Pragmatic Roadmapping with IBM Rational System Architect® and ArchiMate®

By Martin Owen, CEO, CORSO

Executive Summary

Roadmapping is a fundamental part of strategic planning and enterprise architecture. Roadmapping allows us to map out the set of actions that are required to move the business from where it is today, to where it wants to go.

Those actions turn into plans. Our roadmapping capabilities allow organizations to tie strategy to deliverables using enterprise architecture. Roadmapping is crucial in allowing organizations to deliver on initiatives that have been prioritized.

Introduction

This whitepaper provides an overview of three main topics that are addressed with our ArchiMate® plug in for IBM Rational System Architect®.

- **Current v Future State Architectures**
- **Work Packages and Timelines**
- **Lifecycles and Heatmaps**

ArchiMate® 2.0 from the Open Group introduces an '*Implementation and Migration Extension Metamodel*'. The implementation and migration extension is designed to provide concepts that model the transition of enterprise architecture over time.

corso
from ideas to delivery
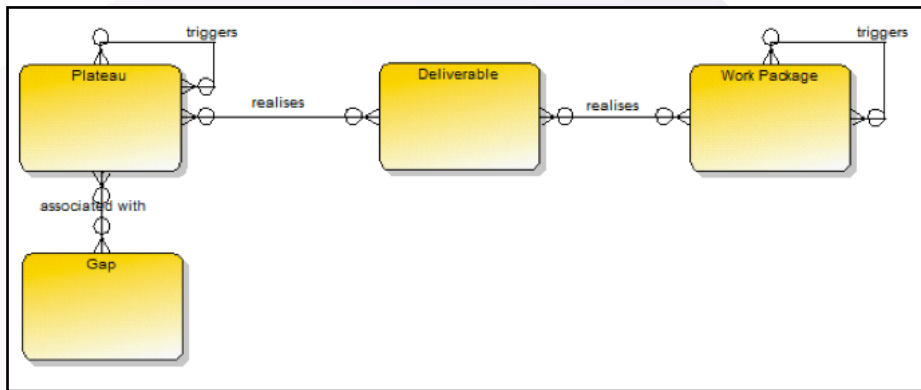
The metamodel includes the following concepts:

Figure 1. Partial ArchiMate® 2.0 metamodel

We have extended the ArchiMate® 2.0 Implementation and Migration Extension Metamodel within our Corso ArchiMate add-in for IBM Rational System Architect®. We now support both tool features and capabilities available in IBM Rational System Architect® and additional concepts that we believe are necessary to do pragmatic roadmapping and transition planning.

Existing Concepts in ArchiMate® 2.0

Concept	Definition	Notation
Work Package	A series of actions designed to accomplish a unique goal within a specified time.	
Deliverable	A precisely-defined outcome of a work package.	
Plateau	A relatively stable state of the architecture that exists during a limited period of time.	
Gap	An outcome of a gap analysis between two plateaus.	

System Architect Concepts

Encyclopedia

IBM Rational System Architect® has the concept of an encyclopedia. An encyclopedia contains diagrams (views) and definitions (concepts). By default, one encyclopedia is a namespace for all views and concepts.

Workspace

Encyclopedias may be configured to support workspaces. This is done through the System Architect encyclopedia manager (SAEM). Workspaces are extremely useful for modelling architectures within specific bounds and for modelling current and future states.

Workspaces are created in a tree structure allowing previous workspaces in the tree to be base-lined. Child workspaces inherit the views and concepts from preceding workspaces.

IBM Rational System Architect® allows users to navigate between workspaces at ease and also provides tools for comparing content across workspaces.

