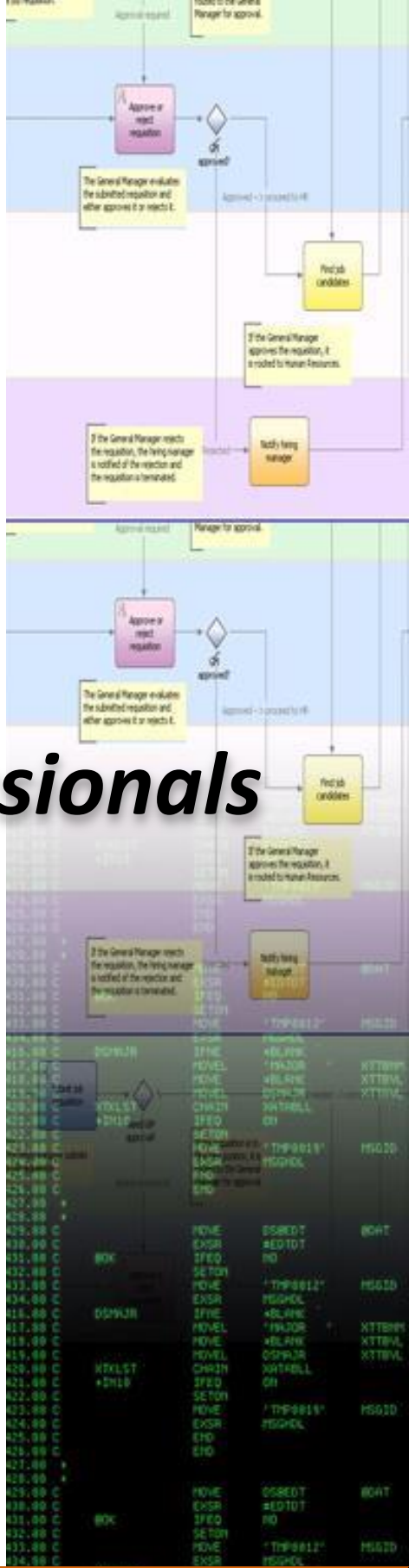
What Is BPM?

A Guide for IBM i Professionals



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The Common Roots of RPG and BPM

RPG is undoubtedly one of the most successful programming languages ever created. First released by IBM in 1959 it has been productively used by hundreds of thousands of organizations around the world.

The success of RPG is in large part attributable to its fitness of purpose:
as a business application programming language.

As programming languages have become ever more complex, driven by languages such as Java and C#, an important value has been sacrificed when used for business applications - that is the continuity between business users and programmers.

As most old-time RPG programmers know, much of the ranks of RPG programmers came from the business side – often accounting, sometimes operations, sometimes the warehouse. What it took was the ability to think about the business in a systematic way. It was not the ability to be a software engineer that provided the value, it was the ability to transform that systematic business understanding into supporting software that drove hundreds of thousands of businesses to RPG over the past 50 years.

BPM is the rebirth of the principle of strictly business orientation

Maximum Leverage of Existing RPG Programming Staffs via BPM

With the visual development and process management in its BPM toolset, IBM has delivered on a new era of business software friendliness.

BPM revitalizes the idea of business-focused developers by making almost all development visual, and what's more, depicted in a manner that capable business users and managers can understand.

A New Future for RPG Developers

With their strong roots in the business, RPG developers will find an ideal path forward with BPM, much more so than with more technical languages such as Java or .Net.

This suitability for existing staff skills enables businesses to take maximum advantage of the years of business knowledge possessed by their RPG staffs.

A Fitness for Intended Purpose
The Common Roots of RPG and BPM

Ideal For Phased Migrations

As described in this interview with Phil Coulthard, *who has the singular distinction of being both IBM BPM Chief Architect and a former AS/400 architect*, ease of integration between new applications and existing IBM i data and applications provides optimal opportunities for iterative phased evolution from RPG to BPM.

Moving To Mid-Sized Businesses

BPM took root in the Global 1000 over the last decade. More recently, IBM has adapted its pricing so that it is within reach of most mid-large IBM i shops. The full-featured Standard Edition, with high availability and no user limit is typically in the low-mid six figure range. The Express edition, minus high availability and with user limits, is in the very low six figure range. Prices are as of the time of this writing and subject to IBM price changes.

Deep Credibility in the Marketplace

At the time of this writing BPM is in use at all of the Fortune 100.

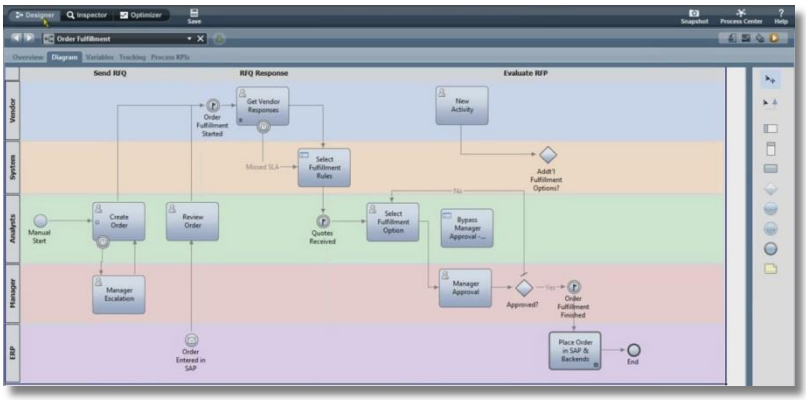
IBM BPM has a 64% market share of the Fortune 100, with over 5,500 major corporate customers around the world. Gartner Group has projected 22% annual compound growth of BPM through 2019.

In recent years IBM has changed its pricing to make it affordable for mid-sized companies with no reduction in features.

What Is BPM? A Quick Overview

IBM BPM is a **visual tool for developing custom business applications.**

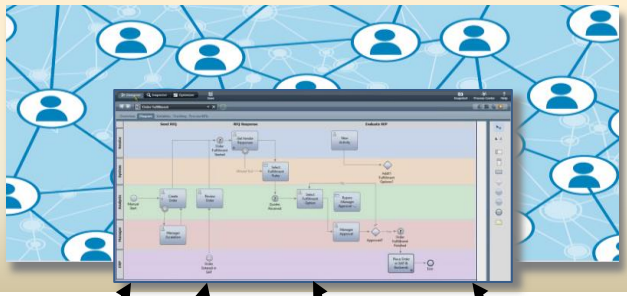
It also has many features for **integrating with existing applications.**



To develop custom software, **users fully collaborate** with programmers to define their processes and business rules in a visual way that users can understand.

Rapid, agile, collaborative development changes the IT-business paradigm.

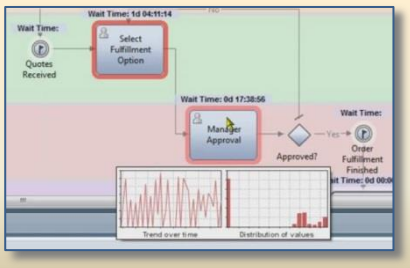
Once an application is developed, BPM also provides the **run-time environment** for production use.



BPM readily **integrates** with the AS/400-IBM i database, mobile technologies, cloud, other packages and systems, etc

Built-in **social work collaboration** improves productivity, communication and training.

Built-in **process metrics** and analysis drives continuous process improvement programs.



