

Blue Prism

Product Overview

NHS Edition

April 2013

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1 Introduction

This document describes Blue Prism's Robotic Automation Software Platform. It describes the features and benefits that allow healthcare organisations to integrate systems, automate repetitive processes and to increase the quality of care to patients. The associated operating models and deployment methodologies are also described.

The document is intended for both technical and business audiences who want to understand:

1. What robotic automation means in the context of health care?
2. What benefits can robotic automation provide?
3. How robotic automation supports operational agility?
4. What is different about robotic automation and how does it complement traditional BPMS and IT programs?
5. How an organisation should adopt robotic automation and change the way work is done to gain the best returns?
6. The functions and components of the Blue Prism platform, how they fit together and what they do
7. How the technology is configured and deployed?
8. What services, methodologies, training and accreditation are available to support the deployment of robotic automation software?

2 The Blue Prism Robotic Automation Platform

2.1 What is Robotic Automation?

Manufacturing and supply chain industries throughout the world have employed robotic automation to deliver quality, efficiency and productivity through automating repetitive and manually intensive tasks. Blue Prism has taken this concept and developed a robotic automaton software platform for clerical, administrative, back office process automation.

The technology enables non-engineers to automate certain business processes quickly and cost effectively. The technology is best-suited for processes which are highly rules-driven, and/or are needed urgently, and the requirement for which is too tactical or short-term to be developed using IT approaches such as service-oriented architecture (SOA) and business process management suites (BPMS).

Processes most suited to robotic automation generally revolve around the theme of moving data between systems in a repetitive and transactional manner. Typical examples include unifying systems which lack a messaging interface; automating data entry tasks between systems and between health care agencies; and automating office-based clerical activities in HR, finance and admin. The unifying theme is that there is repetitive rules based administrative work that could be performed by a robotic workforce which is supported, managed and trained by accredited operational teams.

Technically, robotic automation in this context refers to process automations where a computer drives existing application software in the same way that a user does. This means that unlike traditional application software, Robotic Automation operates and orchestrates other application software through the existing application's user interface and in this sense is not "integrated".

The Operational Agility Forum, an industry forum for operational change professionals (www.operationalagility.com) believes that with new advancements in robotic automation there is an opportunity to "self-build" a Virtual Back Office with "Robotic FTE's" to process manual, rules based processes at a new economic price point and at a new speed which makes automation viable whilst supporting operational agility. This means that processes can be potentially repatriated and FTE can be deployed into customer facing, high value roles.

The benefits for organisations wishing to reduce clerical costs and improve quality include:

1. “Robotic FTE's” are typically 1/6 of the price of NHS administrative staff and can work 24/7 without errors.
2. Speed to automation - days and weeks to automate processes that would takes months and years with traditional automation approaches.
3. Robots are trained with the business rules of repetitive clerical tasks and are deployed to drive existing applications so that no costly integration and expensive process re-design expertise is needed.
4. A small specialist capability within the IT department works with the robotic workforce to train them, manage referrals and continually improve the robots operational performance.
5. The robotic automation platform is secure, audited and managed within an IT corridor of governance. Compliance with appropriate data standards, confidentiality and speed and accuracy of record keeping is invariably increased through the use of software robots.
6. The software robots run in a virtualised environment and so can be rapidly scaled up and down on demand.

2.2 How does this support Operational Agility?

Operational agility is the capability of an organisation to automate local business processes rapidly, react to unplanned events autonomously and cost effectively, enabling NHS organisations to move with greater flexibility and speed. All this should be possible without requiring heavyweight IT support and be executed within an empowered framework of IT governance and control.

Blue Prism software and methodology enables organisations to become more agile without introducing operational risks. NHS organisations have the ability to integrate, automate and orchestrate IT systems and processes to build a "virtual workforce" with the enterprise strength Robotic Automation Platform. The virtual workforce can be rapidly deployed, at scale, to address people resource intensive tasks, delivering operational flexibility, consistency of service and cost efficiency.

