standards

The process management standards indicate the degree to which processes are managed and measured and if they are on course for continuous improvement.

For software development, a standard that has wide acceptance is the SEI's (Software Engineering Institute) Capability Maturity Model (CMM). The CMM is one example of a process management standard for the IT business process. It does not address process workflow or process performance. The CMM does not dictate that organisations follow a particular software development process. It only requires that they have processes in place to address software quality.

A lack of standards in the process workflow and performance areas is a major reason for low levels of quality in the software industry.

There is however a set of industry accepted best practices that address process workflow and process performance standards. A common set of best practices is defined by IBM Rational as follows:

Develop iteratively. An agile development process yields increasingly improved versions of a software system until it is ready for deployment. Every iteration includes a mix of analysis, design, construction, and testing, which results in a demonstrable form of the software that can be validated and refined.

Focus on architecture. A properly designed architecture ensures that applications will meet business needs, perform acceptably, and be adaptable over time. The adoption of service-oriented architectures (SOA), where architectural building blocks that allow teams to selectively combine and expose functionality without compromising overall system integrity, is also encouraged.

Continuously ensure quality. Too often, software development organisations do not test for software quality until late in the project lifecycle. By continuously ensuring quality from the beginning, teams are better able to deliver expected results at lower cost.

Manage change and assets. The on-demand enterprise thrives on controlled change. Management solutions that help implement a structured approach to change and that guard against corruption of assets (e.g. specifications, source code) are essential when using an agile development approach.

Where do you start if you want to standardise your software development process and adopt these best practices? You need a detailed blueprint, a set of guiding standards.

Why adopt a Blueprint for the Software Development Process?

With over 40 years of commercial software development history, the industry is notorious for project failures. Software development is still expensive, time consuming and error-prone.

A 2003 Oxford University study showed that 16% of IT projects were considered successful¹. Similarly, in another UK survey published by the BCS (British Computer Society), only three out of the more than 500 development projects assessed met the survey's criteria for success². This has a huge negative economic impact.

“One reason for quality and cost problems is the way – or ways – in which software is usually developed. There has been no standard method or approach for software development or engineering; it is normally a “craft” process.” – **Davenport, Harvard Business Review – May 2005**

One side effect of a “craft” process is that development best practice is often not passed on. This generational IT “memory loss” is a direct result of the lack of documented process standards. Software development projects often experience the following:

- Architects, Analysts and Developers work to their own standards and methods.
- Project Managers and Team leaders have their own ‘best practices’.
- Developers are not taught ‘best practices’ and often forget about ‘best practices’.
- ‘Project wisdom’ is lost.
- Few standards exist for how quality software is designed, structured and delivered.

The lack of process workflow standards together with no clear process performance standards means software development will always be prone to huge variations in quality levels. A blueprint which defines the process workflow and performance standards together with software development standards used to build the software, is essential for delivering quality business software.

What is the 7irene Archetype?

The 7irene Archetype is a blueprint, supported by software that defines and enforces the process workflow required to deliver high quality software. It defines a set of standard activities and flows, which together with the Archetype software framework implements an audit-compliant software development environment.

¹ The State of IT Project Management in the UK, Chris Sauer and Christine Cuthbertson, Templeton College, Oxford, November 2003

² IT Projects Sink or Swim, Andrew Taylor, British Computer Society Review 2001

The following processes are supported by the 7irene Archetype:

- Project Management Process
- Software Development Process
- Configuration Management Process

These processes are interrelated and the focus of the Archetype is to integrate these processes through a simple set of unifying concepts. Brief descriptions of the processes are provided below:

Project Management Process

Defines how software development projects are organised and run. 7irene Archetype defines a standard set of activities and their sequence. Best practice for the scheduling of tasks, management of dependencies, and the allocation of resources are also defined. The specific activities and workflow defined are designed to be used as part of a larger project management approach such as PRINCE2.

7irene Archetype supports the adoption of an agile project management process which integrates with the development process. The project management process is feature-driven and focused on delivering business results.