Extensions to ArchiMate® 2.0

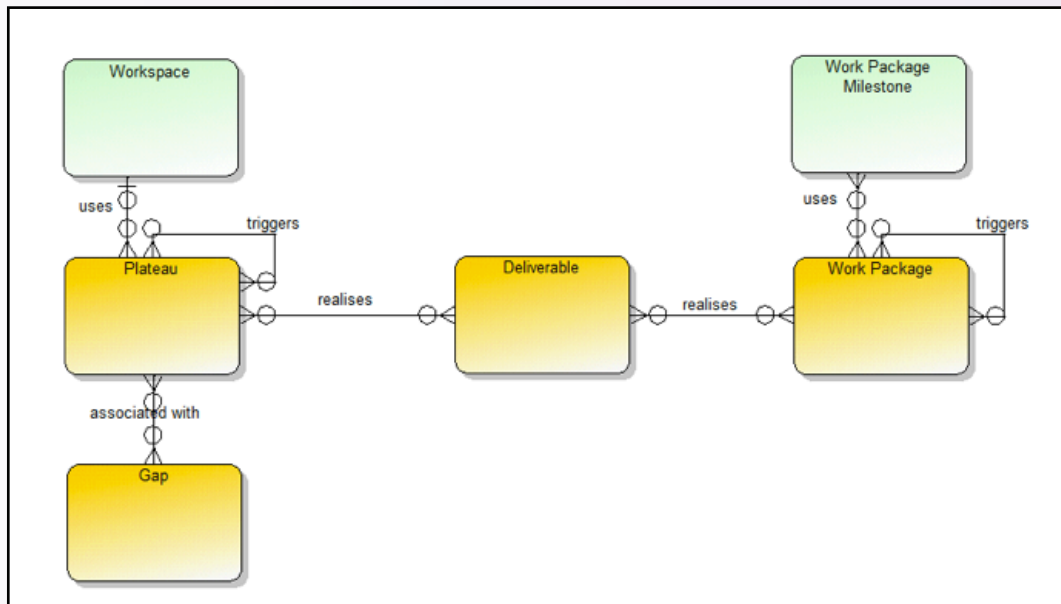In order to make ArchiMate® 2.0 pragmatic for roadmapping, we have extended the core metamodel to include both workspaces and work package milestones.

Figure 2. A Plateau is mapped to a Workspace definition which itself represents a workspace.

Current vs. Future State Architectures

With the additional concepts introduced, we can now build a view of our architecture using plateaus and gaps. In IBM Rational System Architect®, we use a ArchiMate® Implementation & Migration diagram to represent this view.

TIP: It is good practice to create a separate workspace that contains overall transition plan models.
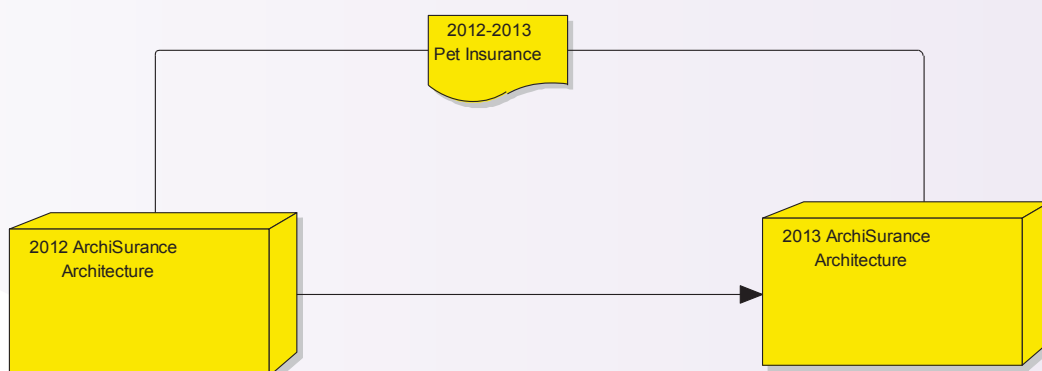

Figure 3. The plateau '2013 ArchiSurance Architecture' is triggered by '2012 ArchiSurance Architecture'. The Gap between these two plateaus is 2012-2013 Pet Insurance.

