

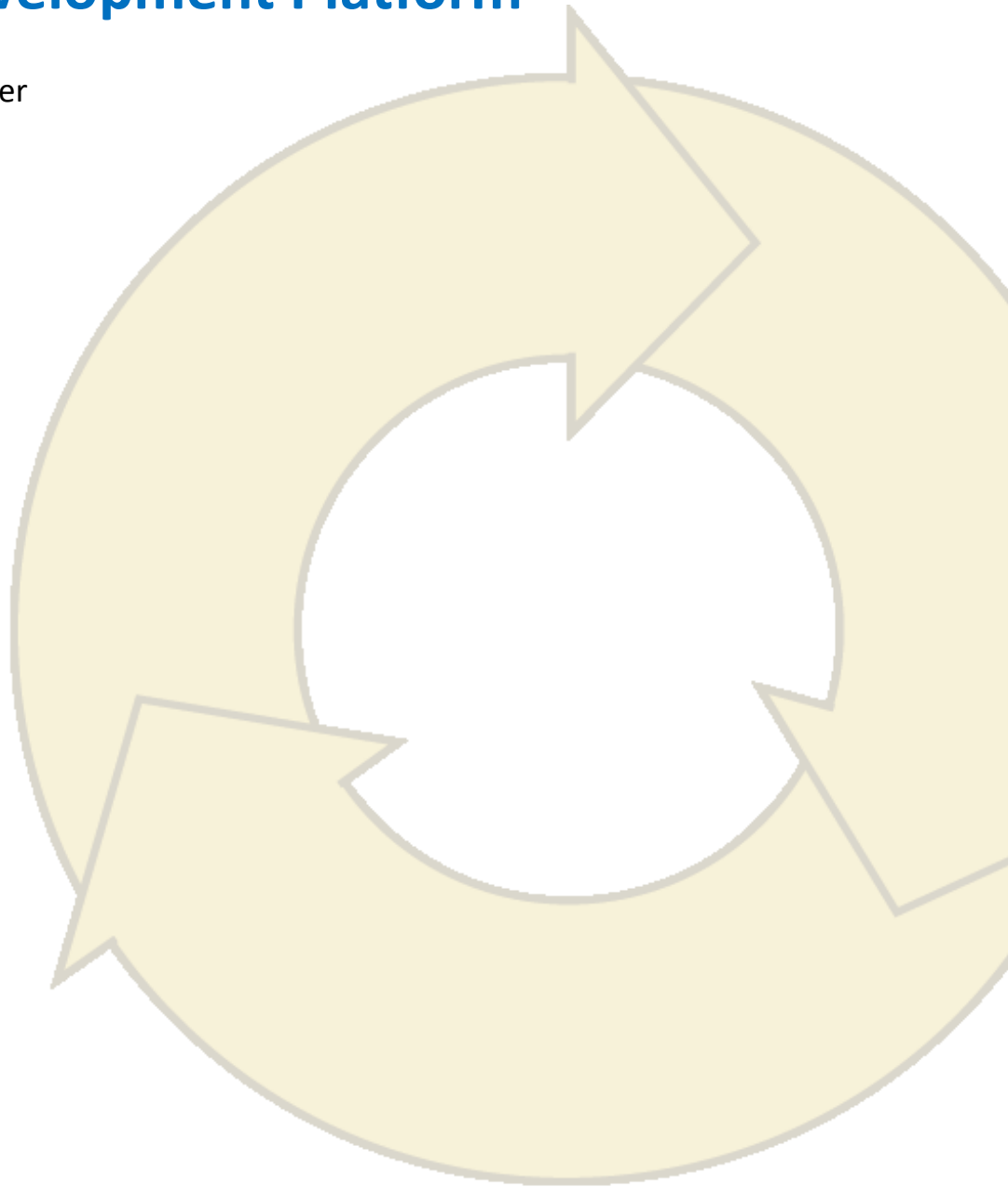
ClearCadence

Process, Improved.