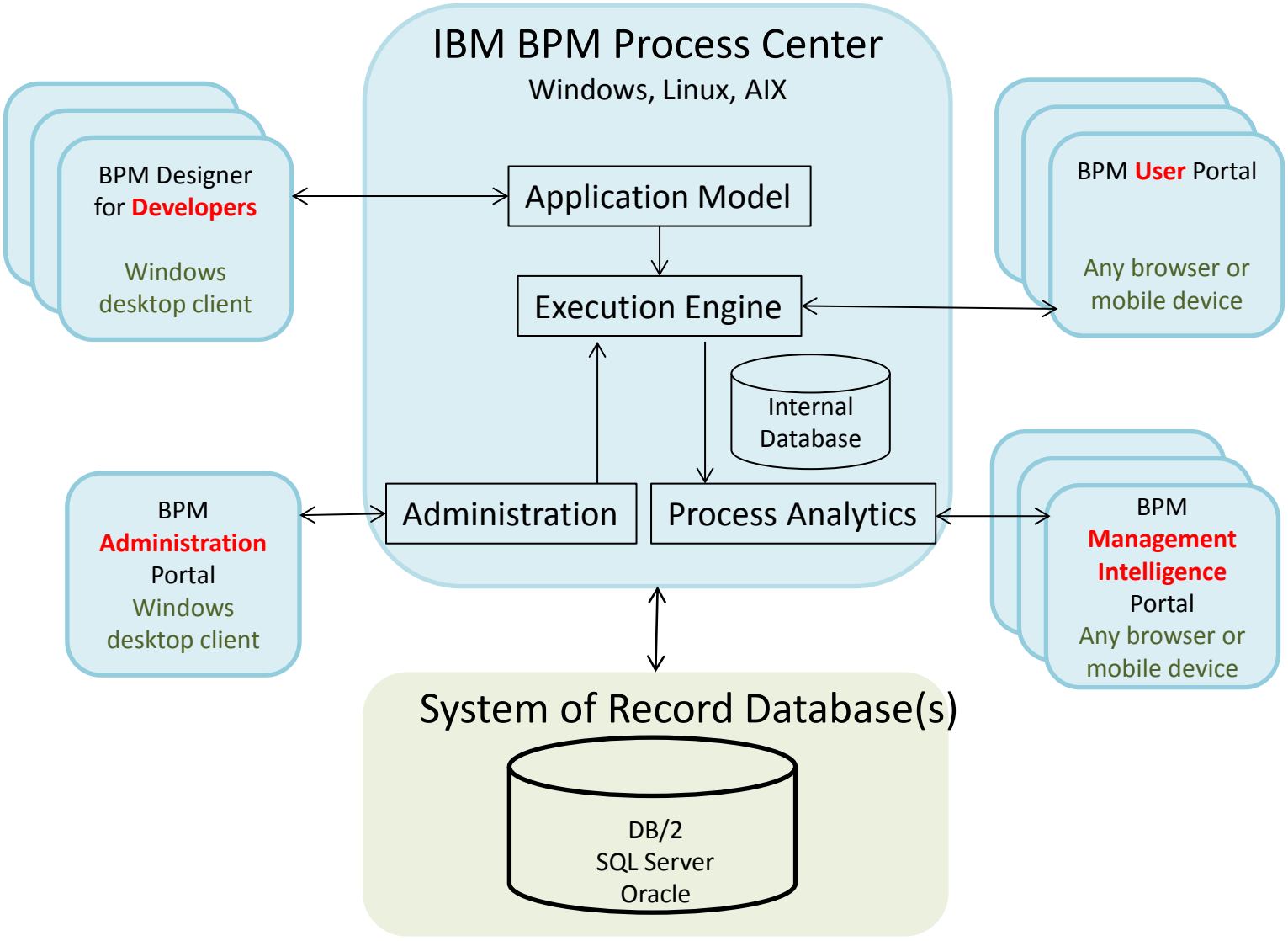
Basic Architecture

IBM BPM consists of the components shown in blue. IBM BPM does not include an application database of its own, but rather users connect to a database of their choice, which could optionally be a redesigned AS/400-IBM i database.

Key question: Does IBM BPM Run on the IBM i?

Answer: IBM BPM is essentially a completely self-contained environment for development, administration and execution. It can run in an AIX LPAR on Power Systems, or it can be run on a separate server.

Wherever it is running it can access the IBM i DB/2 database via JDBC and SQL, or stored procedures, whether SQL or RPG, and can call RPG-based web services as well as connect to Java-based services.

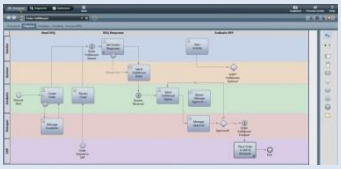


What Is BPM? Summary of Perspectives

What Is BPM? A Visual Explanation Based on Roles

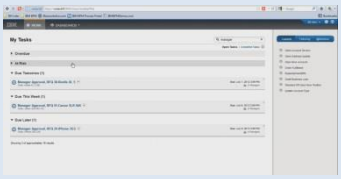
BPM is a large subject that cannot be explained in a few sentences. The screenshots below and on the following pages will give a visual introduction from the perspective of different roles.

Overview



Overview of example process

Users



Home page for users

Showing who has worked on this order

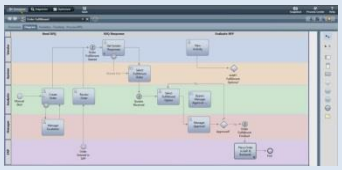
Collaborating with another user

Managers

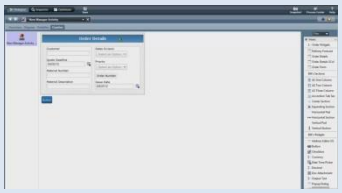
Showing average processing times

Showing frequency of processing paths taken

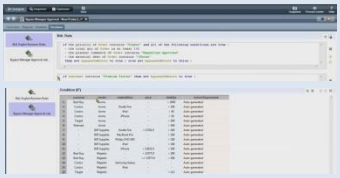
Developers



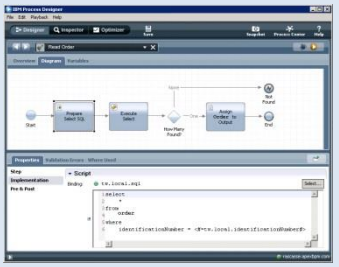
Designing the process



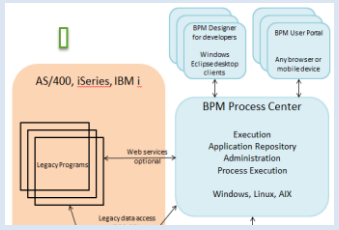
Designing the UI



Two examples of business rules



Example of Database I/O

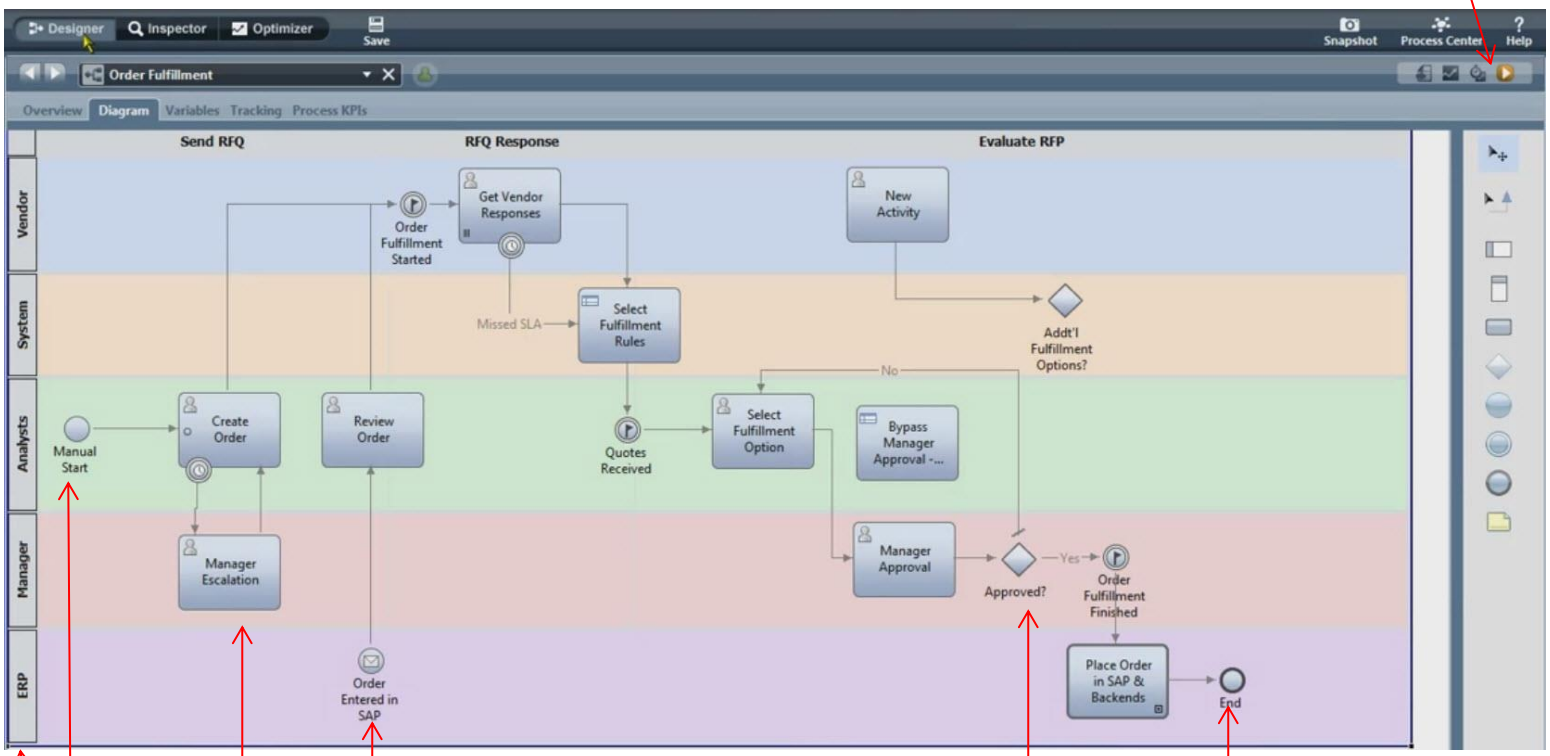


BPM Architecture

Screenshots on following pages courtesy Bill Hahn, IBM and his excellent BPM tutorial videos