Through our work in large and complex organisations, both in the public and private sector, and through our work with international advisory organisations such as Forrester Research and Gartner, we have identified that many organisations and businesses do

not have the means to react quickly to change, other than hiring more people or diverting key resources. In addition IT programs that deliver excellent long term benefits are not always able to fully support rapid and agile responses to immediate business issues. We call this the “long tail of change” (Figure 1.1)

Operational needs and technical demands include:

1. Integrating systems that don't work together – eg ensuring messaging mechanisms exist between Bed Management systems and Patient Administration Systems where HL7 initiatives have proven too costly / lengthy to achieve (or indeed are infeasible without wholesale change of PAS).
2. Enabling the use of technology and devices: mobile handsets and tablets for community workers; digital pens; touch screen arrival kiosks; etc. Availability, affordability and timeliness to deliver traditional API based interfaces are often prohibitive factors to strategic integration projects that would otherwise stumble without the use of robotic automation.
3. Enhancing patient care through data quality initiatives – eg updating local records with changes to PDS data, such as the death of patients with pending outpatient appointments.
4. Increasing health Trusts' ability to better communicate and integrate services with partner organisations – eg the automated transmission of child protection and immunisation data between Acute and Community providers.
5. Responding to regulatory mandates – eg changes to record keeping or governance processes that aren't readily supported by LSPs and vendors
6. Increasing purchasing effectiveness and operational efficiency by automating administrative processes – eg automating stock control processes leads to better procurement practice, reduced clinical waste and reduced clinical risk.
7. Automating legacy manual workarounds and processes against older or unsupported IT systems
8. Addressing important day to day operational changes during major transformation programs
9. Operational changes driven by mergers and acquisitions of health Trusts.
10. Integration with systems where web services or APIs are not feasible
11. A need to reduce operational costs
12. A need to improve accuracy and consistency in patient care

13. A need to reduce recruitment and training costs

14. Limited IT resources and a high level of on-going un-met change requests

2.3 Why is Blue Prism Technology Different?

Blue Prism offers what Forrester Research calls an "Empowered Business Technology."

Our unique and innovative robotic automation technology provides an alternative to traditional IT driven approaches by enabling accredited business users, supported by IT, to rapidly, securely and flexibly build, validate, and execute new business processes - across multiple applications and systems, deployed into the enterprise production environment.

Blue Prism has taken a simple concept, replicating user activity on the desktop, and made it enterprise strength. The technology is scalable, secure, resilient, and flexible and is supported by a comprehensive methodology, operational framework and provided as packaged software. The technology is developed and deployed within a "corridor of IT governance" and has sophisticated error handling and process modelling capabilities to ensure it can perform at scale within demanding, highly sophisticated operating environments.

Blue Prism is specifically designed from first principles to provide NHS organisations with a self-service capability to address the myriad of short to medium term change and automation opportunities that can be part of the "business as usual" operational framework or be new requirements driven by cost pressures, regulatory demands, M&A activity and the ever changing operational demands of modern healthcare providers.

The Challenge of Ongoing Change

Operational agility increasingly depends on the ability of an organisation to quickly and easily modify its key systems and processes in response to ever changing requirements.

With the increasing scarcity of technology skills and resource time required for developing or implementing process automations organisations often resort to either utilising their overburdened internal IT resources or paying for the costly services of external providers. Another issue is that regulatory and operational requirements often

change between specification and delivery. All these factors usually result in lengthy, costly and ultimately unsuccessful results.

Most organisations have too much of their business logic tied up in applications that are difficult to modify rapidly and adapt. Opportunities for automation are often missed and, according to a recent Forrester report, up to 60% of the process automation landscape cannot be economically automated using SOA initiatives and BPMS approaches. This is because these technologies are not designed for this level of granularity and speed of process change and are dependent on deep technical knowledge to manage data.

The Solution – A Strategic Platform for Tactical Change

Provisioning self-service robotic automation technology to the operations teams is the only viable means for dealing with continual change and business operations automation requirements.

Therefore, the combination of SOA/BPMS and Blue Prism Robotic Automation platform provides almost total coverage of process automation opportunities. Blue Prism enables rapidly changing, transient, seasonal and operationally localised automations to be configured quickly and effectively - delivered within fully audited and controlled, IT governed delivery and support methodologies.

Blue Prism complements existing application investments, infrastructure and enterprise data repositories, enabling cutting edge and legacy systems to co-exist and share data easily. Another significant benefit of a centrally IT-managed business user configurable robotic automation platform, is the opportunity to consolidate and remove rogue IT initiatives from business operations, and to do all of this without creating new data repositories. Blue Prism is a complete technology and methodology for rapid business process automation

One of the key advantages of using Blue Prism robotic technology is speed to delivery, enabling organisations to:

1. Quickly adopt new technology aimed at improving services and levels of efficiency
2. Continually enhance quality of care through repeated initiatives to connect data and systems; a key enabler and accelerator of high quality care is the ability to have the right data in the right place at the right time.
3. Automate processes rapidly which had previously been un-economic to address
4. Preserve data integrity by leveraging the existing application presentation layer and underlying application logic with already exists

5. Re-use existing application validation without deep understanding and re-engineering

By creating re-useable components that leverage the presentation layer, the integrity of your business rules and application data can be preserved and extended.

