



IBM Rational Software Conference 2009
As Real as It Gets!



The Requirements New Groove: Iterative Definition & Composition Techniques in Jazz

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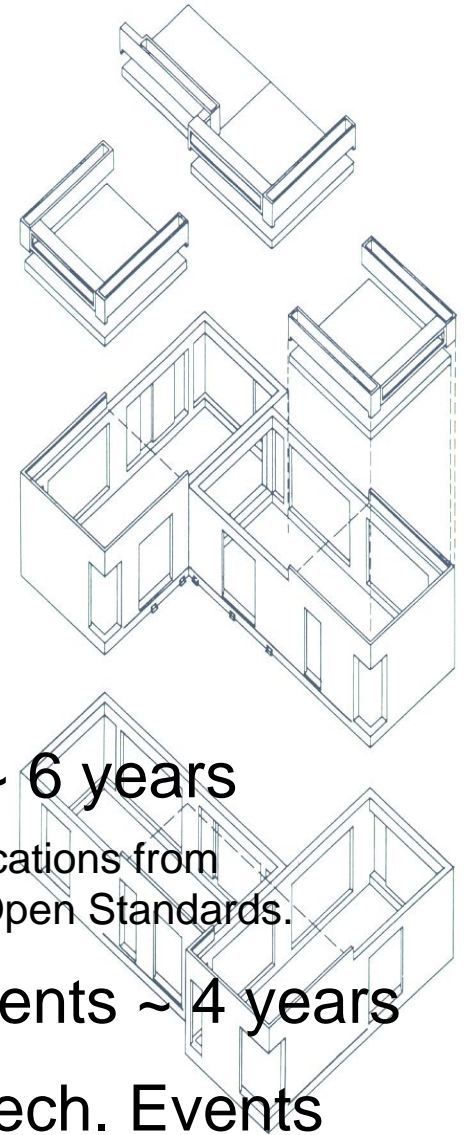
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Rational. software

RDM05

About me...

- 22+ years in IBM
- Before that: Texas Highway Patrol ~ 7 years
 - ▶ Created DB of cases filed
 - ▶ Automated warrants procedure
- Operating Systems Development ~ 10 years
 - ▶ AS/400 / OS/400 System – Atlanta, Georgia
 - ▶ OS/2 Base Operating System – Boca Raton, Florida
 - ▶ OS/2 LAN & TCP/IP Networking – Austin, Texas
- Consultant / e-Business Solutions Designer ~ 6 years
 - ▶ Migration and transformation of client and business partner applications from client/server model to interconnected Web Applications built on Open Standards.
- Manager, developerWorks WW Technical Events ~ 4 years
- Today: Senior Manager, IBM Rational WW Tech. Events



Agenda

- Collaborative software development vs. Jazz
- The requirements challenge
- Introducing Rational Requirements Composer
- Iterative requirements
- 5 recommended steps to make it happen
- Rational Requirements Composer usage tips
- Demonstrations



Jazz

- “**Jazz**” a musical art form rooted in West African cultural and musical expression and in the African-American Blues tradition, with ***diverse influences over time***
- Jazz spawned subgenres, from New Orleans Dixieland (1910), to big band-swing (30’s), bebop (mid-40’s), Latin jazz ***fusions*** such as Afro-Cuban & Brazilian jazz (50’s, 60’s), then jazz-rock (70’s, 80’s).
- As Jazz spreads globally, it takes on flavors of the local & regional cultures. It ***adapts to its varied environments***; giving rise to many distinctive styles.



Improvisation



- **Improvisational Jazz**
- **Improvisation:** The practice of making and creating, in the moment and in response to the stimulus of one's immediate environment...
 - ▶ Adaptations result in the invention of new thought patterns, new practices, new structures or symbols, and new behaviors.
- **Business improvisation** is the ability to access creativity in the moment, under pressure, and in the given environment in order to solve problems.
 - ▶ The practice necessary to achieve objectives despite unexpected events or changes.
- We need flexibility and creativity in order to succeed...

The requirements challenge

- Do we really know the true needs early in the project?
- Can the customer really 'sign-off' early on the final requirements?
- How do we determine priority?
- Where do we set the baseline?
- Do we understand the real business and technical risks?
- Does anyone ever read those 100+ page documents?