Development Process

Defines a set of activities and flow standards (workflows) with clearly documented input and output artefacts and their dependencies. The development process focuses on the set of tasks required to deliver a unit of software that addresses a given business requirement. The specific activities and workflow defined for the software development process can be used to enhance existing practices described in RUP (Rational Unified Process).

Configuration Management Processes

7irene Archetype defines a set of standards that cover the management of development-time artefacts (e.g. Requirements and Specification documents) as well as runtime artefacts (e.g. executable code).

The diagram below gives an overview of what is included in the 7irene Archetype 2.0.

Project Management	Archetype Portal	Workflow Automation	Iterative Project Management	Standards
Software Development Process	Development Process Definition	UI Framework Runtime Platform	Testing Automation Testing Framework Testing Platform	Assembly & Build Automation Continuous Build
Configuration & Change Management	Configuration & Change Management Patterns	Configuration & Change Management Standards		

Benefits of using the 7irene Archetype

The major benefit of implementing the 7irene Archetype is that it provides a well defined set of process standards and supporting software that enables the implementation of the 3 key process standards, essential for process success. These are:

Process Workflow Standards

7irene Archetype defines a clear set of activities and workflows for the project management, software development and configuration management processes. These are enforced via the 7irene Archetype Portal together with a software framework.

Process Performance Standards

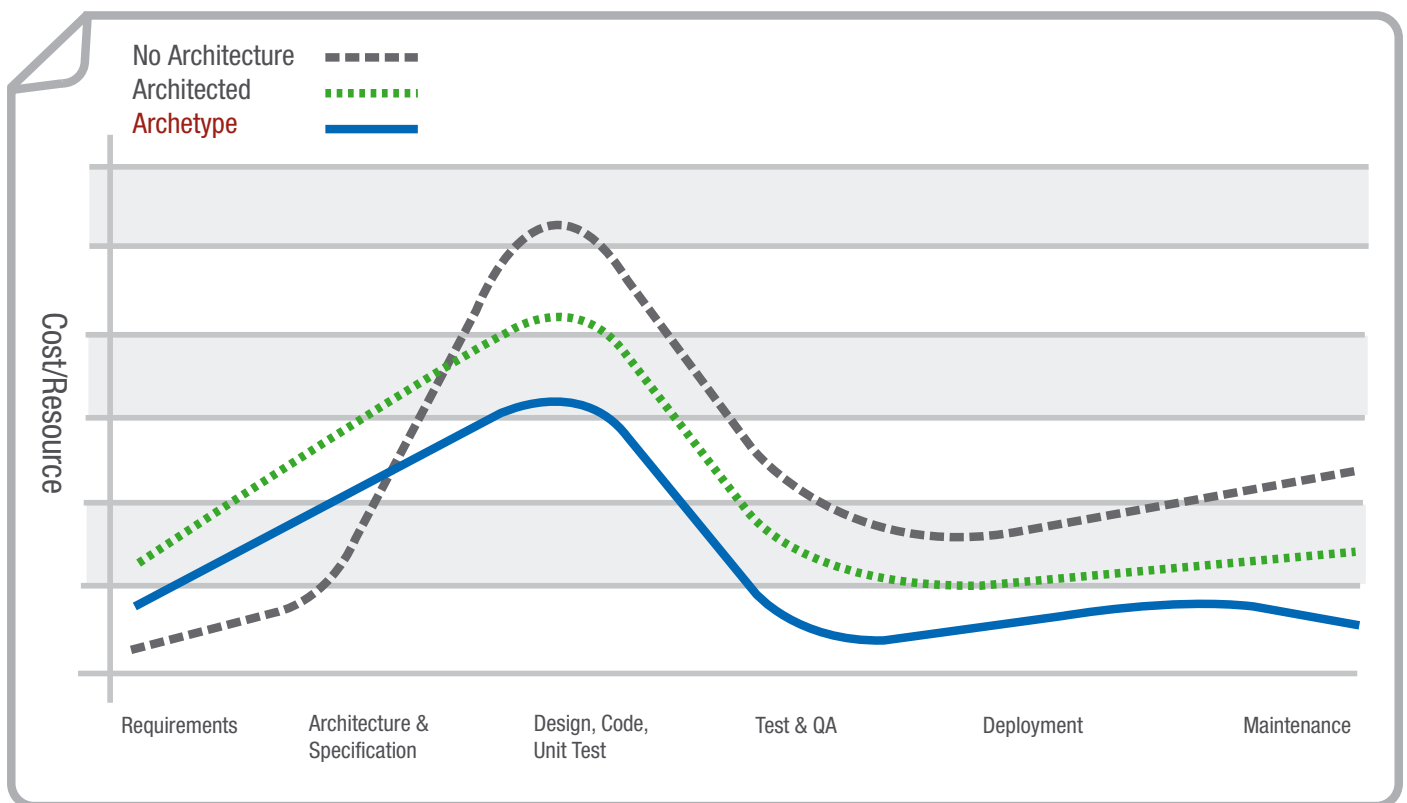
The usage of a defined set of workflows leads to easier measurement of activities and outcomes. The 7irene Archetype enables these measures to be captured at each stage of development. The