Overview of Example Process

Visual Model of a Business Process for Order Fulfillment



Play/run

Start

External system interface

End

Rectangles show activities in the process:

- Human activities – these will show one or more screens to a user
- System activities – these indicate system processing

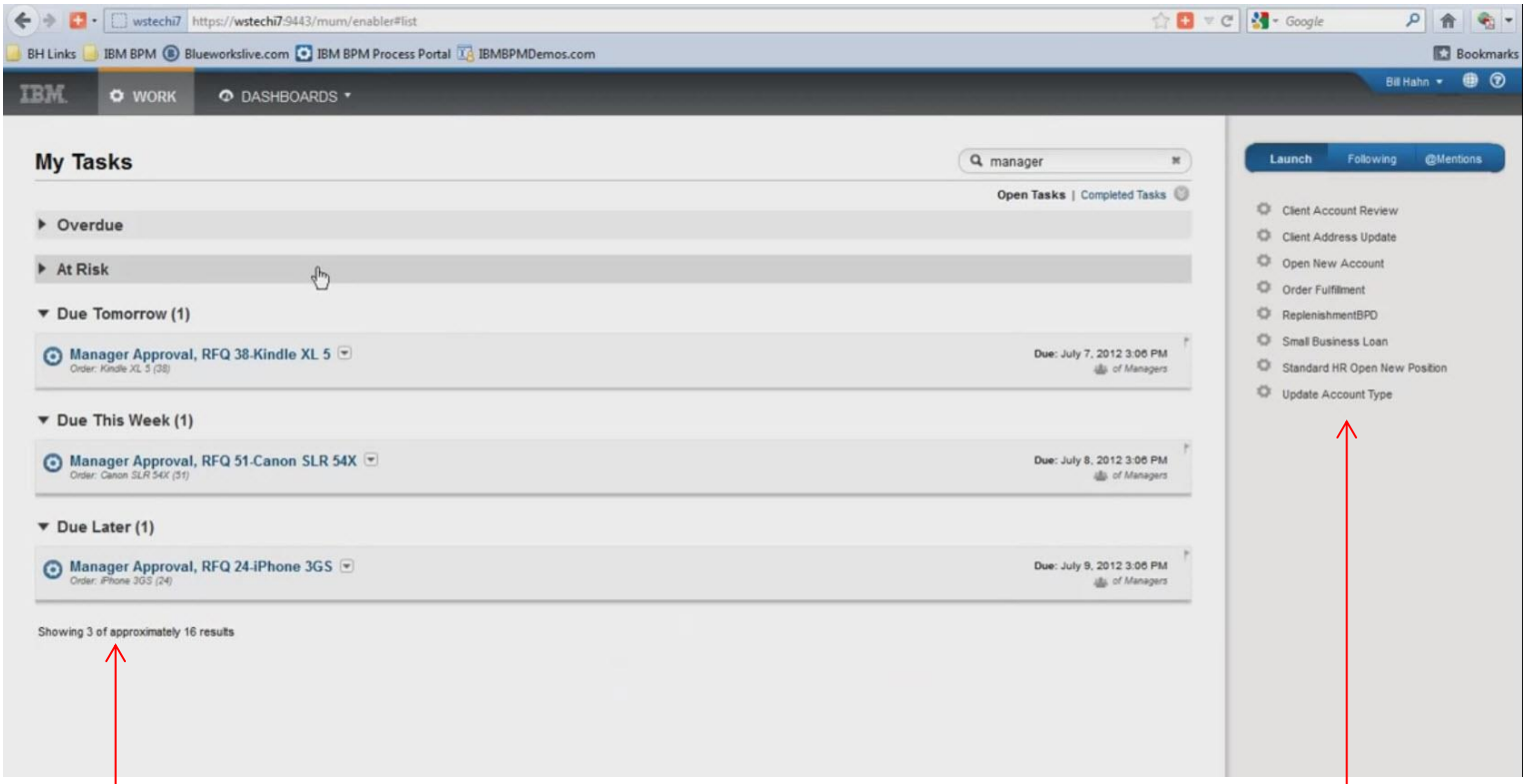
Diamonds show where decisions are made about the direction of workflow in the process

Horizontal bands indicate different users or other actors, such as the system or external parties

Key concept – this application model is itself immediately executable at all times by clicking the play button in the upper right.

What Is BPM? User Perspective

Example of home page, or “portal” for BPM users



Tasks assigned to the user, shown here by due date.

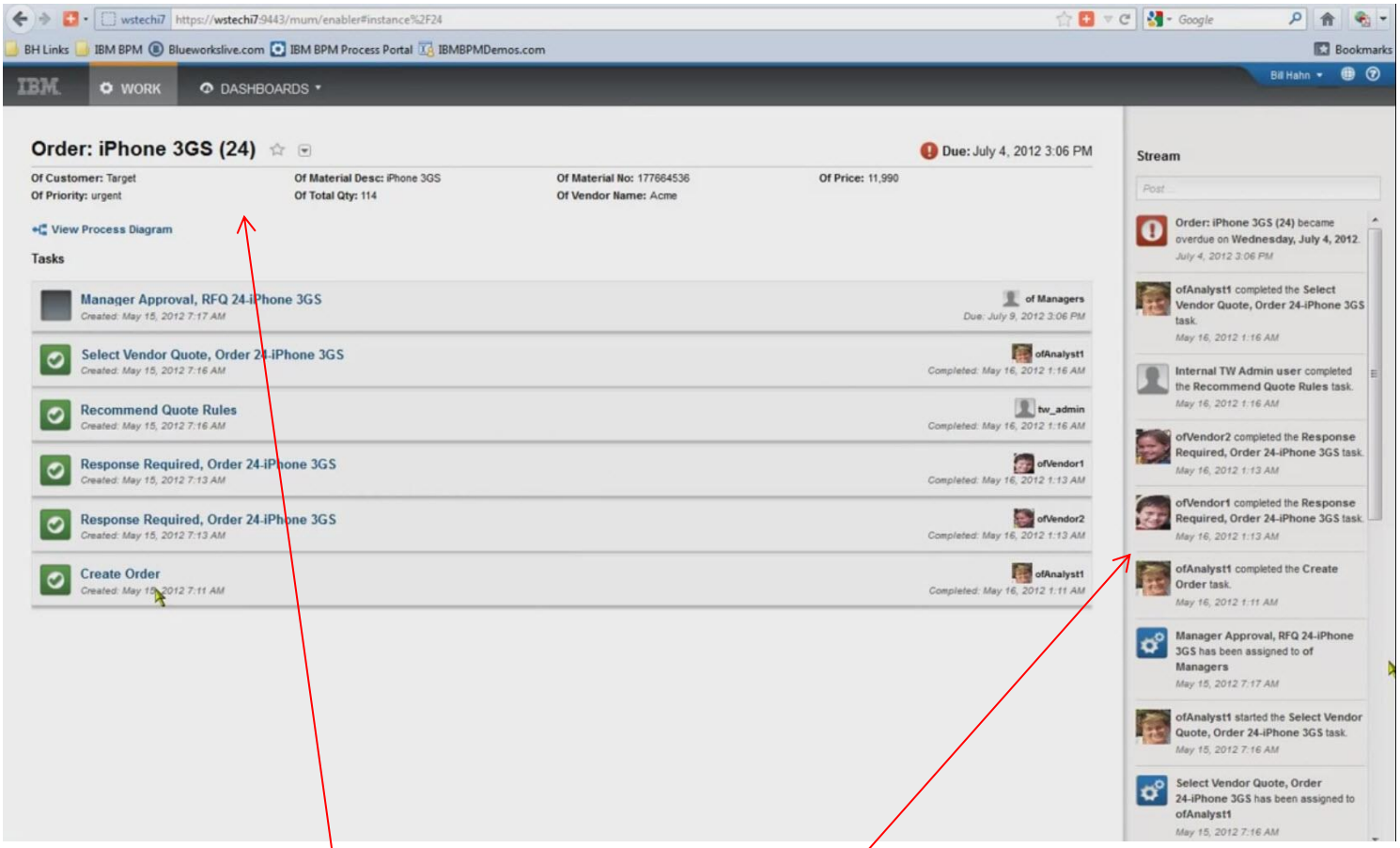
These tasks come from processes initiated elsewhere that have arrived at an activity that has been assigned to this user.