The dialog below allows us to map a Workspace definition in IBM Rational System Architect® to the Plateau. In advanced edit mode, the Refresh Workspaces button will refresh the encyclopaedias' list of workspaces as definitions in the current workspace.
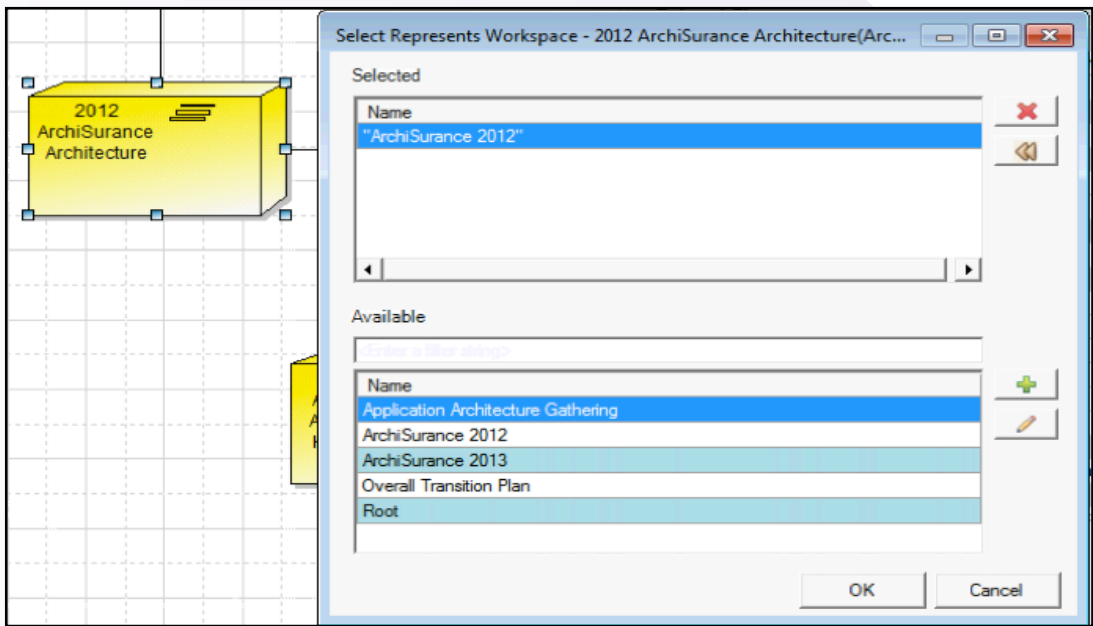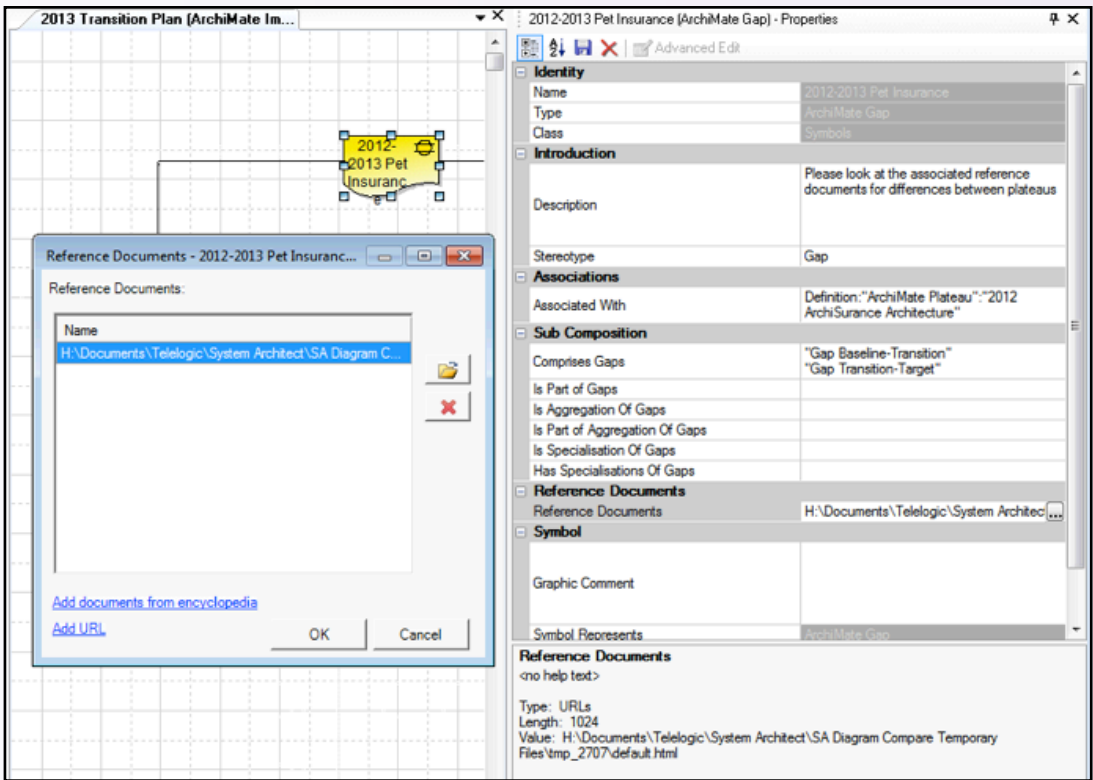