Office tools exemplify the problem

■ Microsoft Word

- ▶ Track Changes, Comments, Formatting nightmares, HUGE documents

■ Excel spreadsheets for requirement sets

- ▶ Tabular format helps (at first) until the Tabs start to grow

■ Visio to model process, flows, screen designs

- ▶ Slightest change requires many manual updates to the same component

■ PowerPoint as communication vehicle

- ▶ Dozens of presentations to crawl through for information

■ No way to establish relationships and link artifacts

- ▶ Have to have endless meetings to put together the pieces

Q: *Have requirements evolved into what they are today in order to accommodate the functionality of the tools that are being used to represent them?*



Introducing Requirements Composer

- Music to my ears!
- A bridge across the tool silos
- Effortless communication and collaboration across project teams
- All requirements artifacts can live in the same repository and be accessed via the same requirements solution
- A way to capture, connect, organize, and understand the complex web of requirements



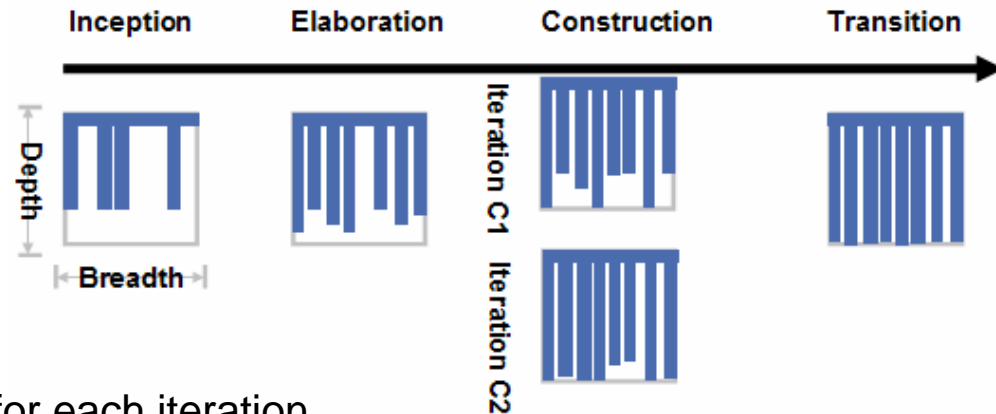
Moving towards a more agile approach

- Link documents, images, diagrams, and artifacts as they are collected and evolving
 - ▶ Create meaningful relationships across artifacts to paint the whole picture to the team
- Provide an accessible repository on the web for stakeholders to review and comment as needed
 - ▶ Invaluable to projects with GR component – less need for midnight calls!
- Resist the Giant Requirement Up Front (GRUF) temptation
 - ▶ Introduce a less rigid, more flexibility requirements process
- Emphasis on the value of modeling
 - ▶ Fewer words, more pictures is always a good thing!



Iterative requirements

- Enable early user feedback
 - ▶ The aim is to have something tangible for each iteration
- Focus on the business and technical risks first
 - ▶ Early mitigation = less flux later on
- Testing and integration are continuous
 - ▶ Easier/less costly to fix defects earlier
- We don't (and can't) know everything 'up front'
 - ▶ Iterations serve to paint the picture incrementally
- Team learning (and therefore effectiveness) is enhanced
 - ▶ Apply lessons learned from the previous iteration to the next



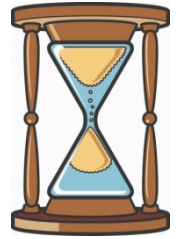
Five techniques to make it happen!

1. Timebox
2. Establish breadth
3. Prioritize
4. Go deeper
5. Repeat



1. Timebox

- Direction, not perfection
 - ▶ Develop requirements in phases with a time-box for each phase
 - ▶ Each requirements cycle is a short, specific time frame
- Make assumptions, then move on
 - ▶ Assumptions will either fall out of scope, or become requirements
- Don't capture too much detail
 - ▶ Doing so can lead to analysis paralysis





Composing begins during the early days!