In this example the user is a manager and these processes are waiting for the manager to approve or reject the order.

New processes or tasks that this user is authorized to launch.

What Is BPM? User Perspective

Showing who has worked on this order



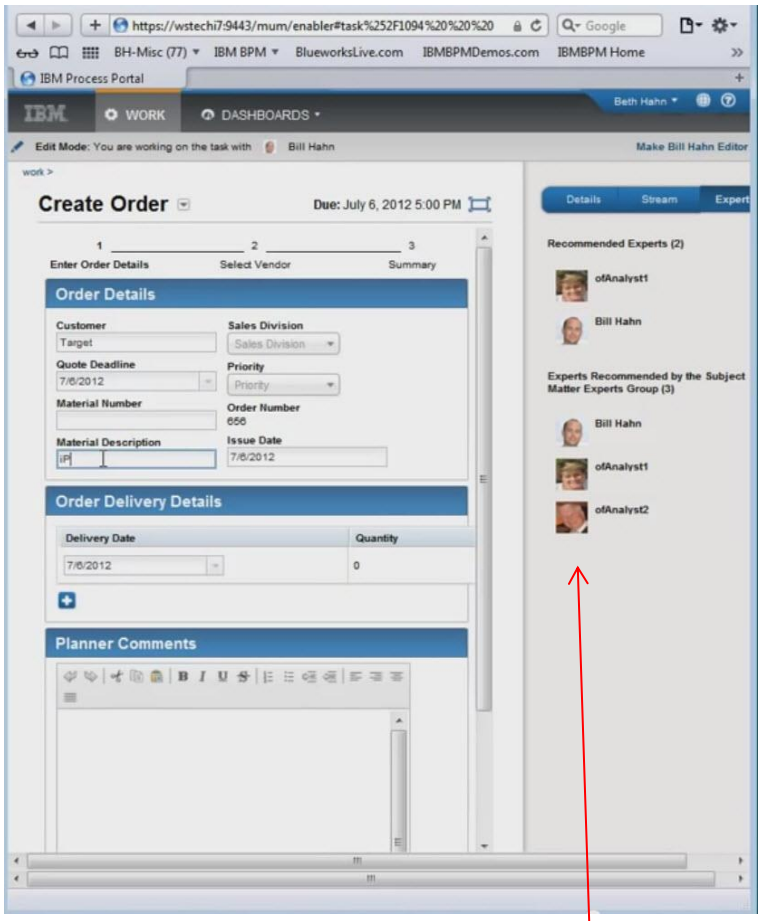
This order task has been expanded showing more detail.

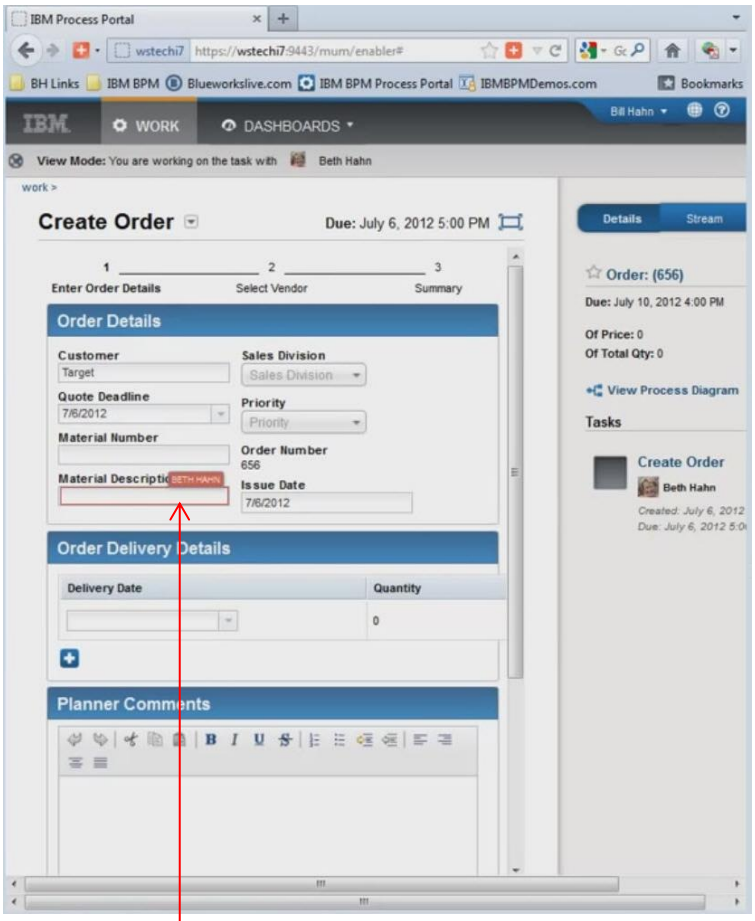
Everyone who has worked on this order, including system tasks, are shown with what they did and when.

Any of these people can be reached for questions by clicking on them.

What Is BPM? User Perspective

Collaborating with another user





The user of the left screen (directly above) wasn't sure about how to complete this order.

So the user clicked on one of the process experts shown on the right.

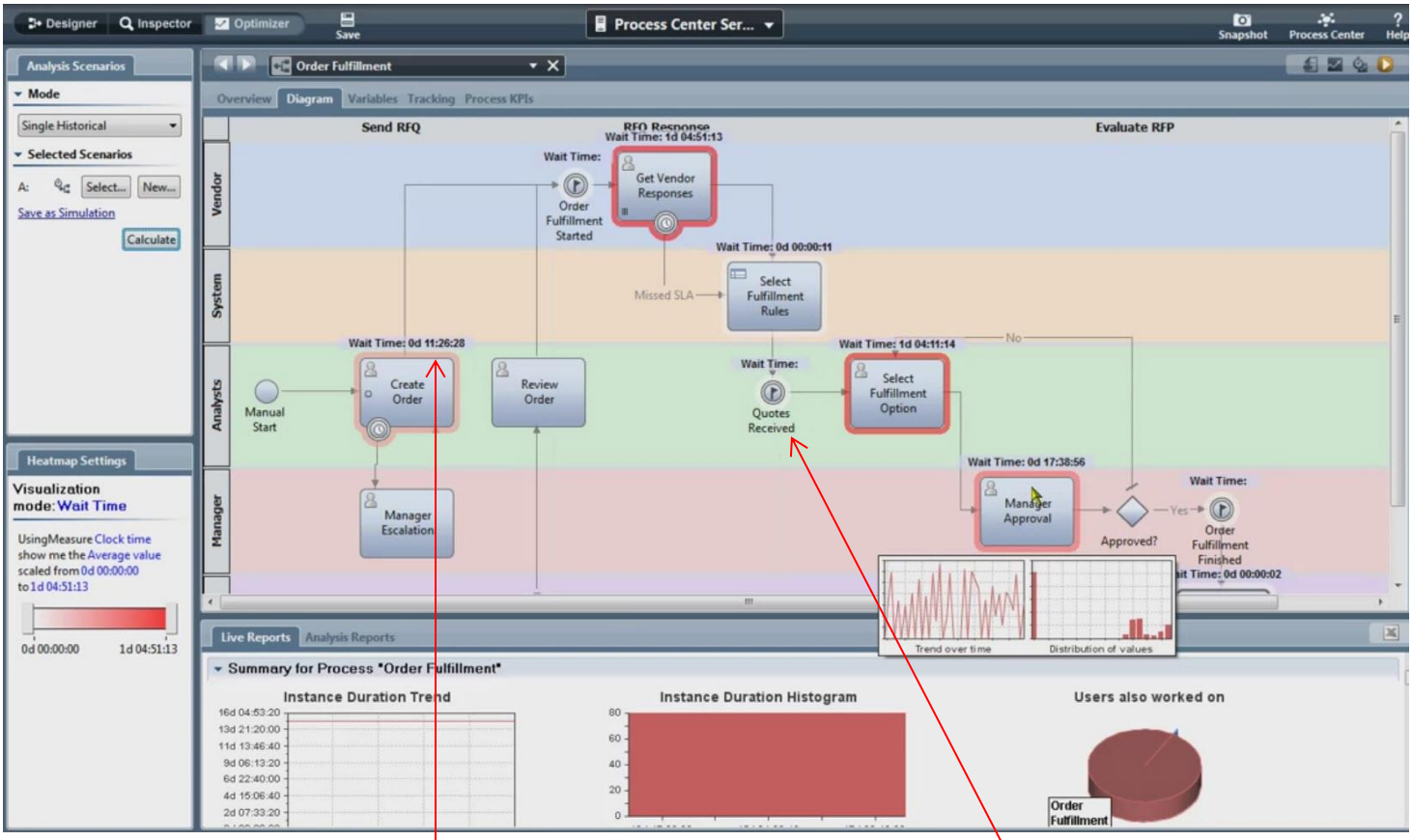
The expert joins the user and sees real-time what the user is entering and assists.

