



Business Process Management as a Blueprint for Mobile Workforce Management

How BPM Technology is the Perfect Match for
Complex & Dynamic Environments

Introduction

As service organizations strive to achieve business objectives with limited resources, there is a growing need for greater visibility into business process effectiveness. In conjunction with efficiency monitoring, the processes themselves are updated due to internal or external factors. These updates involve changing the existing business processes and/or adding new business processes as well as exception management handling. This evolving and dynamic business environment is becoming a challenging puzzle for an organization to solve. Business process management (BPM) assists organizations in solving this puzzle.

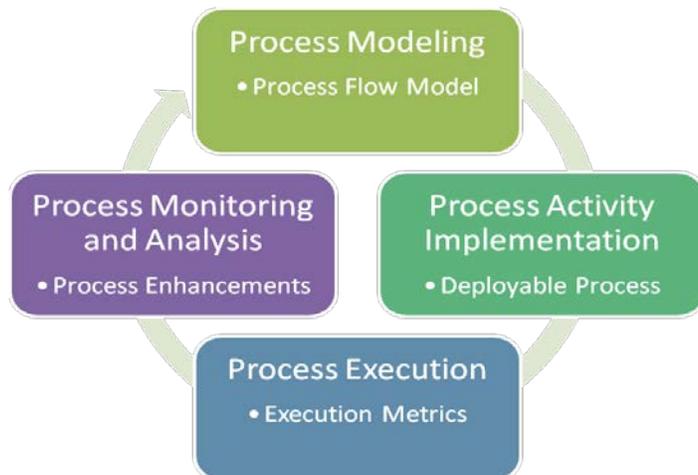
This white paper is intended to introduce the basics and benefits of BPM to an organization, explain how BPM fits into the mobile workforce management industry, and outline the service focus of ViryaNet's BPM Blueprint solution which enables faster BPM adoption.



BPM Basics

Every business has a goal of attaining efficiencies by defining processes best-suited to meet corporate policies. Each business process is a collection of coordinated tasks and activities conducted by both employees and company-wide systems designed to complete a business function.

Business Process Management (BPM) is a methodology for defining, developing, simulating, deploying, and monitoring business processes and workflow. The BPM methodology is a systematic approach to enable continuous improvement by managing the full lifecycle of business processes.



The benefits of the BPM methodology include:

- Productivity efficiency can be achieved through automation of business processes and visibility into the progress of each business process. The automation minimizes manual intervention between systems and people, and people in different groups within the same or different organizations. The visibility into progress allows for the capability to monitor the business process and enables the organization to become more proactive in handling the business process.
- Business process effectiveness is improved by analyzing the current business process and handling the exceptions successfully. The analysis of the implemented business process, along with its execution metrics, can provide the necessary information to determine the effectiveness of the business processes. If there are any exceptions identified within the business process, these exceptions can be handled appropriately, depending on the exception condition.
- Adaptability to constant change is always a major benefit of using a BPM system. The ability to quickly update an existing business process or implement a new process helps business users. In addition, the rules for a business process can be updated and implemented in real-time without the need to redeploy the business process.
- Sustainable improvements during the iterative lifecycle of business processes are possible, so BPM is a continuum and not a “use-it-and-forget-it” approach.

In addition to these apparent benefits, there are some inherent benefits as well:

- Conformance manageability helps identify any deviations to the business processes.
- Better collaboration between business users and the IT team due to clearly defined roles and ownership of the various steps in the business process lifecycle. Knowledge management is also more effective when business users focus on business process modeling, implementation, monitoring and analysis, while the IT team focuses on deployment, maintenance and scalability.
- Standards-based BPM tools help interoperability with current and future BPM systems, while minimizing (if not eliminating) proprietary code development and maintenance. Before the standards-based BPM systems, processes were implemented using various technologies (Oracle stored procedures, JAVA, .NET, etc.) driven mainly by the need to integrate with external systems.

Common BPM-related standards include:

- Business Process Management Notation (BPMN) for defining processes using standard notation.
- Business Process Execution Language (BPEL) that is compatible with BPMN and is used to execute business processes.
- Rules are defined in the Business Rules Engine (BRE) which is either a built-in feature in the BPM product or integrated with another BRE product.
- Standard integration tools to retrieve/update/information from the external systems via the appropriate interface.

With BPM products, users can implement business processes using standard methodologies and configuration tools. These tools allow business users to design, simulate, monitor, and measure the business processes' efficiencies. It also helps the IT team to focus on the IT aspects of implementing business processes, such as deployment, performance, and scalability.

BPM in Workforce Management

BPM within the workforce management (WFM) industry has been slowly gaining acceptance and visibility at various levels within organizations. Management is seeking higher efficiency from its business operations which, in turn, look to the IT team to help implement better tools for managing business processes.

The interaction of BPM with the WFM system is not a new concept. BPM has been implemented before, but only as an IT-focused effort. Business processes and workflow have been implemented as part of the WFM system and have used the same tools as the WFM system. This approach worked well because the business process was tightly coupled with the WFM system. But this approach also resulted in a dependency on the WFM system and its technology tools, and was tied to any WFM version upgrades. For example, an Oracle database-focused WFM product would drive business processes to be implemented as stored procedures.