This means that solutions can be built, tested and proven in the live context, which, supported by appropriate controls and the Blue Prism methodology significantly reduces deployment timescales.

3 Operational Architecture

3.1 How is Blue Prism Deployed?

Blue Prism technology is supported by a complete methodology for rapid business process development, deployment and operational support, a whole business process cycle within the same environment.

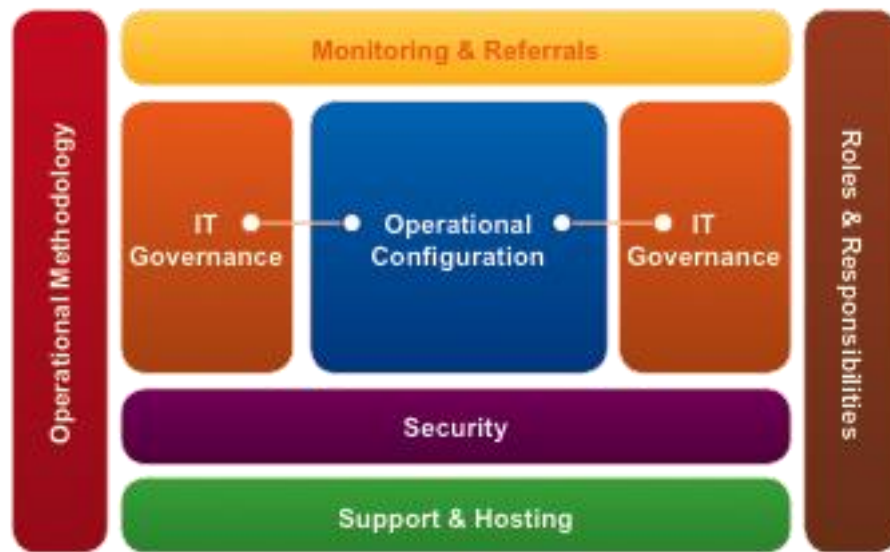


Figure 2.1 – Blue Prism Operational Architecture

The above figure illustrates the architectural components of a Blue Prism deployment with all of the facets to support governance, security and control whilst implementing the inherent flexibility to support operational agility and self-service.

Monitoring and Referrals	Technical service monitoring and business owned referral management for work items that require further, manual steps
Operational Methodology	A complete methodology for best practice Blue Prism implementations, including analysis, design, development and implementation
IT Governance	The rules that underpin “best practice” in terms of process selection, change management and release procedures
Operational Configuration	Ownership of the Blue Prism product for configuration, testing and execution
Roles &	Clear, devolved roles within the methodology for managing and implementing the

Responsibilities	different facets of on-going agility
Security	Product, infrastructure and methodology functions that support a secure and compliant implementation
Support and Hosting	A resilient, scalable infrastructure that supports rapid deployment and expansion based on business need

3.2 Supporting Business Driven Process Automation

In order to effectively and robustly support a business configured process automation capability, the Blue Prism platform has been designed to be configured by operational or IT teams, within the guardrails of an IT governed implementation architecture.

At the heart of the solution is a true shared service, with security, audit, hosting and failover strategy devolved to IT and configuration, monitoring and reporting held within business operations.

IT Governance Requirements	Operational Governance Requirements
Secure, scalable and resilient enterprise architecture	No change to existing applications, No new data
Robust error handling and exception reporting without service interruption	Centralised and extensible component registry
Integrated and centralised system admin and support model	Enforced component model demanding re-use of procedural definitions
IT governed security, audit and alerting model with a low resource profile	Clear procedures and functions for adapting to underlying system change
No overlap with existing projects, technologies and platforms	Managed, controlled and visible mechanisms for process change

Blue Prism technology is proven in allowing organisations to master change, test operational strategies, respond to initiatives, respond to competitive and regulatory pressures and tackle long standing issues within a robust, re-useable, secure and supportable infrastructure.