The expert can also take over the screen to complete the order.

Key concept – the social collaboration functionality of IBM BPM is automatically built-in to all applications. It increases training, productivity and consistency.

What Is BPM? Manager Perspective

Showing average process times



IBM BPM automatically collects timing metrics of all processes and tasks.

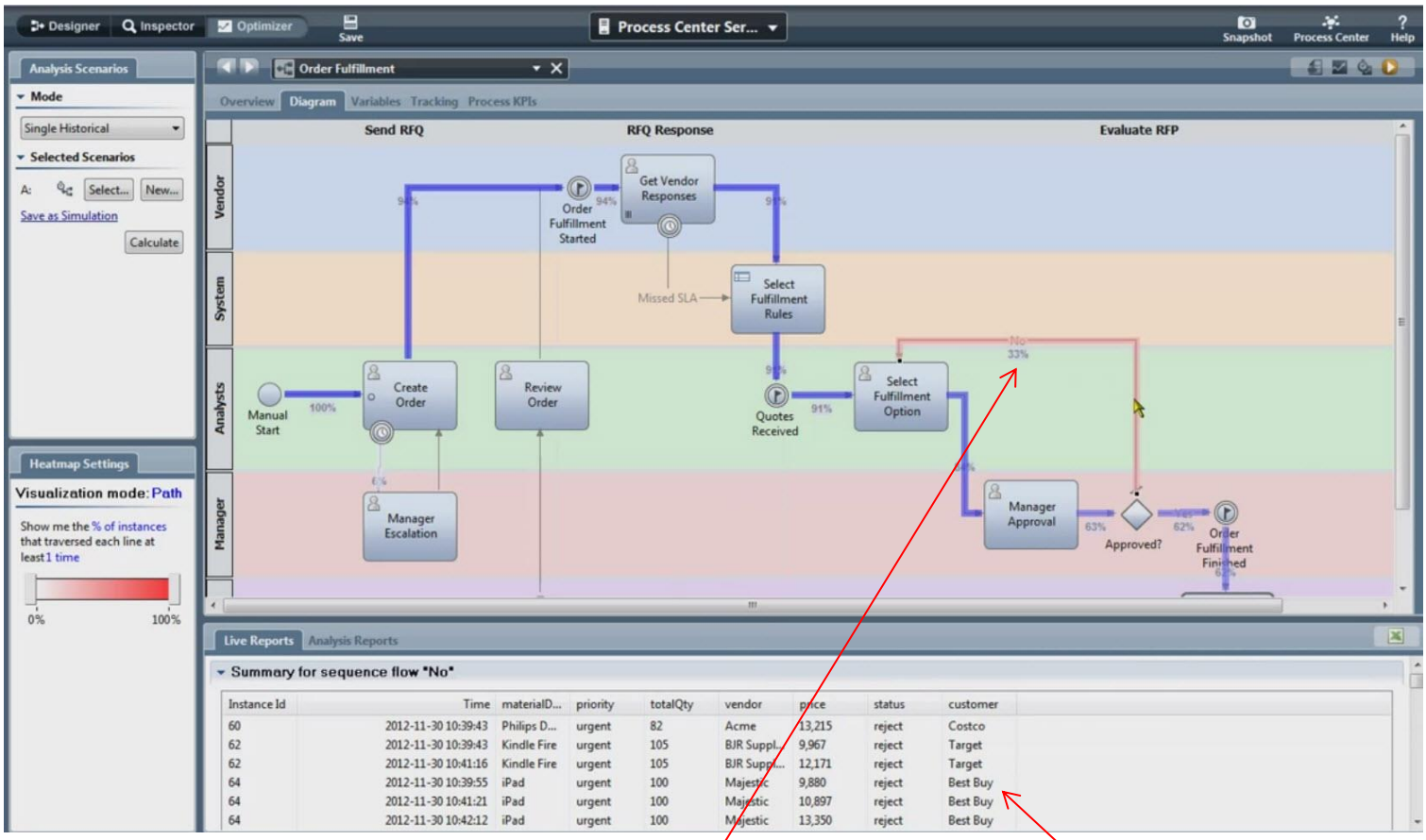
Average wait times at each task with various charts.

Customized data tracking events can be inserted to also collect actual data for later metrics analysis.

Metrics such as processing delays and durations, supplemented with internal transaction data, provide all the information needed to rapidly drive process improvement programs.

What Is BPM? Manager Perspective

Showing frequency of processing paths taken



Path analysis shows exception processing.

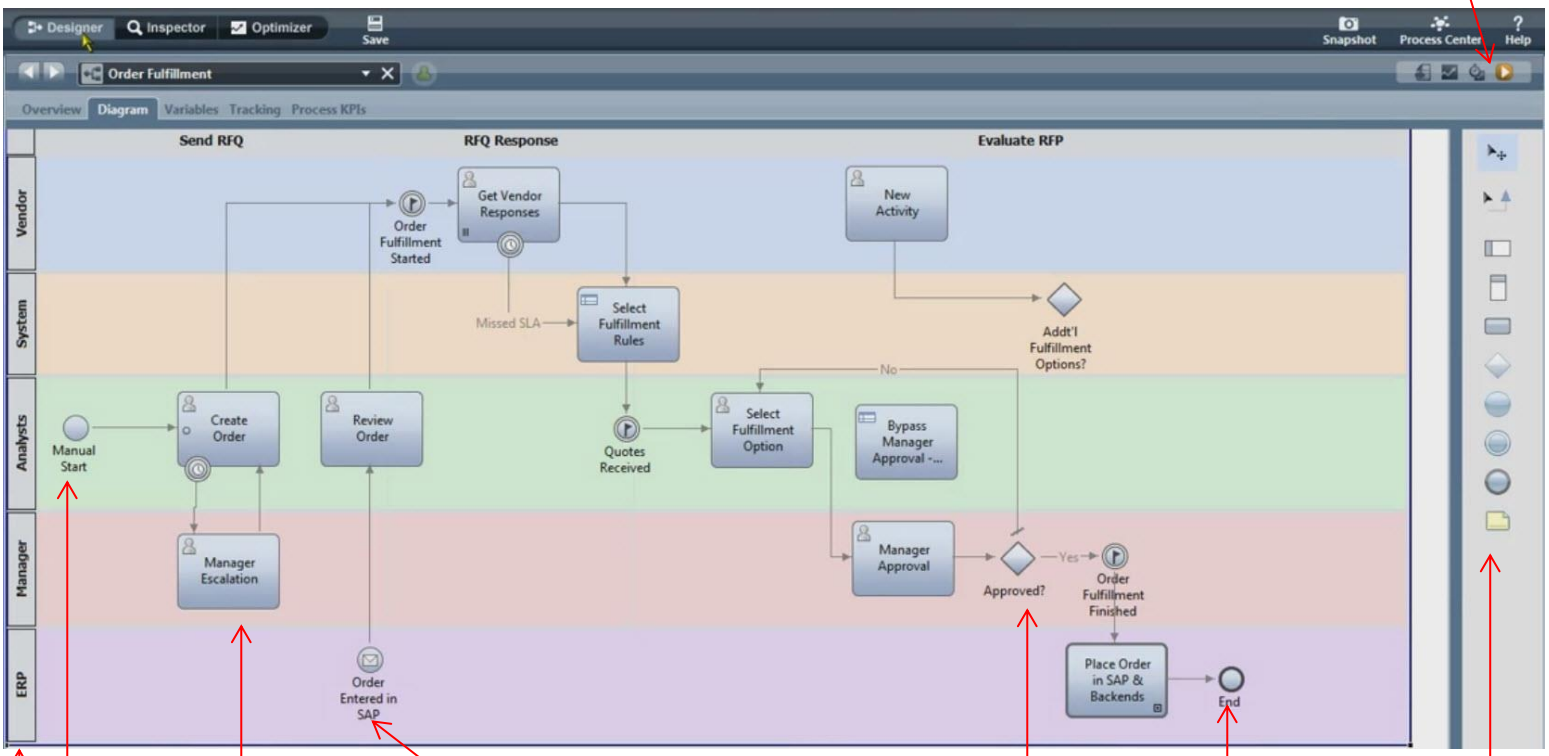
33% of orders followed this "No" path

The orders that followed that path are shown in the list along with order data that was tracked for analysis.