BPMS as a Development Platform

A ClearCadence White Paper

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Traditional IT Coding Practices

In most organizations, an IT department consists of a team of .NET or Java developers or both. Across the organization are applications that are either off-the-shelf point solutions, custom coded applications based on .NET or Java or enterprise wide systems that could still be on a mainframe or built within ERP or CRM systems. Unfortunately, companies end up having this mixture which means having support staff knowledgeable in each one in order to create new applications, modify existing ones or to perform break-fixes during a production outage.

This also means down time for a programming group that perhaps doesn't have new (or enough) initiatives within their specific skill set. For example, in a staff of four Java developers, there may be two active projects that only require one or two of the developers leaving the rest to sit idle. Meanwhile, the IT backlog continues to grow because the incoming requests are not Java related and thus cannot be handled by the idle developers. This is not an efficient use of a company's resources.

"Many development teams are questioning the role Java, .NET and other coding platforms should play in their customer facing systems."

Forrester Research

Enter BPMS

Business Process Management Software (BPMS) is widely regarded as a means to digitize and automate workflows and while that is true, it is much more than that. BPMS has always been about providing rapid creation of forms and tools in order to create efficient business solutions. If you think about it, this is exactly what traditional development platforms do as well, but it takes special education in order to code within those platforms. They refer to .NET and Java as a "language" for good reason. You have to learn Spanish in order to speak it and you have to learn .NET in order to code in it. Such is **not** the case with today's BPMS.

Low-Code Platforms

The current buzzword in BPMS platforms is the term "low-code." Simply put, it's the ability to build end user applications in a shorter timeframe and by people who may not have a professional development background or only have skills in one particular development area. This "configuration over code" approach to development is not new to the BPMS world. In fact, products produced even in the mid 1990's were toolkits that allowed developers to build complex processes without necessarily using code. The key differences in today's BPMS is the extension of low code functionality to the creation of forms and the end user experience as well as more out-of-the-box integration points to popular systems such as SAP, Salesforce, SharePoint, Active Directory, Oracle, SQL Server, and Exchange, just to name a few.

This ease in application creation has caused some to tout that a low-code BPMS platform can be used by end-users or "citizen developers." ClearCadence spent several months evaluating and working with a variety of low-code BPMS platforms and while in most cases, the amount of pure .NET or Java code is greatly reduced, the need for such code has not been eliminated. More, the tool complexity is such that even with training, the majority of end users will still not "get it" to a point where they can build sustainable and efficient applications.

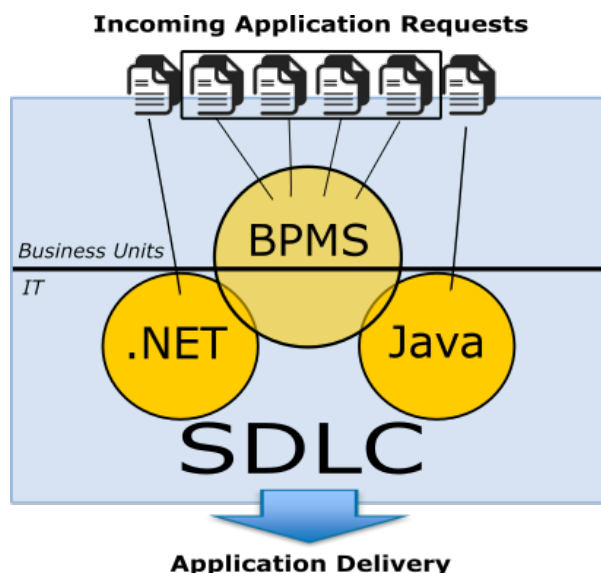
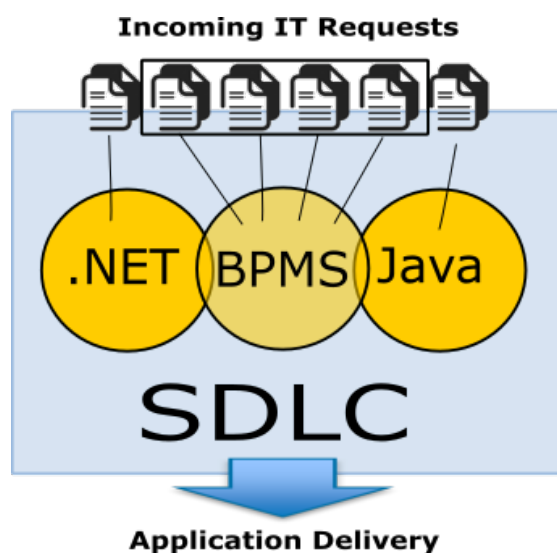
Additionally, allowing end users access to such tools can create what is known as "application sprawl." Remember when Microsoft Access, Excel and SharePoint were deployed to end users as a solution to allow them to build their own applications? What happened? Each department ended up with a number of small applications and user sites that still needed IT support if something went wrong with them. These applications