- Capturing high-level stakeholder needs
 - ▶ Vision document, Features, Solution Proposal (services), Business Requirements
- Business process sketches, glossary of terms give context
 - ▶ Related terms and synonyms are especially helpful for new team members
- Relationships are established by linking
 - ▶ Can import PowerPoint, Excel, Word, Images, and even capture e-mails in rich text
- Decisions and assumptions documented
 - ▶ So the team does not waste time revisiting again



✓ Business process

highlighted comments

✓ Rich text documents

Consolidated Requirements Document

Self-Serve Rebooking & PRS-APRT: AC Tier 3 flights, Enhanced Customer Communication

Introduction

The goal of the IRROP's Self-Serve & Enhanced Communications initiative is to strengthen Air Canada's customer service offering when irregular operations or anticipated flight cancellation events occur. The content of this document contains the functional requirements which will be used to develop a solution with the following business capabilities

- Enable passengers to re-accommodate themselves during an IRROP or anticipated flight cancellation situation by providing a multi-channel self-service capability.
- Enhance communication to passengers when an IRROP event occurs
- Enhance information capabilities of AC staff

Access Channels to the Self-Serve Rebooking tool

Web Channel:

The web user can access the **Self-Serve Rebooking tool** from 3 different avenues:

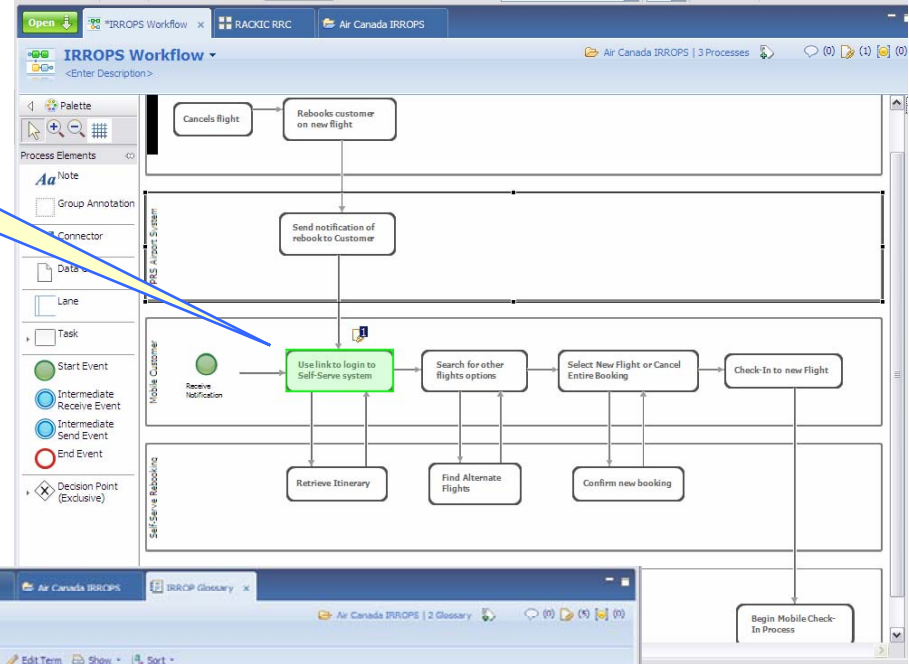
1. [Email notification triggered from PRS-ARPT for IRROP situations only.](#)
The email will contain link to the application URL, with the PNR locator and Last Name embedded
2. [Through the application URL \(i.e. Travel advisory web site\) for IRROP and Anticipated Flight Cancellation situations](#)
3. [AC Web Check-in \(WCI\) tool if an outbound segment that is open for check-in was rebooked by PRS.](#)

Mobile Channel:

The mobile user can access the **Self-Serve Rebooking tool** from 3 different avenues:

1. [SMS notification triggered from PRS-ARPT for IRROP situations only.](#)

linked requirements



IRROP Glossary

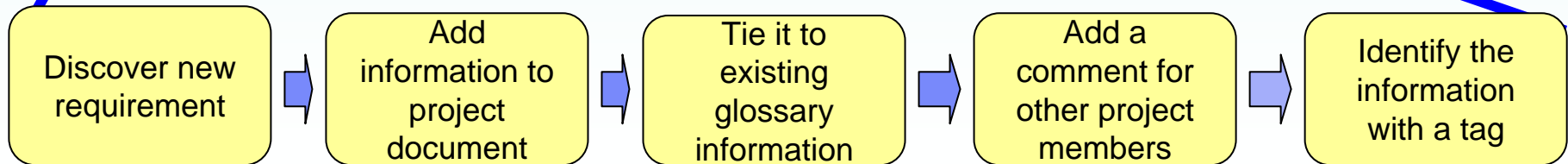
Term	Description	Related Terms	Synonyms
Mobile Check In		None	None
Modify a booking	Same as Rebook PNR in the context of this project.	Rebook PNR	None
O&D	Origin and Destination airport of a bound or flight	None	None
PAX	Passenger	None	None
PNR	Passenger Name Record (the booking reservation).	None	None
PNR Locator	The booking confirmation number.	PNR	None
Protected itinerary/flights		None	None

related terms

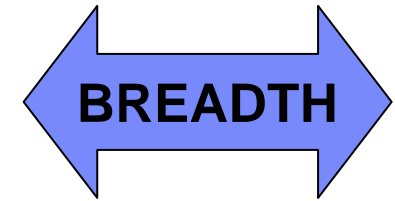
✓ Project glossary



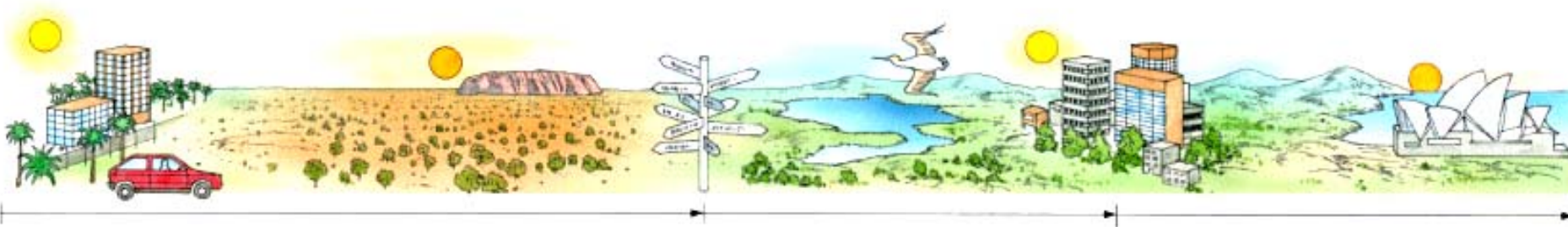
Discover a new requirement and document it



2. Establish breadth



- Understand the 'lay of the land'
- Identifying the boundary: scope of automation
 - ▶ High-level requirements covering the *entire* breadth of the system
 - ▶ Staying within the time-box: whatever gets missed here can move to the next iteration
- Begin with a list of use cases and actors
 - ▶ Aim for a complete actor and Use Case set, start with outlines, details then get added incrementally





The use case model in Composer

- ‘Automated’ tasks in business process model
 - ▶ Helps determine the scope of the system – black box for system use cases

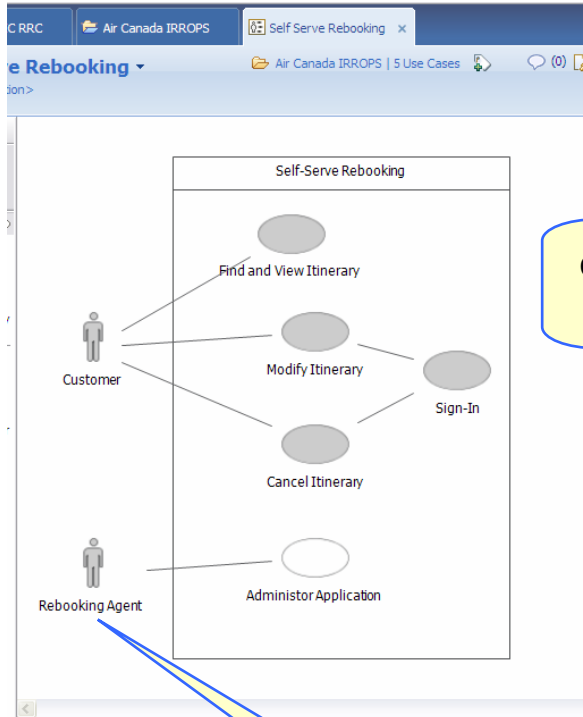
- Aim is to ‘discover’ all use cases
 - ▶ Usually do not get it right the first time - need to combine or merge as needed later