Figure 4. Mapping a Workspace definition in System Architect

As each plateau is represented by a workspace, we can use the standard capabilities of IBM Rational System Architect® to show differences between the workspaces and store these against the Gap.

Figure 5. Workspace differences in IBM Rational System Architect®

As each plateau is represented by a workspace, we can use the standard capabilities of IBM Rational System Architect® to show differences between the workspaces and store these against the Gap.

Examples of differencing tools are SA Compare, Diagram Compare and History Compare. The outputs of comparisons can be stored against the URL property

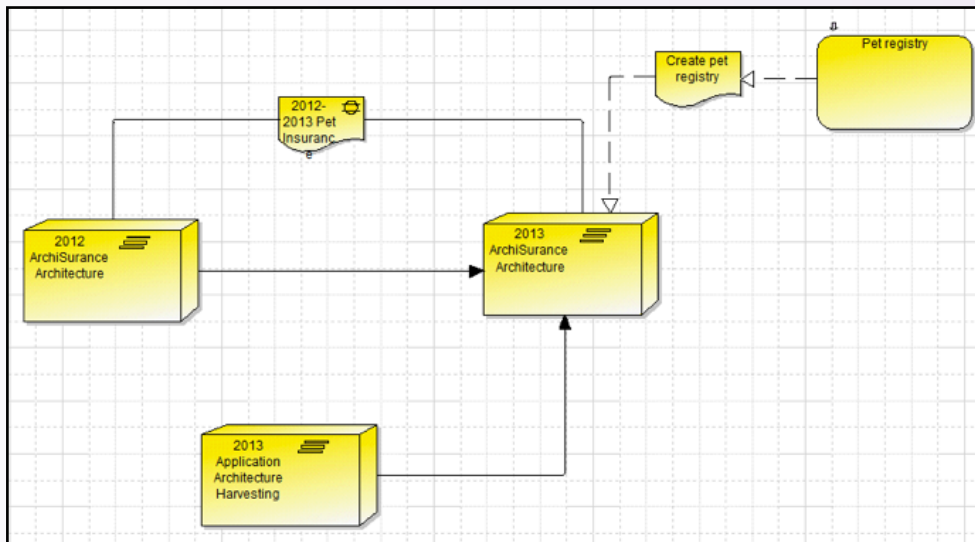We can now extend the view further to include other model elements that help describe the transition plan.

Figure 6. Extended view

Work Packages and Timelines

We have also extended Work Packages to include the concept of a Work Package Milestone. A milestone represents an action or event marking a significant change or stage in a work package. Each milestone has a date stating its end date.

In the 'advanced edit' dialog for a Work Package, we can specify a list of milestones and their end dates.

An architect can identify a set of standard threads or dimensions that run through all work packages. For each of these threads, there can be a status indicator at any given project milestone. This is achieved using color-coding so that stakeholders can tell, at a glance, the status of a given work package at different points in time.