also ended up with silos of duplicated data, process knowledge, and functions that were spread across individual PCs, laptops, network shares, and even on external storage devices. IT departments are typically structured and disciplined in how development projects are approached, coded, tested and stored whereas this is not generally the case with business units.

Does this mean low-code is a failure? Not at all. Low-code BPMS has tremendous value but there are considerations on how an organization should use these platforms. The first is how the platform is to be implemented:

Within IT – There can be a specific group within IT that utilizes the low-code platform as their only development tool to build applications for the business users or the BPMS skillset is spread across the existing developers so they have both their primary development platform and BPMS. If functionality is needed that goes beyond what the low code platform can do, it's easy enough to hand that piece of coding to the skilled developer. Utilizing a low-code platform also gives newer developers the ability to do more for their organization quicker than having to come up to speed on existing custom coded applications.

When BPMS is added to the software delivery life cycle (SDLC), many companies will find that a majority of incoming IT requests can be handled within BPMS, moving the more complex solution requests to be coded under a specific platform, .NET or Java. When developers within the .NET and Java development teams add BPMS to their lists of skills, they become much more productive and valuable to the organization.



Hybrid Team – Another option is to involve the business units in with the application development. While this could mean allowing business units to develop their own applications, a more realistic and practical implementation of a low-code BPMS platform is having the business users start or prototype solutions for their business challenges and then pass those to IT with the appropriate requirements and designs. IT would then either complete the application or develop a more polished solution.

Most low-code BPMS platforms provide the ability for users to draw out their business workflows within a web based application utilizing either a proprietary process building tool or one that uses industry standards such as BPMN 2.0. Either way, the end user can provide a workflow of their business process that is more than just a Visio drawing within a requirements document. By

drawing it within the low-code platform, the workflow can now be a part of the finished solution. This reduces overall development time since the developer does not have to start from scratch. The same is true for form layouts. The end user can start with the basic structure and layout of how the form should look by creating the elements within the BPMS tool and pass it over to IT to put the proper configurations and, if necessary, code behind it.

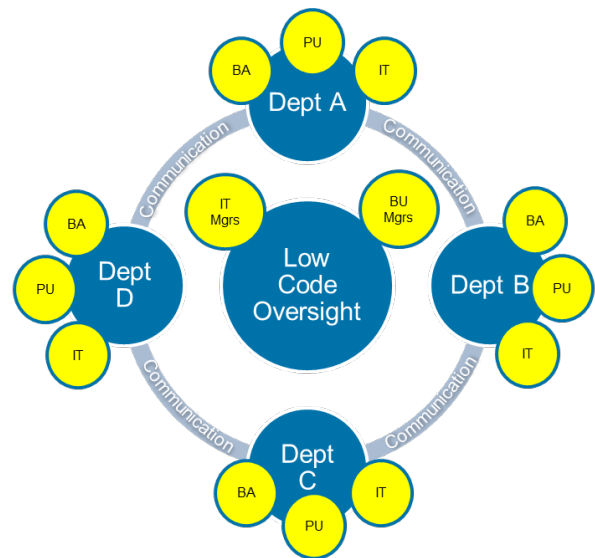
Low-Code Governance

If a company wishes to do the Hybrid approach to a low-code platform, it's important that the organization has a fair amount of governance around the activities of the hybrid low-code teams. Without such governance, an organization could find themselves overrun with numerous applications and their servers suddenly becoming insufficient to handle the added workloads of the applications being developed by end users. ClearCadence recommends having multiple low-code teams, ideally one in each major department within the organization that consists of...