- Sketch of the use case diagram
 - ▶ UML notation showing system boundary, actors & use case relationships
 - ▶ Initially start with a sketch, can turn into reusable components later

- Outline of use cases and actor descriptions
 - ▶ Use Case document template- provide brief description and identify major flows only

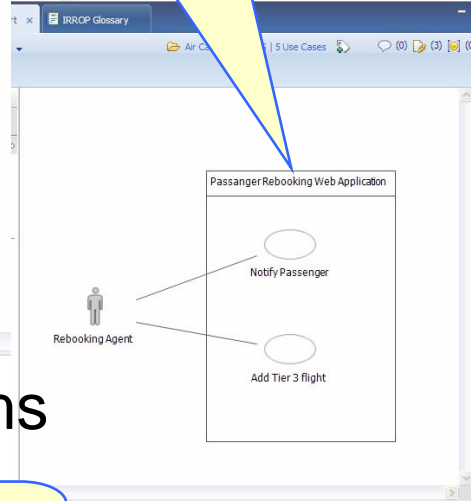


Use case specifications



double clicking on diagram opens use case description

can sketch first, define later



Use case diagrams

reusable components

Open RACKIC RRC Air Canada IRROPS Self-Serve Rebooking Find and View Itinerary

Find and View Itinerary

AIR CANADA

Self-Serve Rebooking: Find and View Itinerary

1. Use Case Overview

Brief Description:

This Use Case describes the steps for finding and viewing a Customer's itinerary from different entry points into the Self-Serve Rebooking System.

- The Customer can access the Self-Serve Rebooking System from the Air Canada Travel Advisory website. This entry point requires the Customer to enter and submit their identification credentials.
- The Customer can also access the Self-Serve Rebooking System from the URL provided in the SMS or Email notification. From this entry point, customer identification information is propagated to the Self-Serve Rebooking System, but the Customer is still required to verify and submit their credentials in order to access the system.
- The web, kiosk and mobile check-in applications also provide entry points to the Self-Serve Rebooking System. Customer credentials are automatically propagated to the Self-Serve Rebooking System. Customers will not be required to verify and submit their credentials.

After successful login to the Self-Serve Rebooking System, the Customer is able to view their itinerary in either the Identified or Authorized state.

Actor(s):

Customer: Passengers whose flight plans have been impacted by an IRROP or anticipated IRROP situation.

2. Use Case Diagram

3. Preconditions

- The Customer has a PNR in order to access the System
- The network connection to the System is active

4. Basic Flow

{Access Rebooking Site}

insert artifacts into rich text documents

3. Prioritize

- According to RISK

- ▶ Technical risk: working with architect to determine architectural risks
- ▶ Business risk: good to challenge the customer

- According to BUSINESS VALUE

- ▶ Which UCs and functions will deliver the biggest bang for the buck?
- ▶ Pareto's Principle - **80/20 rule**

- Be ready to do it again! Will have to re-prioritize requirements in the next iteration...



Composer can help!



- Define and set attributes (priority, difficulty, risk)
 - ▶ These will not be lost and can later be imported to RequisitePro for management
- Commenting features to communicate and help achieve consensus
 - ▶ Each stakeholder may have their own idea/agenda – facilitate difficult discussions
- Business partners, stakeholders, development teams that do not have client access can take advantage of the web
 - ▶ Easy to use and navigate as needed – can send URL links to specific artifacts
- Define a strategy for how you will use attributes and tags consistently in RRC



✓ Read-only web access

✓ Comment on any artifact

The screenshot shows the 'Comments (2)' section for an artifact. The comments are:

1. IRROP commonly used
adamood April 15, 2009 4:11 PM
Term IRROP commonly used but should be specified whether it is an anticipated or confirmed IRROP
2. Testing this comment for IRROP
adamood April 15, 2009 4:43 PM
this is for IRROP

A callout bubble points to the first comment with the text "see history".

dashboard style home page: click on link to open related artifact

The login screen features a 'Log In' button and a 'Log In' link. A callout bubble points to the 'Log In' link with the text "dashboard style home page: click on link to open related artifact".