Archetype Portal allows the performance of various activities to be continuously monitored so that the need for corrective action can be rapidly identified and made.

Process Management Standards

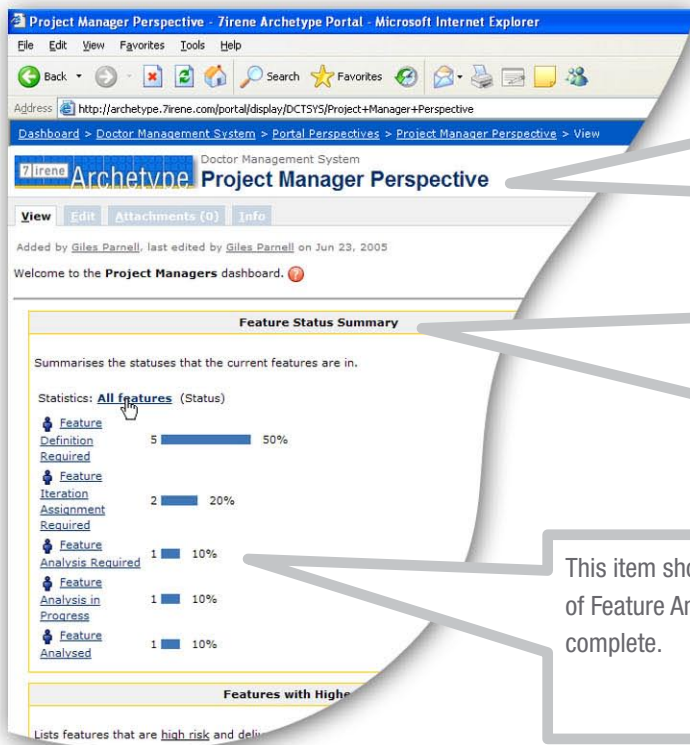
The CMM is a process management standard. It does not prescribe a set of workflows. The 7irene Archetype fills this gap by defining the process activities and flows for software development as described by the CMM.

The diagram below plots the results in terms of resource cost for 3 different approaches taken on projects delivered by 7irene in the past. Projects that have used the 7irene Archetype clearly show the major cost savings and efficiencies that can be gained through using the Archetype approach.



The screenshot below is from the 7irene Archetype Portal and is an example of how the 7irene Archetype integrates the software