- Business Analysts (BA)
- Power Users (PU)
- IT Developers (IT)

The teams are overseen by one or more managers from the IT and Business Units and meet on a periodic and regular basis to:

- Review new requests;
- Get updates on development progress;
- Spot common functionality between departments to create cross department applications;
- Ensure the number of applications being developed and used is under control;



This ensures that an enterprise solution that is supposed to be a boon to the organization doesn't become a bane to the organization.

Composition of a Low-Code Team

Business Analyst	Power Users	IT
<ul style="list-style-type: none"> • Gathers Requirements • Business Case Documentation • Business Solution Design • Metrics • Test Design and Execution 	<ul style="list-style-type: none"> • Prototype • Technical Design • Application Development • Unit Testing 	<ul style="list-style-type: none"> • Consultant • Technical Design • Medium-High Code Development • Performance Analysis
Skills Needed <ul style="list-style-type: none"> • Requirements Gathering • Documentation • Requirements • Functional Design • Testing • User Guide • System Guide • BPM Knowledge • Business Knowledge 	Skills Needed <ul style="list-style-type: none"> • BPM Knowledge • Business Knowledge • Logical Thinking • UI/Technical Design • Technical Liaison Skills with IT 	Skills Needed <ul style="list-style-type: none"> • .NET or Java • System architecture • Database • System Integration Technologies • Business Implementation Liaison Skills

“Teams that have worked with low-code approaches for two or more years advise establishment of development conventions (governing usage of platform services, size of reusable components, etc.) and architectural design practices and norms.”

Forrester Research

Traditional IT vs. Low-Code Development

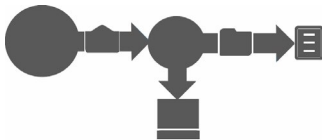
Below is a table that lists the various factors of solution development and our view on how these are handled with Traditional Development and with Low-Code development.

Factor	Traditional Development	Low-Code Development
Skills	<p>Knowledge and skills in:</p> <ul style="list-style-type: none"> • .NET • Java • SQL • web services, etc. 	<p>Training in Low-Code platform:</p> <ul style="list-style-type: none"> • Visual tools • Form creation • Reusable, configurable components • Easy to modify
Development Time	Measured in months, sometimes years.	Measured in days, sometimes months.
Number of Applications	<p>Applications are built only after receiving:</p> <ul style="list-style-type: none"> • Requirements • Priority • Company benefit, etc. 	<p>Due to ease of use, danger in having:</p> <ul style="list-style-type: none"> • Application sprawl • One off applications • Under sized applications • Duplicate functionality across multiple applications • No requirements or design
Iterative Development	Traditional coding can be done in an iterative fashion but takes planning and time to complete a certain level of functionality for review by users.	Since applications can be built much quicker, ideas and business cases can be reviewed and tried out prior to implementation.
Software Development Life Cycle (SDLC)	Most IT organizations already have procedures and policies in place for application development and is stringently followed.	Despite the ease in application development, Low-Code development should still follow some degree of an SDLC policy .
Medium to High Code Needs	Not an issue since traditional development would encompass all levels of coding .	It is possible the requirements of an application cannot be fully realized with a Low-Code platform and will need medium to high code development.
Integration	<p>Obtained through:</p> <ul style="list-style-type: none"> • Standard programming languages • APIs • Web services 	<p>Most Low-Code platform come with “out of the box” integration components for:</p> <ul style="list-style-type: none"> • SAP • Salesforce.com • SharePoint • Active Directory • Exchange • Oracle • SQL Server

BPMS as an Enterprise Strategy

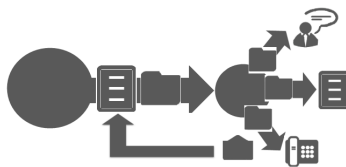
Companies that look at BPMS are typically doing so in order to resolve a specific business problem and will find a very capable solution within BPMS. Often times, however, their use of the system stops there. This is unfortunate because the same tool that was able to provide the one solution should also be considered for other solutions. This is why companies invest in coding platforms. .NET and Java are used to create, enhance, and further enterprise initiatives. The same can be done with a BPMS platform.