✓ Synchronize attributes

The dialog box shows two columns of requirement types:

- Composer Attribute Groups:** BR: Business Rule, FEAT: Feature, FR: Consolidated Requirement, SUPP: Supplemental, UC: Use Case
- RequisitePro Requirement Types:** AC: Assumption or Constraint, BR: Business Rule, FR: Consolidated Requirement, NF: Non-Functional Requirement, NONE: Default for documents without, TERM: Glossary Item, UC: Use Case

Buttons for 'Export >>' and '<< Import' are visible. A callout bubble points to the dialog with the text "RequisitePro integration".

The dashboard displays several sections:

- Recently Updated Artifacts (100):** A table listing artifacts with columns for name, date, user, and project.
- Recent Comments (9):** A list of recent comments with expandable details.
- Recent Requirements (29):** A list of recent requirements with expandable details.

A callout bubble points to the 'Recently Updated Artifacts' table with the text "RequisitePro integration".

4. Go deeper

- Defining depth on the features / functions that are at the top of the list
 - ▶ The first few, highest priority UCs are addressed first – business rules & messages are referenced as well
- Moving from UC outlines to detailing all flows and major scenarios
 - ▶ Going through this process, it is not uncommon to discover that one UC should actually be two, or vice versa
- Scenarios are invaluable!
 - ▶ At the heart of the iterative approach, are the end to end user scenarios that can be coded and tested for that iteration...



Detailing requirements in Composer



- High priority (or riskiest) use cases first
 - ▶ Business Rules are captured separately and referred to at various step in the flows

- Meaningful end to end scenarios
 - ▶ Like telling a story - great way to communicate in a way everyone can understand

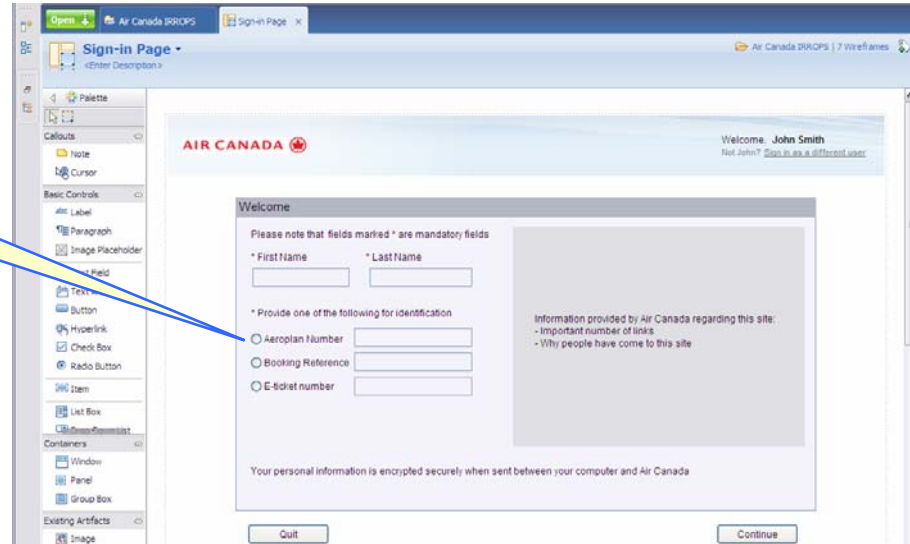
- Wireframe sketches and user interface components
 - ▶ Wireframes are an excellent 'communication vehicle' – should be used as such 😊

- Storyboards help visualize the scenarios
 - ▶ Walking through a flow using mockups will help to ask the right questions