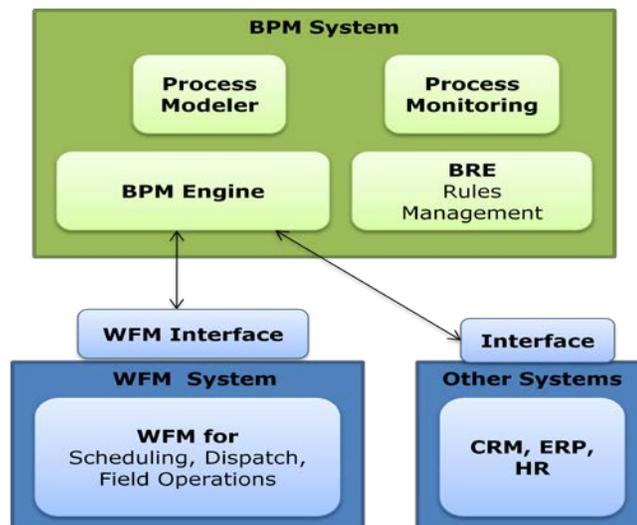


Other technologies such as JAVA, .NET and even proprietary techniques are used to implement the business processes. While these techniques may meet the objective at the time of implementation, there is a dependency on managing these processes and any eventual changes to processes. If proprietary techniques were used, then the dependency is even stronger – requiring a specific set of resources to resolve or update the business process.



This approach had its share of benefits. For example, the IT team acts as a central controller to manage all BPM aspects and the same technology usage is available within the WFM system. But this approach also leads to business operations being highly dependent on the IT team and the development of business processes using proprietary code. The role of business operations has led to a wider collaboration with IT. And advanced BPM tools have helped the BPM system gain more of a foothold in working with business process modeling, implementation and monitoring. The IT team remains engaged in the true technology aspects of business process deployment, execution and maintenance of the BPM system.

Organizations realized the need to actively monitor and update business processes and workflow to meet their requirements. By utilizing a BPM system to abstract the business processes and workflow from the WFM system, organizations can have more control over monitoring, updating and deploying business processes. This abstraction also provides the ability to interact with other systems for relevant information.



Abstraction of the business process from the WFM system is not intended to re-implement the core WFM functionality, but to modularize the business process and its decision-making rules. The business process itself might remain the same, but the rules may vary.

Business operations can now be empowered with better BPM tools and more control of the business process lifecycle. With the proficiency, expertise and years of experience in the daily usage and review of existing business processes, here are some key elements identified by business operations to enable faster, easier and successful adoption of BPM systems:

- Ability to truly abstract process definition, instantiation, monitoring and analysis of complex technology to ease the usage by business users.
- Well-defined approach to identify and manage exceptions in business processes and becoming more proactive with immediate notification of exceptions – thereby minimizing backtracking to find the source of the exception.
- Visibility and control to review adherence to conformance policies/SLAs and discover any deviations.
- Segregating the business process definition from its conditions (rules) while easily accessing the WFM system through integration.

The IT team perspective from this collaborative effort offers other key elements:

- Focus on process deployment and BPM system maintenance.
- Allow interoperability in the long run with a standards-based BPM system.
- Avoid proprietary code, leading to simpler implementation, enabling business users to define, update or monitor the business processes.

With a clear distinction of the responsibilities of the BPM lifecycle steps and better collaboration between business operations and IT, the BPM tools can help achieve both the apparent and inherent benefits.

ViryaNet BPM Blueprint

The BPM system's ability to interact with a WFM system can only be as good as the integration between the systems. Again, the focus is on the IT aspect of the BPM solution for WFM systems.

To expedite the adoption rate of BPM system implementation with WFM system, there is a need to add value as a service focus tool and not just as a technology tool. The service focus is designed to empower the business users with the right tools and the correct techniques to utilize the potential of the BPM system integrated with the WFM system.

Enabling the service focus on BPM requires implementing a well-defined, end-to-end BPM solution to work with the WFM system. ViryaNet defines this end-to-end solution as the "BPM Blueprint for Mobile Workforce Management".



The ViryaNet BPM Blueprint's objective is to facilitate the usage of the BPM system by business users and to encompass the WFM business processes, while meeting the efficient, effective and agile requirements of implementing business processes. The blueprint is a methodology using the following principles:

- A set of commonly implemented WFM business steps, processes, exceptions are identified and reviewed, then categorized into business terms, such as work initiation and work planning.
- As the experts in the WFM product, each step or process is implemented, using the ViryaNet recommended best practices from both the business and technology perspectives. This approach allows business users to utilize these steps and processes to build new processes, while still taking advantage of the current expertise.
- Harvest the conditions within a step or process and implement them as rules that quickly adapt to changing conditions.
- Standards-based BPM tool utilization allows for flexibility in the future – reusing the predefined set of steps and processes on a different BPM system with minimal changes.