What Is BPM? Developer Perspective

Designing the process

Play/run



Start

Rectangles show activities in the process:

- **Human activities** – these will show one or more screens to a user
- **System activities** – these indicate system processing

Diamonds show where **decisions** are made about the direction of workflow in the process

End

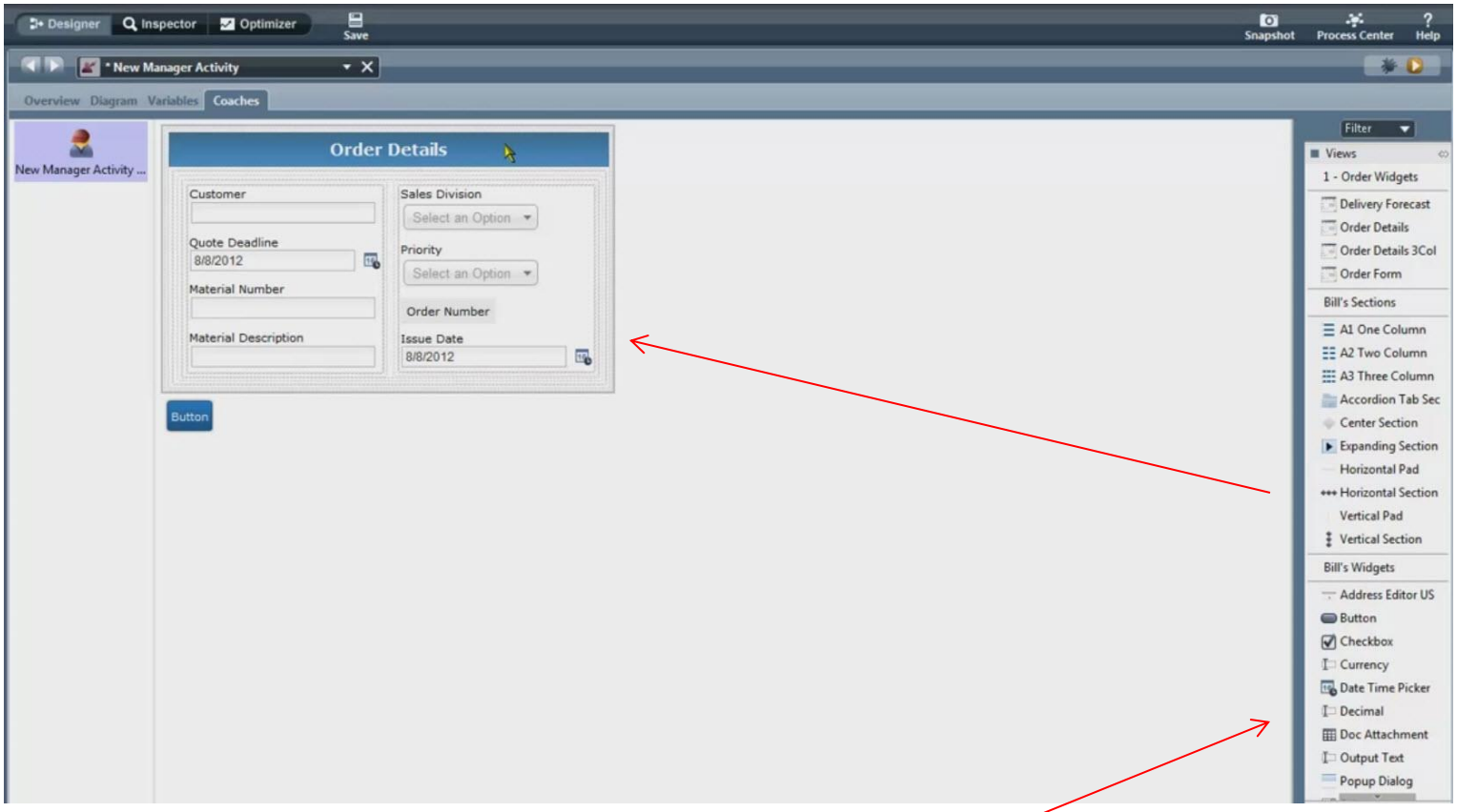
The standard **BPMN pallet** provides a drag and drop capability for modeling process elements such as activities, decisions, events, etc

External system interface

Horizontal bands indicate different users or other **actors**, such as the system or external parties

Key concept – the foundation of every IBM BPM application is a process diagram. The diagram is itself immediately executable at all times.

Designing the UI



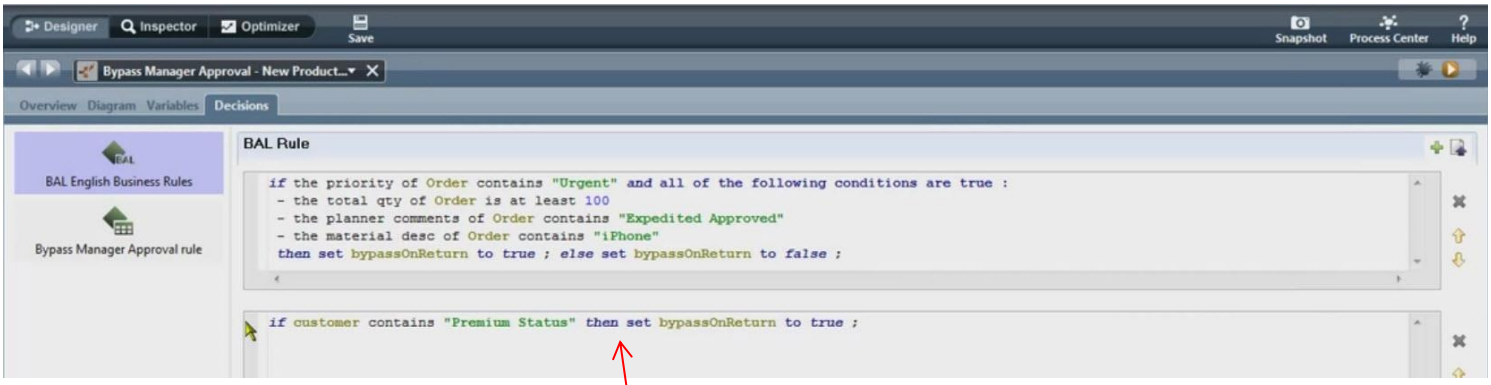
Human activities display one or more screens to a user.

Screens are designed from a pallet of controls that are dragged onto the screen in a familiar GUI design pattern.

Further attributes for each control are defined by double clicking on it (not shown)

What Is BPM? Developer Perspective

Two examples of business rules



Rules specified using English-like syntax

Business rules can be specified in a number of ways.

The goal is to make them **visible and understandable** to users whenever possible.

Other options for specifying rules, not limited to:

- Javascript
- Services of various types developed in various languages
- IBM's ODM product for intensive rule management