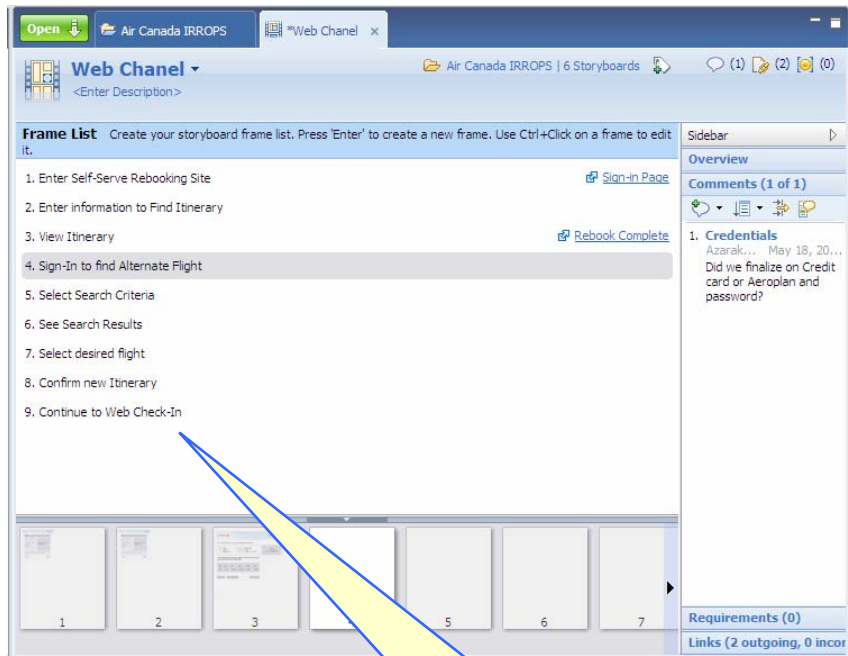


✓ Wireframes

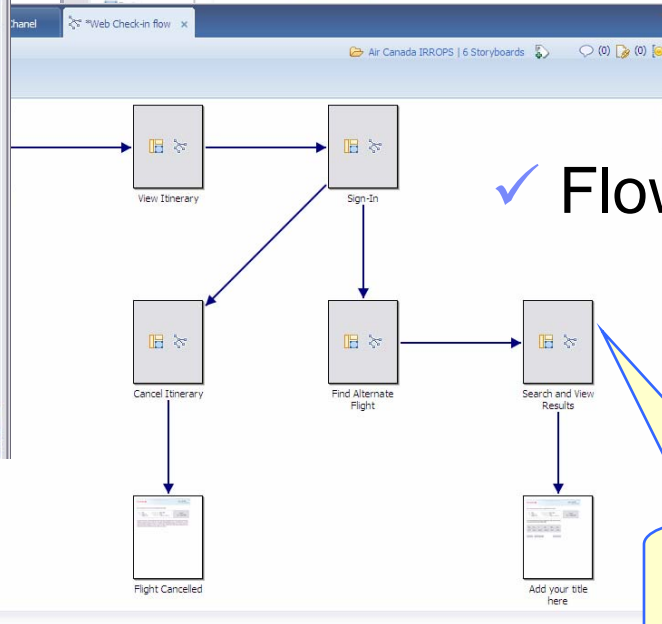
reusable components



✓ Storyboarding



visualize step by step scenarios



✓ Flow Diagram

wireframe placeholders



Show necessary changes to the process

See project activity and comments

Identify process changes

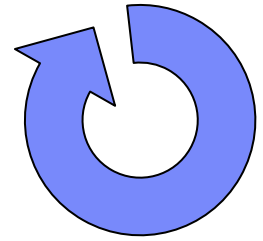
Create new sub-process

Link information

Tie to term in glossary

5. Repeat

- The number of iterations may vary, but each time through we still follow the four previous steps
 - ▶ Timebox
 - ▶ Breadth
 - ▶ Prioritize
 - ▶ Depth
- As we iterate, the emphasis shifts away from the breadth of the system to developing more depth
 - ▶ The emphasis also begins to shift from definition to management of the existing requirement set
 - ▶ Managing change becomes a big component in later iterations