When you look at the different types of workflows and process challenges a business can have, you can break them down into four distinct categories:



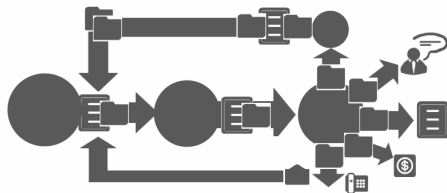
Simple

Work, whether content based or data only, is processed and completed in one or two steps.



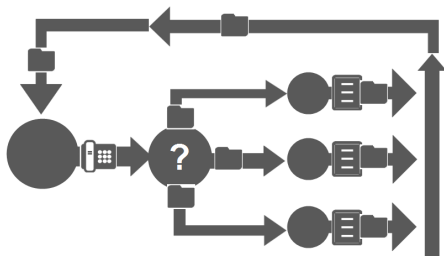
Moderate

Work is delivered to two or three different roles within a department based on conditional logic (i.e. an item needs to be reviewed by a supervisor). This may also require putting work on hold while supporting information is received.



Complex

Several steps are within the workflow including parallel processing, returns from one point in the workflow to an earlier point, auditing of work, and even more detailed conditional routing based on elements within the work item itself.

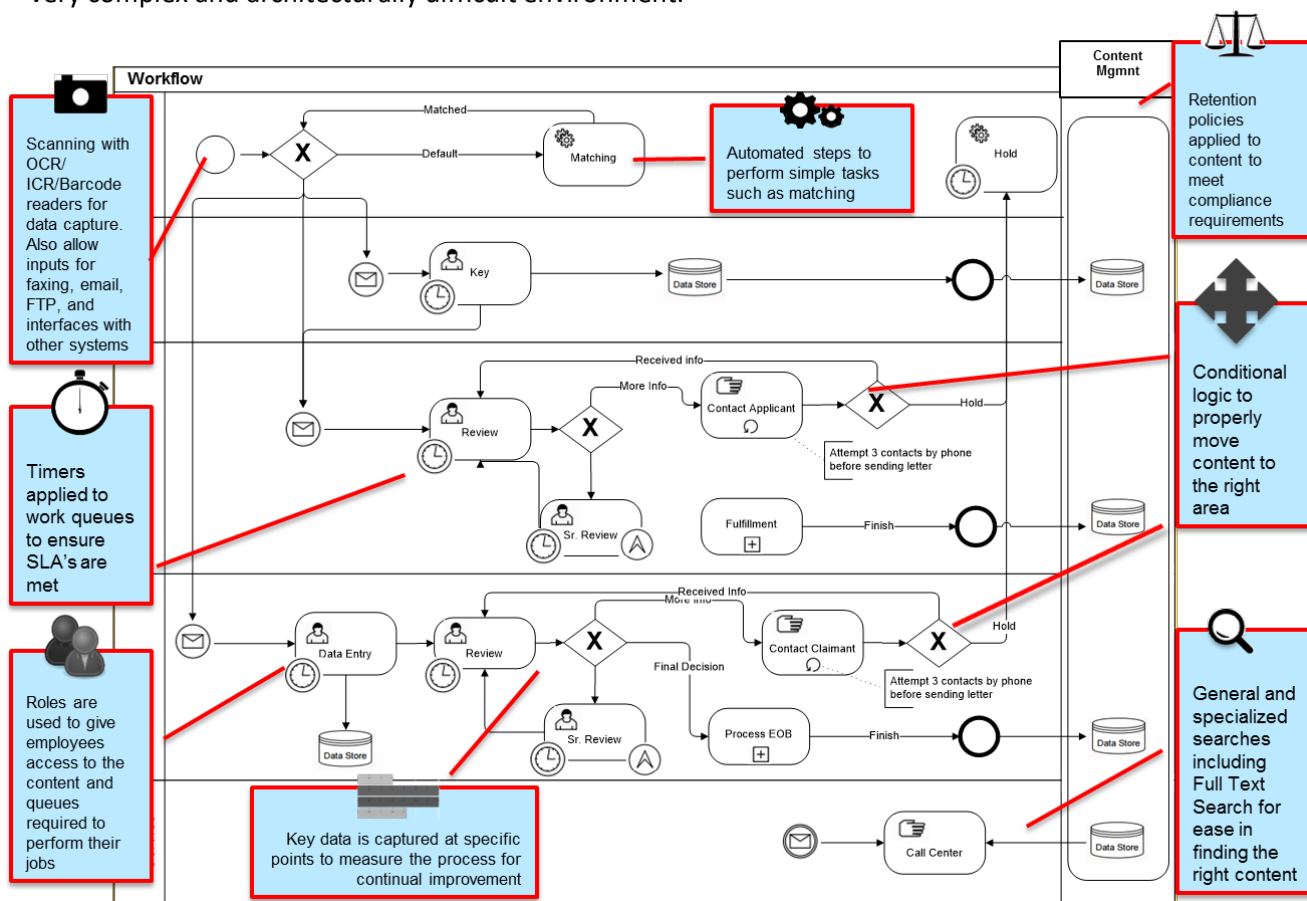


On Demand

Generating work based on a phone call, email or web request. These are sent to a variety of users or departments that might not follow an established business process. This also includes case management where tasks can be completed by multiple employees in an ad-hoc fashion rather than within a structured workflow in order to fulfill a business process.

When you incorporate all the above levels into a unified, company wide BPMS platform, you have an Enterprise BPM strategy. Imagine trying to accomplish all of this by coding from scratch within .NET or Java. It would take a considerably longer amount of time.