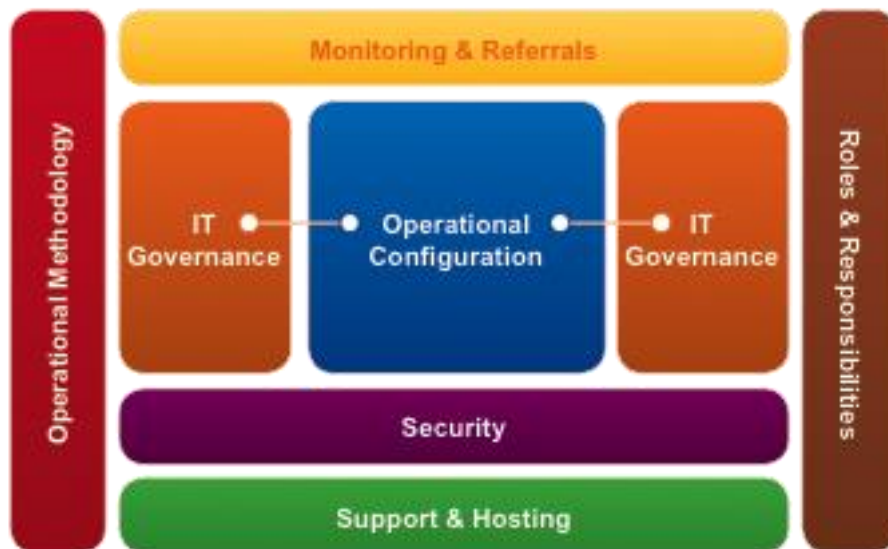
4 Blue Prism – Enterprise Strength Technology

When tackling the long tail of automation, a key consideration is speed to delivery.

Blue Prism enables users to:

- Rapidly build, test and deploy new components from existing applications using a simple drag and drop process flowchart interface
- Preserve data integrity by leveraging the existing application context
- Reuse existing application validation without deep understanding and re-engineering
- Streamline data evaluation and manipulation with simplified data types

By creating re-useable components that leverage existing data representation, process validation and access privilege, the integrity of business rules and application data can be preserved and extended rapidly without requiring in-depth knowledge of the application architecture.



4.1 Secure Reliable Technology

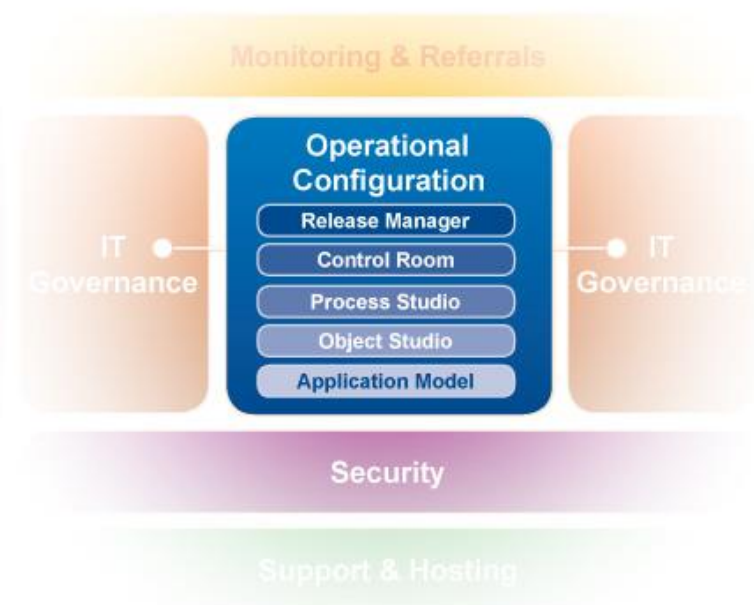
Blue Prism is used by organisations of all sizes, in the public sector, the private sector, in the UK and abroad. Its client list includes those with the most demanding needs in terms of flexibility, scalability and governance. The combination of a strong platform with best-practice methodology enables organisations to extend the reach of technology further and faster than ever before.