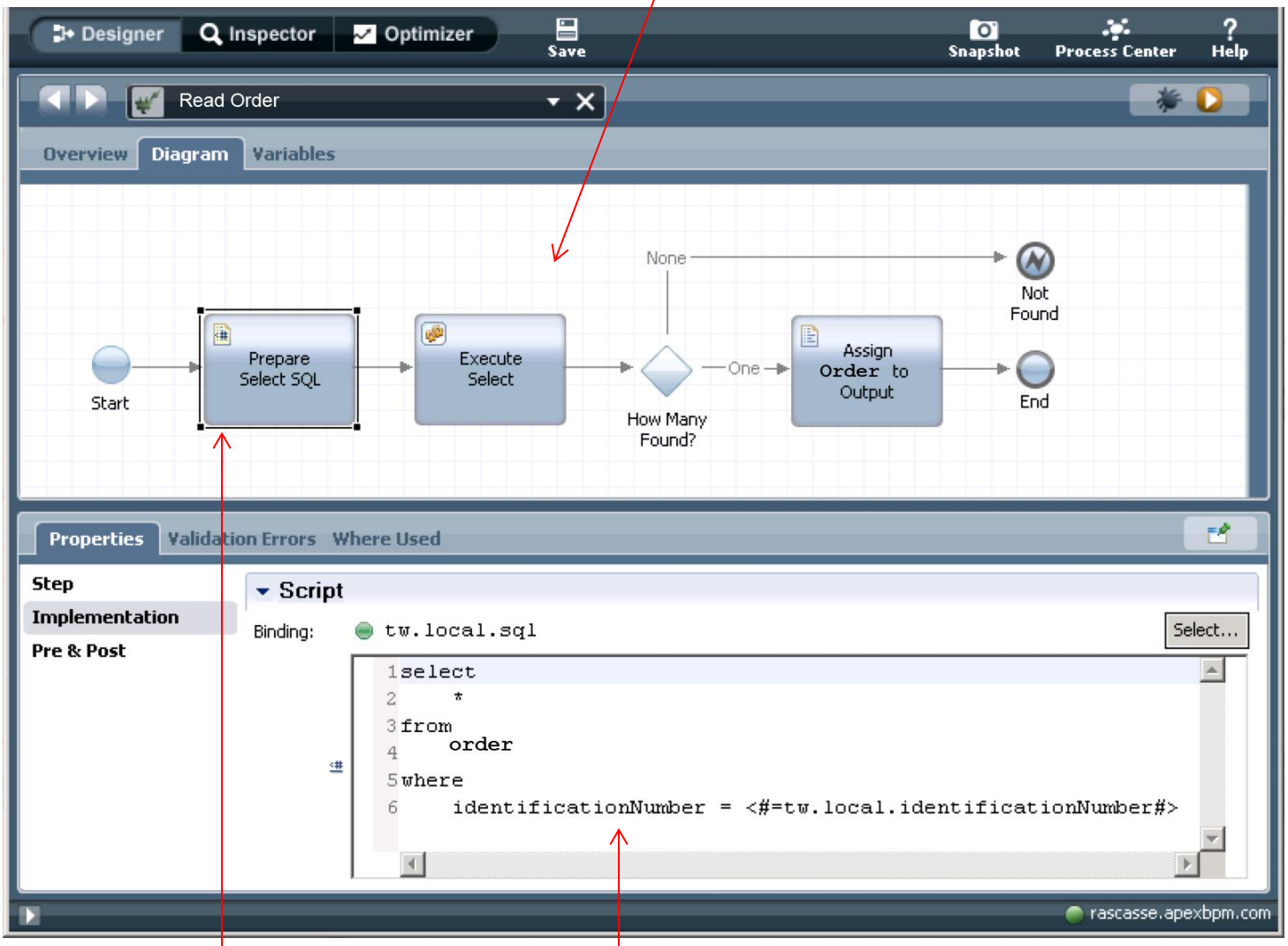
Rules specified using a decision table

	customer	vendor	materialDesc	price	totalQty	Action Requirement
1	Best Buy	Acme	-	-	> 1000	Auto-generated
2	Costco	Acme	Kindle Fire	-	> 100	Auto-generated
3	Costco	Acme	iPad	-	> 50	Auto-generated
4	Costco	Acme	iPhone	-	> 50	Auto-generated
5	Target	Acme	-	-	> 500	Auto-generated
6	Walmart	Acme	-	-	> 500	Auto-generated
7	-	BJR Supplies	Kindle Fire	< 13701.0	> 100	Auto-generated
8	-	BJR Supplies	MacBook Pro	-	< 100	Auto-generated
9	-	BJR Supplies	Philips DVD 45R	-	< 100	Auto-generated
10	-	BJR Supplies	iPad	-	< 100	Auto-generated
11	-	BJR Supplies	iPhone	< 13631.0	< 100	Auto-generated
12	Best Buy	Majestic	-	< 13577.0	< 200	Auto-generated
13	Best Buy	Majestic	-	>= 13577.0	> 200	Auto-generated
14	Costco	Majestic	Samsung Galaxy	-	-	Auto-generated
15	Costco	Majestic	iPad	-	-	Auto-generated
16	Target	Majestic	-	-	< 111	Auto-generated
17	Walmart	Majestic	-	-	< 111	Auto-generated
18	-	-	-	-	-	Auto-generated: otherwise, don'...
19						

Example of Database I/O

IBM BPM includes a large variety of SQL services to facilitate database access and update.

This diagram shows a typical sequence of tasks for retrieving some data. Here it is in a Service called “Read Order”



The Prepare Select SQL task is the currently selected task, as shown in this example.

Its contents are entered here.

Why BPM? Summary Table

Custom software capabilities have evolved rapidly in the past few years with IBM BPM, leaving the capabilities of legacy languages, such as RPG, as well as more modern languages such as Java and .Net, far behind.

IBM's BPM platform provides numerous high value capabilities that are generally economically impractical with RPG or any other traditional language, including Java, .Net, etc.

Features of Custom Software and Application Architecture	Built-in with BPM	Practical with RPG, Java, .Net, etc
Process workflow and business rules modeled visually	Y	N
The visual design model is the executable software	Y	N
Process logic visible to users	Y	N
Process execution visible to management	Y	N
Made for rapid change	Y	N
Facilitates IT-user collaboration	Y	N
Dramatically reduces development effort	Y	N
Built-in process metrics capture	Y	N
Drives process improvement and innovation	Y	N
Provides fully integrated social workplace functionality	Y	N
Facilitates scalable innovation	Y	N

"The rise of the tech-savvy, connected consumer across all facets of society changes the expectations consumers have of all companies, regardless of their business."

Curt Garner, CIO, Starbucks

Why BPM? A Visual Guide

This section describes key benefits of custom applications developed on IBM's BPM platform.

Made to Change

Speed to Market

Transparency

Collaboration

Metrics

Architecture

Social Workplace

Governance

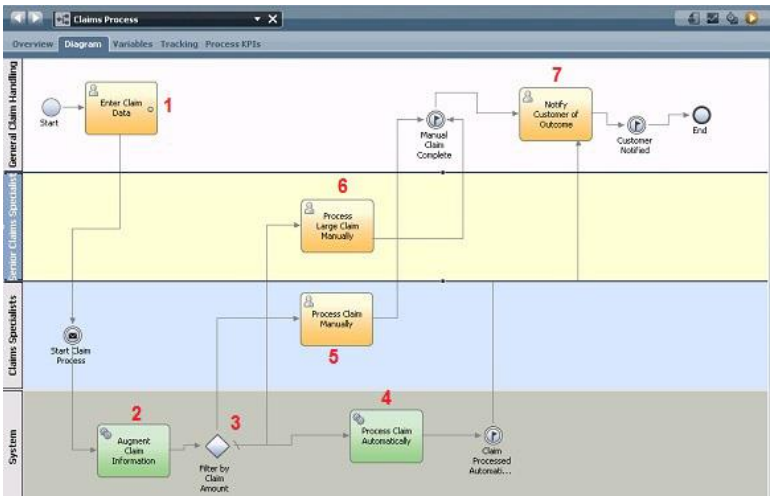
MADE TO CHANGE

Traditional enterprise software languages have a bias for new development rather than change.

COBOL – RPG – JAVA - .NET

But in business today…

> **"The ability to change is far more highly prized than the ability to create in the first place."**
> Howard Smith and Peter Fingar,
> "Business Process Management: The Third Wave"



With its visual modeling of all workflow and logic, and its immediate playback execution, BPM accelerates change and enables understanding for both IT and users far beyond what is possible by looking at mockups or lines of code.

"The model is the code."