The diagram below shows all of the functions capable within a BPMS solution. To do this with traditional coding would require hundreds of different components and modules that would need to work together in a very complex and architecturally difficult environment.



“BPM software will morph into a next generation business process platform ... BPM will continue to moving in this vein, adding even more capabilities to support dynamic and collaborative work, including software for analytics, business process, collaboration, content management, customer experience, social and other emergent software categories”

Connie Moore
Senior VP of Research
Digital Clarity Group

Within a BPMS platform, however, this is generally all configuration based and not code based (although there may be instances where coding is required). Plus many of the steps and components used can be reused for other projects. Low-code BPMS solutions allow for a library of reusable artifacts that makes implementing new solutions much easier and more cost effective.

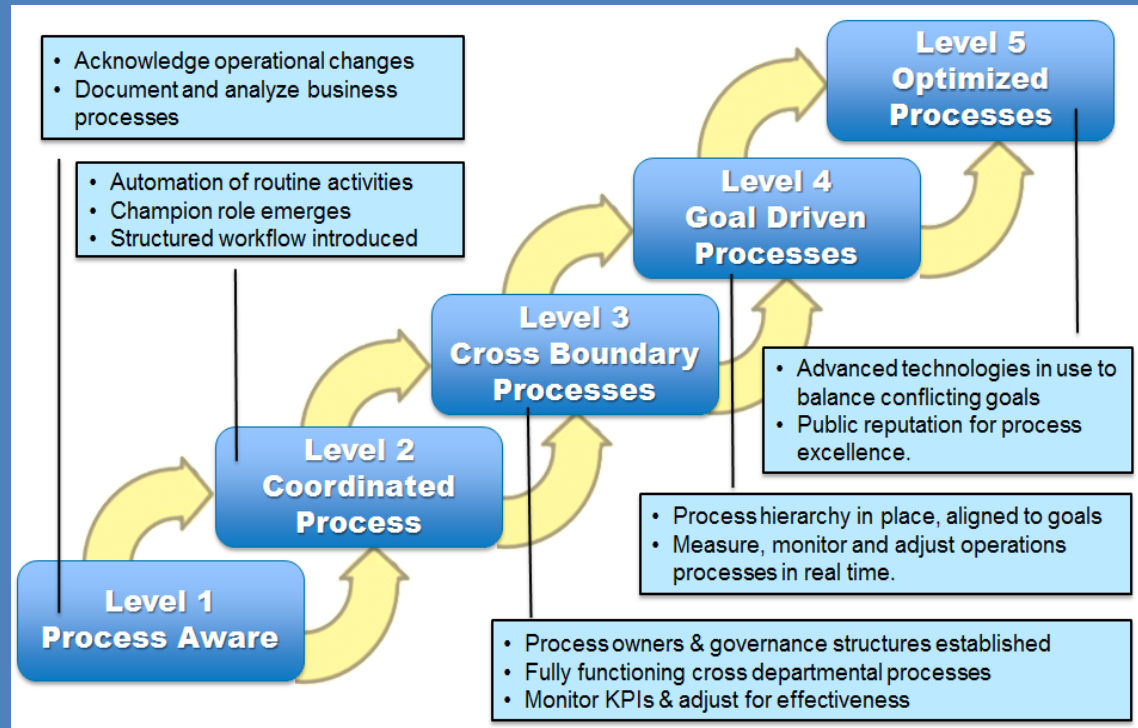
Additionally, most BPMS platforms support the movement of solutions from a development to a test environment and into production. This includes providing variables that allow environment specific parameters such as server names and database connections to be externalized and easily updatable to match the destination environment.