A high-level view of the BPM blueprint is shown below:



As seen in the previous table, categorization encompasses the normal day-to-day WFM processes and some exceptions:

- **Work Initiation**

- Gathering and preparing the data for work creation in the WFM system helps facilitate the integration aspects with external systems, including data transformation, data mapping, etc.
- Any exceptions during work creation would alert the integration team, allowing them to quickly review the failure point with all the data.
- Various approval processes before the work is ready to be scheduled (especially critical for long-duration work as many tasks, resources, equipment, and permits need to be coordinated and approved).
- Auto-assignment of the newly-created work, based on priority, work type, and time of day.
- Adding work correlation or dependency, based on the previous work created.

- **Work Planning and Scheduling**

- Control the conditional selection of optimizer instantiation with a specific profile, based on time, resource availability, workload, or weather conditions. Example: The ability to trigger an optimization run with a specific high-priority profile when the daily workload has a large number of high-priority work orders.
- Handling the exception case when the scheduling engine is unable to complete its assignments due to unavailability of routing information from the mapping server.
- Backlog management allows for picking the right time to assign the work, based on the existing workload, priorities, work type, and resource availability. For example, on a day with minimal, high-priority workload, picking the appropriate optimizer profile for scheduling of filler work within the vicinity of regular work assignments.

- **Work Execution**

- Control the amount of work dispatched to the field user to allow for same-day work allocation.
- Enable field user work acknowledgement policies, based on work type, work priority, and the wait period for acknowledgment. If the field user does not acknowledge within a certain time period, a notification permits the dispatcher to take appropriate action to potentially re-allocate the work to another in-coverage field user.
- Work progress notification assists in proactive management of work within a given day. Example: The field user is delayed at a work site, causing a delay in the on-time arrival for an appointment at the next work order. The dispatcher and the customer can be notified.
- Route re-sequencing - If the field user tries to work the tasks out of sequence, the dispatcher can be notified or that event can be logged for later reference as it monitors conformance of the assigned route.
- Work completion approvals, follow-up work creation based on work type, and follow-up email (with survey) to customer, based on work type/completion data filled by field user.
- End-of-day activities provide the ability to review the work that was assigned, but could not be completed, and takes the required actions based on work type, and time of day. The pending work can be pulled back to be considered for allocation the next day. Any work created a few days ago, but is still pending to be completed, can have its priority updated, based on certain priority aging conditions. For example, after 3 days, update priority by 10, until priority value is 20.



- **Exception Handling**

- Ability to initiate dynamic scheduling based on resource availability updates. If the field user becomes sick during the day or reports an “out-of-service” event, due to a vehicle breakdown, work is automatically un-assigned and allocated to another available field user.
- Handle major events, such as storms and outage scenarios, leading to complex processes involving multiple business processes. During such scenarios there are many required updates, such as changing resource availability, current work un-assignment, enabling a priority-work-only scheduling profile, activating auto-scheduling, etc. There is also a potential need to activate higher monitoring alerts on the work progress.
- Implement customer interactions and escalations to keep the customer informed, and enable the dispatcher to proactively manage service performance.

As the adoption of BPM system usage with WFM systems increases, more processes will be added to the BPM blueprint, creating a collection of effective and reusable business processes successfully implemented, using best practices.

Summary

BPM adoption is a commitment to follow a well-defined methodology. To ease the adoption, the ViryaNet BPM Blueprint provides the necessary service-focused, end-to-end BPM methodology solution. One that can be implemented drawing upon ViryaNet’s many years of expertise in the mobile workforce management industry. The evolving and dynamic nature of business processes is managed by the BPM blueprint methodology solution to realize productivity gains and effectiveness of business processes. These gains are achieved through monitoring/analysis metrics, improved alliance between and reliance upon business and IT teams, and standards-based tools to design, deploy and provide visibility to all aspects of the business process lifecycle.



What BPM puzzles are you trying to solve?

[Find out how ViryaNet can help.](#)

About ViryaNet

ViryaNet delivers mobile workforce management solutions that intelligently guide, automate, and optimize both simple and complex field service work, resulting in measurable business benefits. ViryaNet's products, pre-packaged solutions and people are recognized within the industry as innovative which in turn enables its' customers to be viewed as leaders within their respective industries. ViryaNet's G4 products specialize in the functions of scheduling and dispatching resources and enabling mobile field communication and are delivered in industry specific configurations. Embedding industry best practices and utilizing innovative technologies like ViryaNet's BPM Blueprint for Mobile Workforce Management™, Microsoft InfoPath® and device agnostic mobile solutions enable ViryaNet's products to be rapidly deployed and extended to support virtually any business process across a wide range of industries. ViryaNet is proud to call many of the world's leading utilities, the United States' largest pure rural telecommunications firm, the supermarkets most respected retailer, and North America's largest auto insurer as customers. ViryaNet has strong partnerships with leading platform and system integration companies that enable it to have a global presence. Headquartered in Westborough, MA, ViryaNet has additional offices in the United States and Israel. For more information [visit our website](#) or [follow us on twitter](#).