Examples of these dimensions are Cost Savings, Resource requirements, Risk, Classification etc.
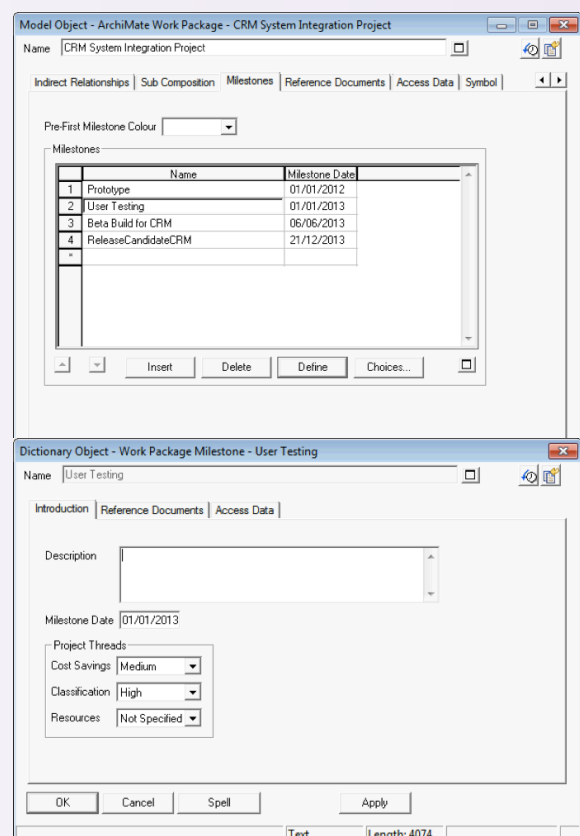

Figure 7. Editing Work Packages

We have included a new diagram to allow users to visualize the milestones within the context of work packages.
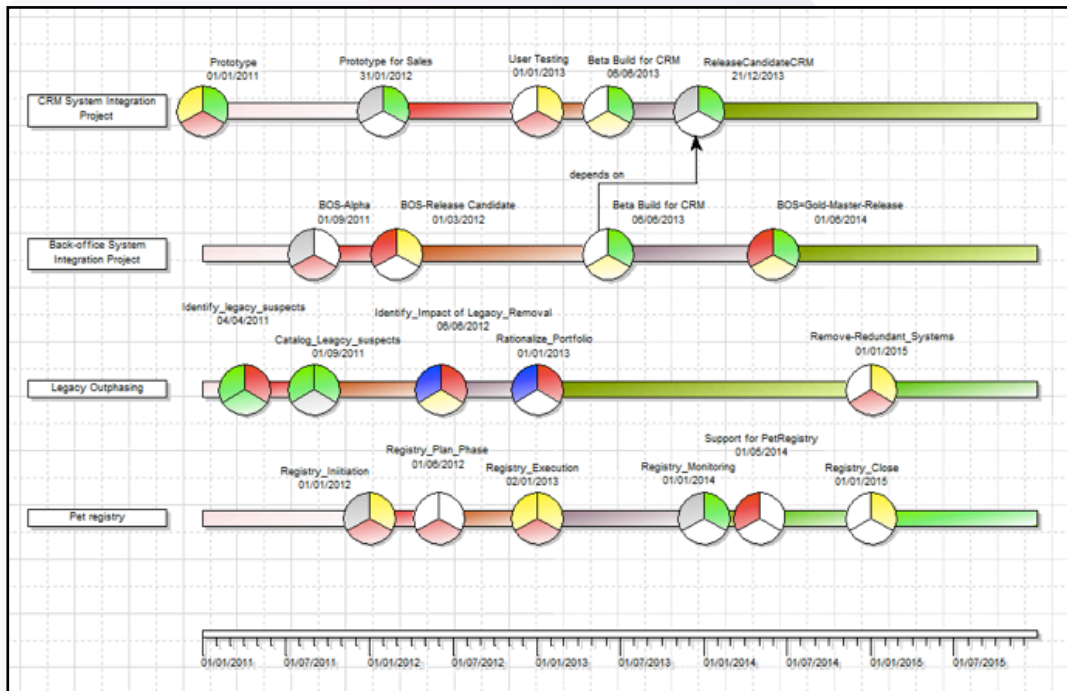