All of these capabilities are provided in a platform that does not require additional development skills other than understanding how the software works. Our experience, however, is that someone with a development background will grasp the concepts of the software quicker than a standard business user which is why

utilizing BPMS as a third development platform makes a lot of sense. And, as stated previously, the BPMS skills can be taught to any developer regardless of platform.

The BPM Maturity Model

As part of a self-assessment exercise for instituting or furthering their BPM strategy, companies should understand where they are within the BPM maturity model. This helps to position themselves to either move up to the next level of BPM maturity or to excel at optimizing current their processes.



Calculating BPMS ROI

The Return on Investment (ROI) for a BPMS platform can be calculated where BPM has been applied to an individual application or parts of a solution. When doing so, it is important to track both the direct and indirect benefits of what a BPM solution provides. Direct benefits would include: improvement of operating efficiency, reduction of day to day failures and rework, standard and enhanced end-to-end process maps to reflect companies policies and procedures, and regulatory and compliance benefits (i.e. by not incurring fines and penalties for not following such regulations). Additionally a big part of BPM is an optimized staffing model and full time employee headcount. Typically this is in regard to business side headcount since automating processes can reduce the need for additional people and make existing staff more productive. By utilizing BPMS as a third development platform, companies can take into consideration the added value of making the existing development staff more productive with the additional set of tools, improved turn around times for IT projects and an increase in programming output.

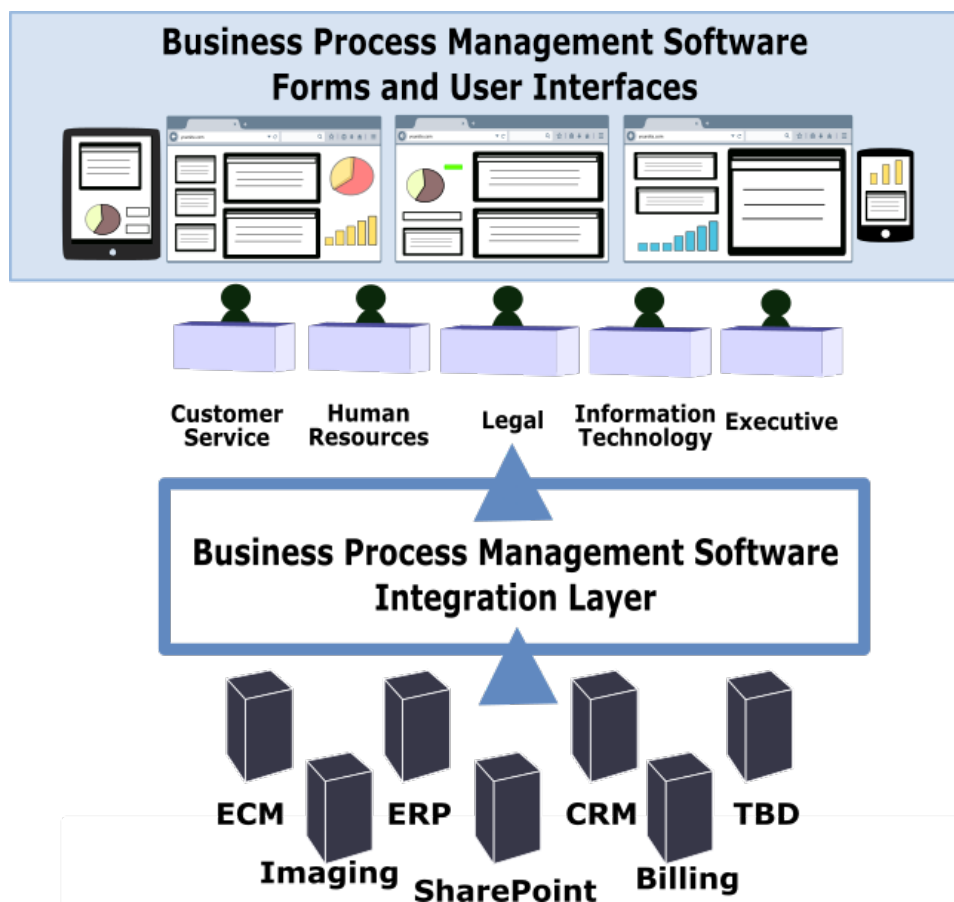
Indirect benefits which may not have a hard-dollar amount but are valuable nonetheless include: ease of change management for future enhancements, centralized business analysis and project management efforts with more control once a complete BPM overview has been implemented, and expansion of the BPM model to other departments with minimal efforts due to common workflows.