Requirements identification and creation

- As we repeat ...consistency is key...
 - ▶ Requirements Definition Plan helps to plan upfront what will be 'outcome' from Composer
- Requirements created in Composer based on any artifact
 - ▶ Each requirement creates a rich text document
 - ▶ Can imbed or link other artifacts into the requirement (ie. Screenshot/wireframes)
- For large projects, RequisitePro needed for management
 - ▶ RequisitePro has many features to help with more complex reporting, traceability needs
- Early lifecycle adoption identified as key success criteria
 - ▶ Requirements definition happens during proposal phase on most services engagements
- Can trace to test cases in RQM and tasks in RTC





filter requirement sets by attribute

✓ Requirements Management

✓ Rational RequisitePro

Name	Last Modified By	Last Modified Date	Managed Requirement
4. The Customer selects the option to continue.	Azarakhsh Dam...	May 18, 2009 5:55:09 AM	
3. The Customer provides their identification information to the system...	Azarakhsh Dam...	May 18, 2009 5:54:32 AM	
2. The System displays the Find Itinerary screen, which prompts the Custo...	Azarakhsh Dam...	May 18, 2009 5:45:10 AM	
1. The Use Case begins when the Customer chooses the URL from the Travel...	Azarakhsh Dam...	May 18, 2009 5:35:08 AM	
SMS notification triggered from PRS-ARPT for IRROP situations only.	Azarakhsh Dam...	May 15, 2009 4:11:15 AM	
Through the application URL (i.e. Travel advisory web site), for IRROP and Anti...	Azarakhsh Dam...	May 15, 2009 4:11:02 AM	
AC Web Check-in (WCI) tool: If an outbound segment that is open for check-in wa...	Azarakhsh Dam...	May 15, 2009 4:10:47 AM	

RequisitePro Connection

Server URL: http://rackic.blr.can.ibm.com:82/ReqWeb
 Project: Air Canada IRROPS

Attribute Groups

- Business Rule: A requirement that describes a business rule or process.
- Consolidated Requirement: Functional Requirement type is used to identify the high level requirements.
- Feature: Features that enable capabilities for the system.
- Market: Market Description
- Origin: Origin Description
- Supplemental: Supp Description
- Use Case: Use Cases contain functional requirements for the system.

Create Requirements in RequisitePro

Select requirements to create in RequisitePro.

- Enable passengers to re-accommodate themselves during an
- Email notification triggered from PRS-ARPT for IRROP situatio
- The email will contain link to the application URL, with the PNF
- AC Web Check-in (WCI) tool: If an outbound segment that is
- Through the application URL (i.e. Travel advisory web site), f
- SMS notification triggered from PRS-ARPT for IRROP situatio
- 1. The Use Case begins when the Customer chooses the
- 2. The System displays the Find Itinerary screen, which p
- 3. The Customer provides their identification information
- 4. The Customer selects the option to continue.

Buttons: Select All, Deselect All

Real return for our investment dollars



- Improved communication saves time, reduces rework, promotes consistency, and improves quality
 - ▶ Also speeds up the on-boarding process for new team members
- “Requirements management remains single biggest reason for project failure” according to industry reports
 - ▶ Composer embodies leading requirements practices for delivery success

So, I hope you are ready to ...



- Try a more agile, incremental requirements definition and elaboration process on your next engagement or project
- Discover the benefits of enhanced collaboration and communication among your team (and stakeholders)
- Explore this flexible tool to provide a more complete, contextual, holistic view of your project requirements
- Find your organization's requirements' groove!



Questions

Helpful links & resources



■ Rational Requirements Composer

- ▶ Information Page: <http://www-01.ibm.com/software/awdtools/rrc/>
- ▶ Rational Requirements Composer Overview Demo:
<http://www.ibm.com/developerworks/offers/lp/demos/summary/r-rrcoverview.html>
- ▶ Rational Requirements Composer & RequisitePro Integration Demo:
<http://www.ibm.com/developerworks/offers/lp/demos/summary/r-rrcreqpro.html>

■ Developer Works discussion forums

- ▶ Rational Requirements Composer Forum:
<http://www.ibm.com/developerworks/forums/forum.jspa?forumID=1546>
- ▶ Rational RequisitePro Forum:
<http://www.ibm.com/developerworks/forums/forum.jspa?forumID=340>

■ IBM Global Business Services

- ▶ http://www-935.ibm.com/services/us/gbs/bus/html/bcs_index.html

Thank You

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