Figure 8. Milestone view showing Work Packages with status

Figure 8 shows a Programme Timeline diagram and contains a series of ArchiMate® Work Packages. The Work Packages are organized vertically and show their milestones along the horizontal access. Each milestone is represented as a pie chart. Its position along the axis is denoted by its date value in the milestone. Each segment of the pie chart is colored to reflect its thread/dimension value selections.
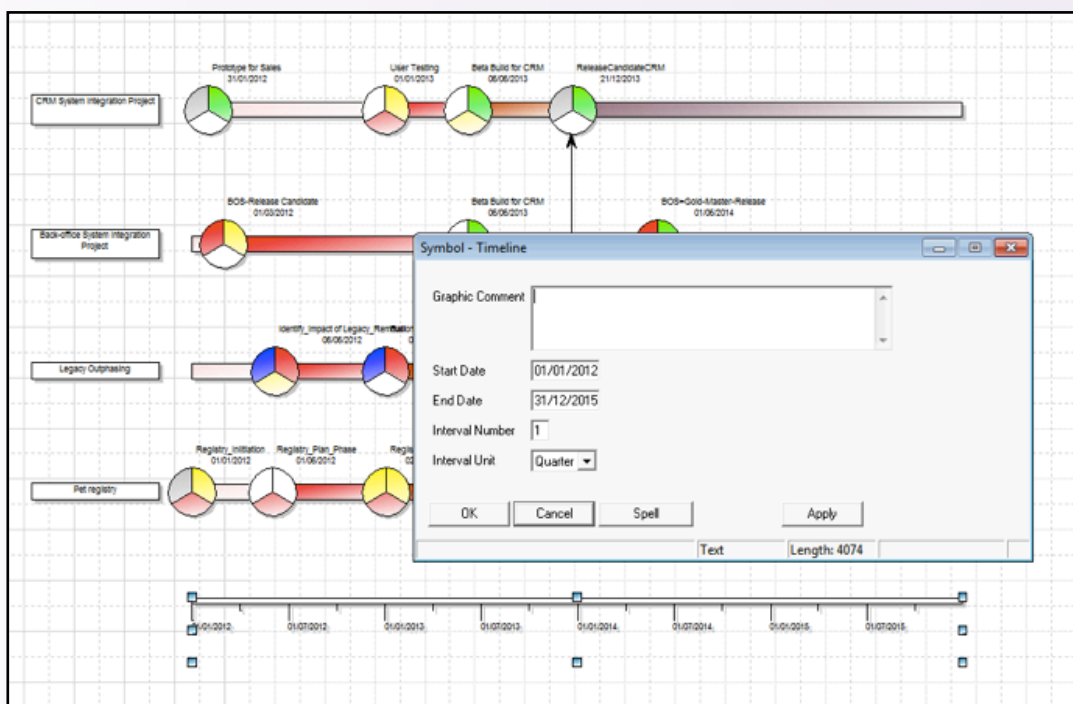

Figure 9. Modifying the timeline properties

The timeline property can be modified with a start and end date and an interval unit and number. The diagram view will change to reflect the time duration entered.

Lifecycles and Heatmaps

In order to fully support the ability to heatmap and produce lifecycle states for architecture artifacts over time, we have introduced lifecycle states to concepts in ArchiMate®.

Although we have included lifecycle states for several concepts, you may freely add these to other objects inside IBM Rational System Architect® where it is applicable to you.
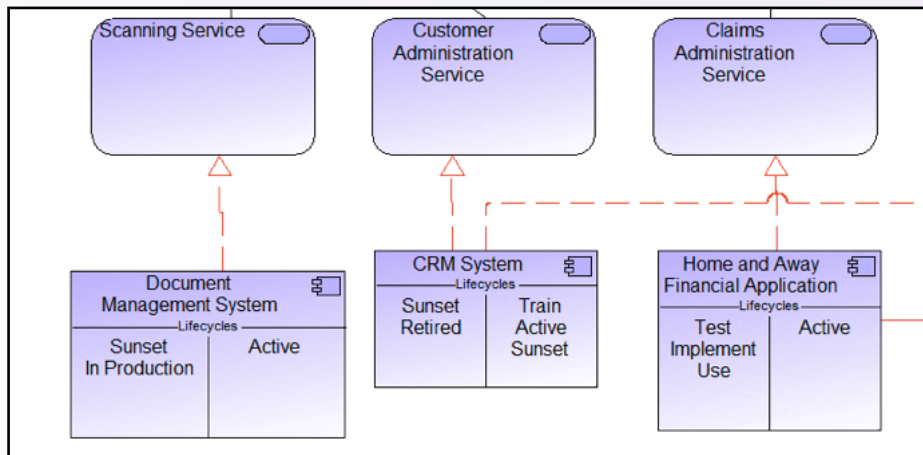

Figure 10. Adding lifecycle states to concepts

As you can see in Figure 10, we have added two lifecycle state properties to the ArchiMate® Application Component concept. The lifecycles on the left correspond to deployment lifecycles and those on the right to 'usage lifecycles'.