The key factor to determining the ROI on the purchase of a BPMS is to make sure measurements of your existing processes are captured before or in the initial stages of a new BPM project. By applying a dollar amounts to

these measurements and then capturing the same measurements once a BPMS is implemented, the return on the BPMS investment can be effectively calculated.

BPMS as your Primary Development Tool

After considering all of the benefits of a well chosen and thought out BPMS investment, it's possible a company could find themselves using BPMS as their primary development tool for just about all of their coding needs. ClearCadence research of a variety of BPMS low-code platforms showed that most have the ability to switch from low-code to "high-code" and build much more complex solutions. In these instances, the BPMS platform is typically "combined" with the development platform designed for the BPMS tool (i.e. .NET or Java). From there a deeper and more rich solution can be built.



Further, with the integration capabilities of a BPMS platform, by utilizing web-services and APIs provided, integrating the solutions into other applications or within custom applications is also achievable to help enhance various mission and business critical applications such as data warehouses, HRIS, ERP, etc. Since the integration objects only need to be set up one time, they can be reused in different software applications, which once again makes the time to market much faster than traditional development methods.

ClearCadence strongly recommends the consideration of BPMS platforms to help enhance any company's technical infrastructure and to potentially replace outdated development applications and electronic form building tools. We also feel consideration should be given to replacing existing and aging BPM systems with the more modern tools and functionality that today's BPMS platforms can provide.

We Know BPM

ClearCadence can assist you in learning, defining, developing, and maintaining your Business Process Management Strategy and provide expert-level skills from analysis to implementation. We know how to take you down the right path for success in executing your BPM strategy at the department and/or enterprise level. Our expertise in the BPM field is provided by certified professionals with real-world, practical experience and we have spent time analyzing, researching and testing the various BPMS options.

Why ClearCadence?

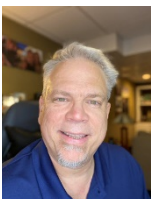
ClearCadence has the experience and resources necessary for successful planning, architecture, design, development, customization, project management, technical support and education to help you get the most out of your BPMS investment. We offer the right combination of the industry's top people and solutions to help you meet your business objectives. ClearCadence Professional Services deliver:

- Expert consultants who truly understand BPM, integration, technology and business process challenges in your industry
- Experienced trainers who are capable of providing knowledge transfer of BPM solutions
- Superior customer service for immediate response and results with 100% client satisfaction

ClearCadence is committed to your success and to building a long-lasting relationship that helps you realize a strong return from your investment – both now and into the future. Let our Professional Services team help you take full advantage of BPM disciplines and technology by analyzing your business and system processes, identifying issues, and transforming them into efficient solutions.



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About the Author:

Kevin Beddingfield has over 20 years' experience implementing enterprise content management and business process solutions for a variety of companies on the business and IT sides of the fence. Kevin's experience in BPM analysis and recommendations have been used in solutions that have saved companies millions of dollars.