Model the logic and click the run button and it's executing.
No detail too small, no behind the scenes piles of code.
No code generation and then modifications, *the model is the code.*
…the executable code

RAPID TIME TO MARKET

The need for speed

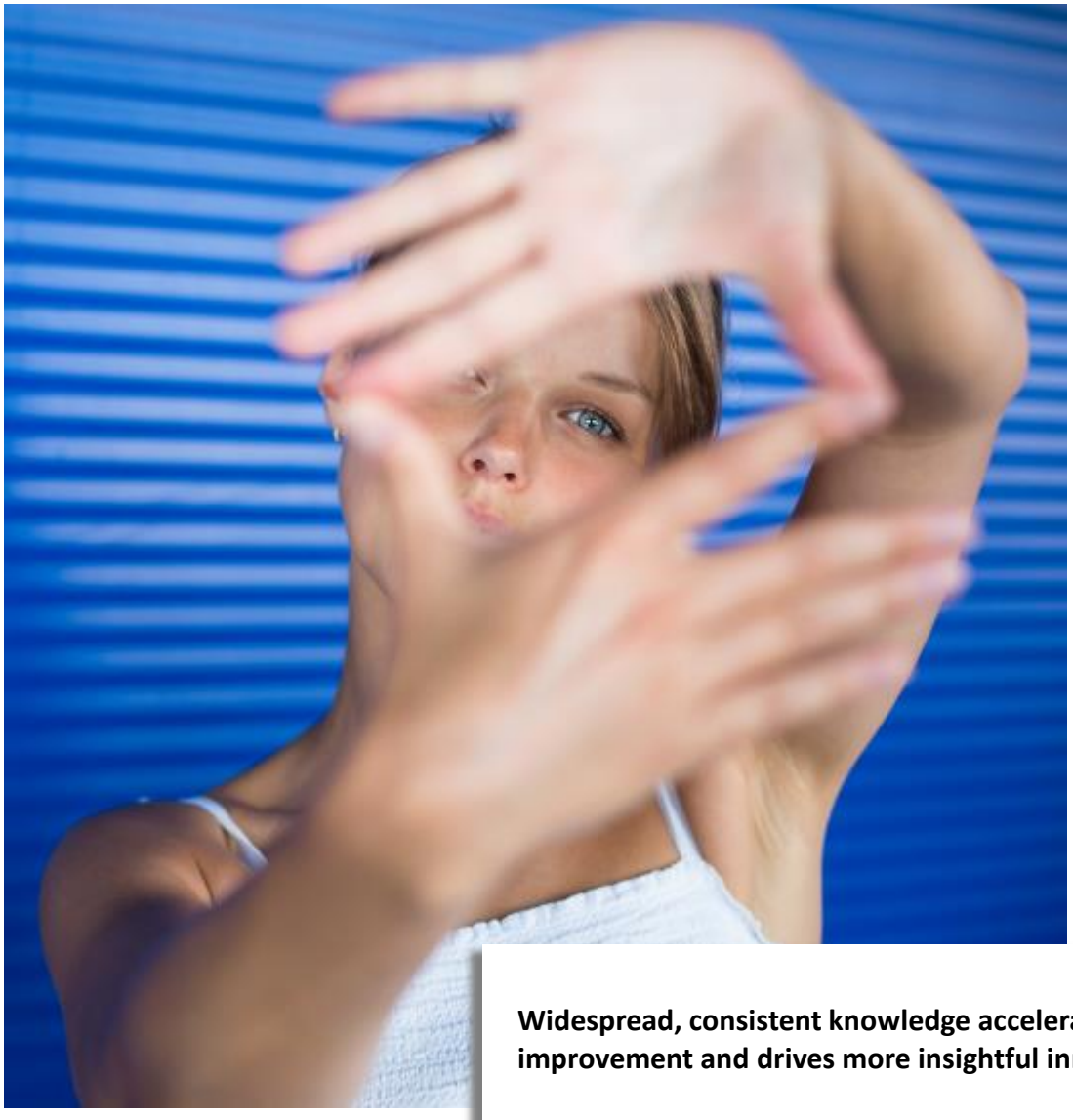
- Global competition
- New technology disrupting traditional markets
- Business demands for shorter software cycles
- Process improvement projects

By making software development a truly collaborative experience between IT and the business, many steps in the traditional development cycle are reduced or removed.

Users participate directly as workflow is diagrammed, screens are laid out and business rules are defined.

TRANSPARENCY

Business processes and business rules are visible to everyone in the business



Widespread, consistent knowledge accelerates improvement and drives more insightful innovation

COLLABORATION

IT and users collaborate directly on

- **Screen design**
- **Process flow**
- **Business rules**

Reduces handoffs and errors
Speeds development and innovative thinking

PROCESS IMPROVEMENT METRICS

Metrics are automatically collected on all processes

Metrics feed analysis and improvement efforts

- Lean six sigma
- Exception monitoring
- Resource planning

SOCIAL WORKPLACE

Find other users who are experts to answer your work process questions

See everyone who has worked on a given order or other transaction

GOVERNANCE

IBM BPM offers complete, fully built-in world class governance over assets, risk and compliance of BPM resources

The Path Forward

Choosing to adopt a new technology leads to many questions. At vLegaci we have designed a selection of **learning plans** for you to choose from depending on your needs.

The first step most people will want to do is simply get a better understanding of what BPM is and how it works in practice from a few points of view including IT managers, developers, business managers and users. vLegaci offers three alternative ways to start:

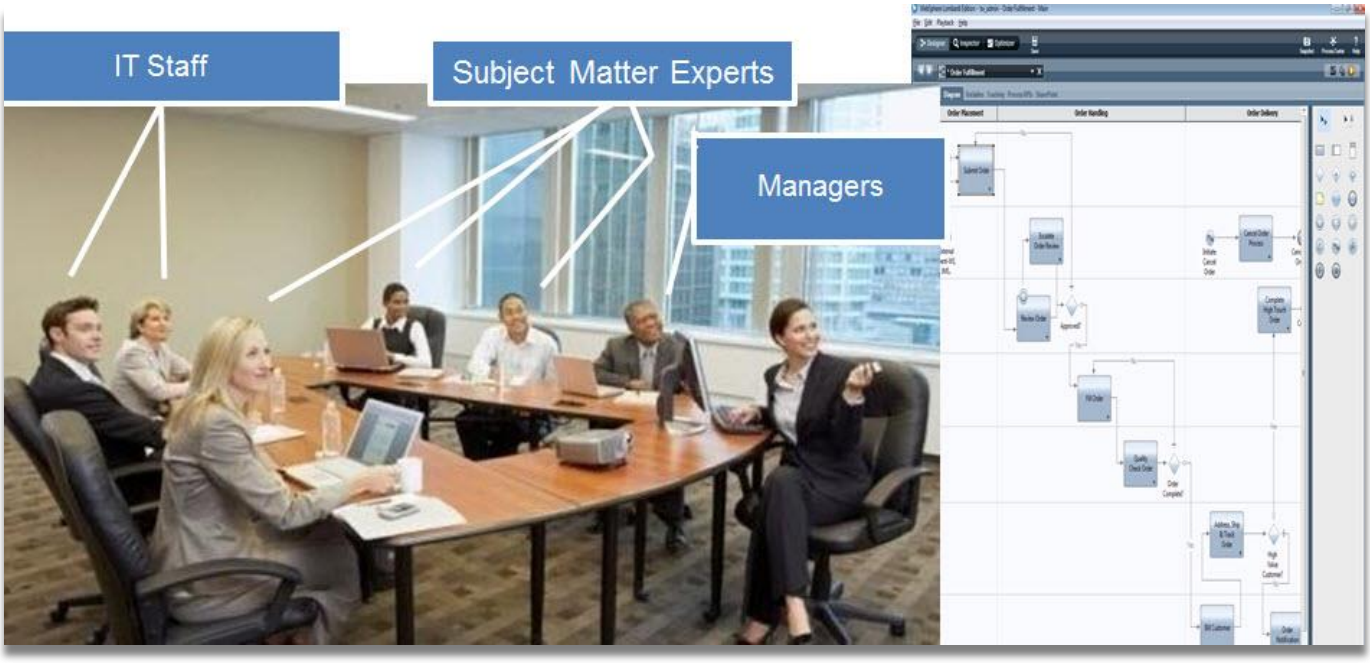
Plans for Getting Started from vLegaci

- **Two hour tour** – you get a two hour online walkthrough of what development and use of a BPM application looks like. It is an open forum for you to ask all your questions.

- **Proof of Concept Project** – We work with you to jointly develop a small, instructional application. You act as subject matter expert and we do all the coding at your site while you watch, ask and learn over a period of 2-3 days.

- **Cloud Application Pilot Project** – We develop and deploy a small application of your choice using IBM's cloud-based BPM platform. The project can be shaped as a hands-on training project as much as you desire or you can simply assign it to us to deliver so you can see the end result.

You can read more details about these plans here: www.vlegaci.com/how-to-learn-more-about-bpm



About The Author

Steve Kilner, founder and CEO, has a long background both in software consulting management and software product innovation. As founder and owner of the largest IBM Midrange Business Partner firm in the San Francisco Bay Area for many years, he both developed an extensive consulting operation and authored a number of programming productivity tools.

As the AS/400 market evolved into long-term maintenance mode, he subsequently developed static and dynamic code analysis tools for RPG as a means of preserving maximum value from these systems.

Combining software metrics with insight into software maintenance methodologies and programmer cognitive capabilities, Steve has written extensively on management techniques for maintaining complex legacy applications.

Recognizing the ultimate futility of sustaining the viability of old software, he became involved as a consultant to two different efforts to migrate old RPG code to other languages. The shortcomings of those strategies and his work with process discovery lead him to his advocacy of BPM as the logical application platform of the future for AS/400-IBM i applications and organizations.

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