In our implementation, deployment lifecycles map to the ITIL deployment lifecycle states, although in most organizations, we find that the names of these vary and therefore can be modified in IBM Rational System Architect®.

As users interact with our product or service, they proceed through a series of steps called the usage lifecycle. The usage lifecycle is a mapping of the user's actual usage as opposed to the IT deployment view of the world.

> **TIP: You can use Corso Connections to capture the user usage via forms directly into System Architect.**

In advanced edit mode, we can specify the lifecycle states and their dates in a grid:

You will note that the name of the lifecycle can be different to the lifecycle state. This allows you to control variances (synonyms and homonyms) that people may use to describe the core lifecycle state.
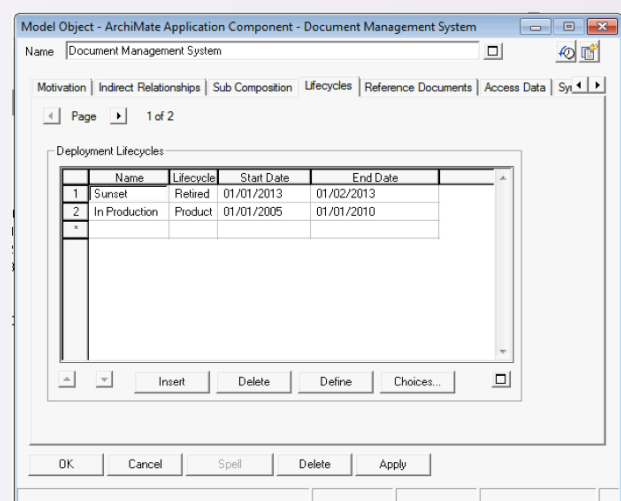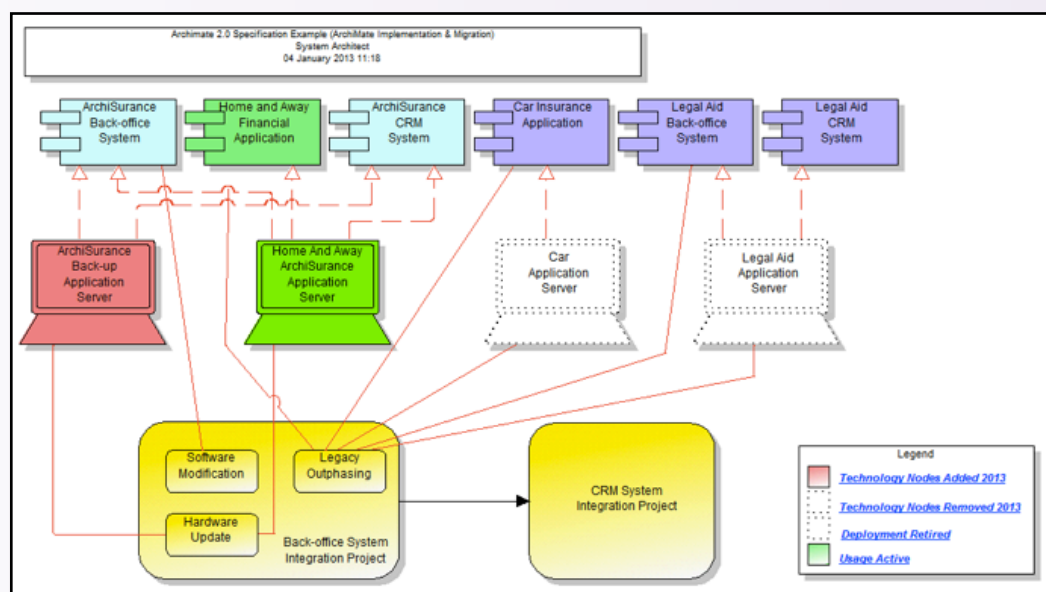

Figure 11. Editing lifecycles

We have included a set of heatmap reports that will change either the pen style or colour of the concepts in ArchiMate® that have lifecycle properties. In the example below, you can see that Deployed Retired is setting the Application Components that have a deployment lifecycle state set to Retired for 2013.