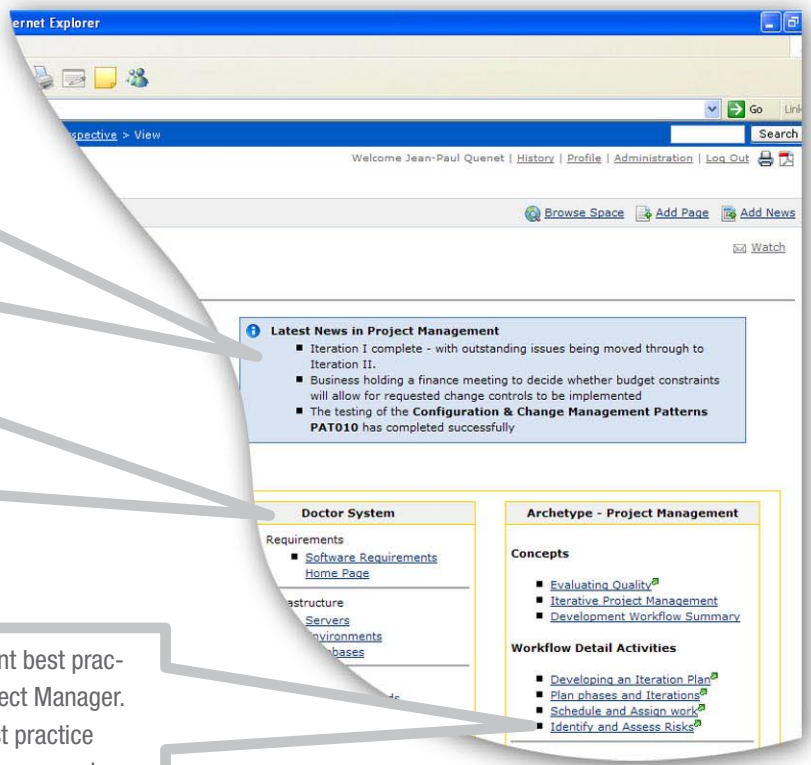
development process, giving the Project Manager a single view on the status of various parts of the project.



The Project Manager has a customised view of all relevant information relating to the project i.e. a dashboard which shows the status of the project.

The Feature Status Summary view provides a view of the Feature Workflow. Each stage of the Workflow is shown.

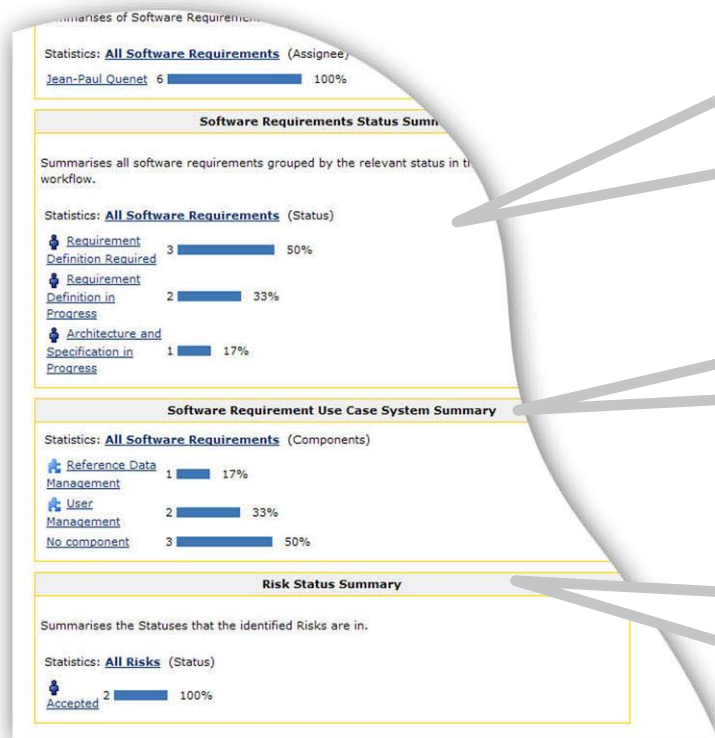
This item shows that the workflow stage of Feature Analysis Required is 10% complete.



The Project Manager is able to publish news items of interest to the project so that team members and interested parties are kept updated.

Information regarding the current project is also provided via the Project Manager Perspective. All details relevant to the project can be found in one place.

This area provides relevant best practice guidance for the Project Manager. The 7irene Archetype best practice guides for the project management process is accessed from this area.



The status of each workflow step for the software development process is shown here. This information allows for informed decisions to be made about the project.

This section provides a summary of the Use Cases completed for each software component.

The status of risks identified for the project is summarised here. The 7irene Archetype supports a Risk Workflow, which ensures that risks are managed.

About 7irene

7irene is a specialist software and services company that helps organisations dramatically improve their software development capability. 7irene has a unique vision for business software development, a recognised track record of consistent delivery, proven success and a highly valued ability to execute.

Sales Contact: Pundarik Ranchhod
pundarik.ranchhod@7irene.com



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