Figure 12. Heatmap reporting

We can also show examples of the heatmap with other concepts such as an ArchiMate® Node (device).

Figure 13. Heatmap reporting on ArchiMate® nodes

Explorer Diagrams

We can see from the metamodel below that the definitions are connected. This means that we can use the explorer diagram to get a view across the metamodel of the instances (definitions) and how they are connected for a particular scenario.

Figure 14. Explorer diagram

In the explorer diagram below, we can see that we have started off with our Registry_Plan_Phase Milestone and can expand out to show other concepts that are connected to it.
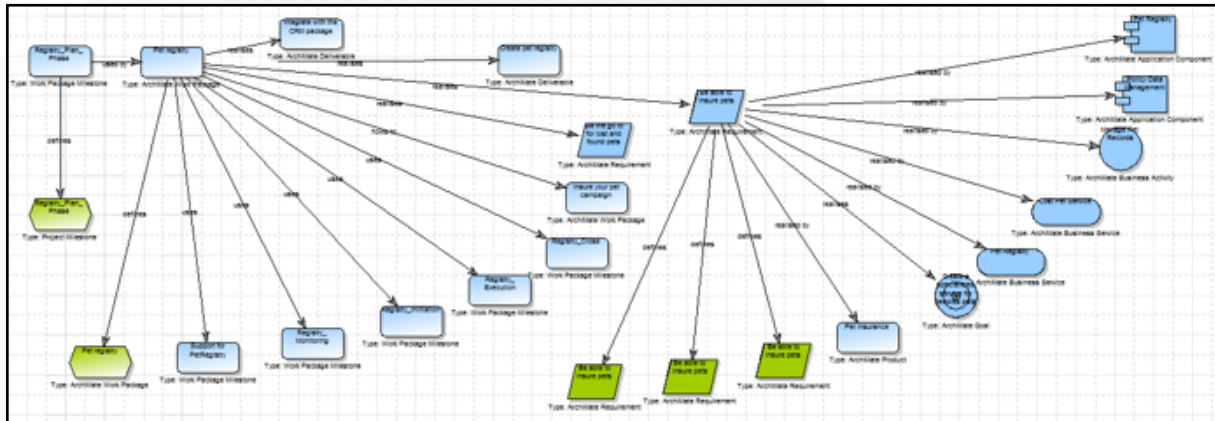

Figure 15. Explorer diagram showing connected concepts

Conclusion

ArchiMate® 2.0 has provided the core building blocks for roadmapping. Although not complete without the Corso extensions, ArchiMate® 2.0 finally allows enterprise architects to model transition plans, work packages and time in a coherent manner.

References: ArchiMate® 2.0 specification https://www2.opengroup.org/ogsys/jsp/publications/PublicationDetails.jsp?catalogno=c118

About Corso

Corso provides a range of innovative products and services in support of strategic planning initiatives. We provide guidance and best practice in demand management, enterprise architecture and IT planning.

Corso offers a range of consulting services designed to help an organization deliver value from their Enterprise Architecture, Strategic Planning or Business Process project. Corso is an IBM partner and provides tools and services in conjunction with IBM Rational products and numerous other vendors.

About Martin Owen

Martin has spent over 20 years in Enterprise Architecture and is a co-author of the original Business Process Modeling Notation (BPMN) standard. He is familiar with many EA frameworks and methodologies and most recently has been responsible for the EA tooling within IBM. Martin has run teams driving the product directions, strategies and roadmaps for the Enterprise Architecture tools at IBM including Rational System Architect and Rational Asset Manager. Martin has also worked on the strategy for the IBM Jazz initiative for the new generation of EA software tools.

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