Blue Prism Provides...	Benefit
Enterprise-class, "Agility Platform"	Engenders a centrally managed platform for meeting agile requirements - couples enterprise strength technologies and methodologies to enable rapid configuration of existing IT assets into rapidly assembled business process scenarios
Business agility with IT adoption and support	Governance and compliance considerations are delivered across the platform allowing the business to implement agile solutions and leverage the benefits of IT infrastructure without requiring extensive resources and support
Rapid deployment methodology	Processes can be quickly assembled to meet urgent or tactical requirements. Object and Process hierarchies build an extensive library of business components, which can be used and re-used across changing business scenarios.
Non-invasive technology	Application development, SOA and APIs are not required. Blue Prism technology allows existing applications to be modelled and retrospectively componentised without knowledge of or access to underlying data or code structures by wrapping the presentation layer in a robust, reusable service.
Process-based architecture	Architecture is driven by the business process as the leading requirement. Applications are modelled and componentised on an "as needed" basis, building a library based on immediate requirement, responding to current demand.
Referral Handling	Sophisticated process capability for dealing with unexpected scenarios, allowing specific remedies to be applied or business referrals created.
Workflow Queues	Workload strategies to manage, share, work and report caseloads in a robust framework

5 Product Architecture - Configuration

At the core of the Blue Prism operational architecture is the v4.2 product, available in both cloud and self-hosted configurations, with a centralised server architecture providing components to support an enterprise implementation.

The configuration of Blue Prism processes involves the use of four key software elements:



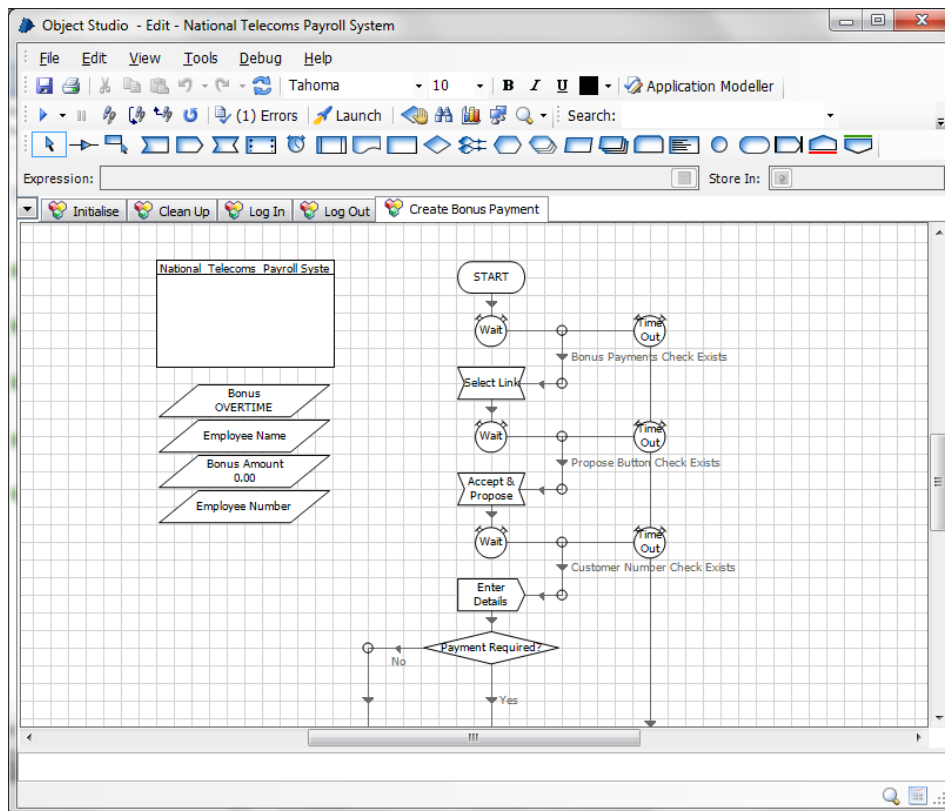
Object Studio	Enables the business users or IT professional to create re-useable Blue Prism Objects as the building blocks for the business process using existing systems and procedures by modelling existing applications and “training” Blue Prism as a robotic user.
Process Studio	Enables the business or IT to design, build, edit and test processes, constructed from reusable Blue Prism objects
Control Room	Enables the business or IT services to schedule, run and manage processes.

5.1 Object Studio - Application Modelling

Object Studio is the design canvas where the Blue Prism “robot” is “trained” to perform the basic system tasks that form the building blocks of processes. The target desktop application is rapidly modelled and verified through the presentation layer, which provides a library of elements with which to work.

Any application type can be modelled by exploring and highlighting the presentation layer, building a hierarchy of screens and controls which provide an easily maintained library of system elements.

Designers then encapsulate user’s discrete interactions with the system as “Blue Prism actions”, describing reading data, updating fields, validating information, handling “edge cases” and orchestrating the system, actions which can then be re-used within the process layer.

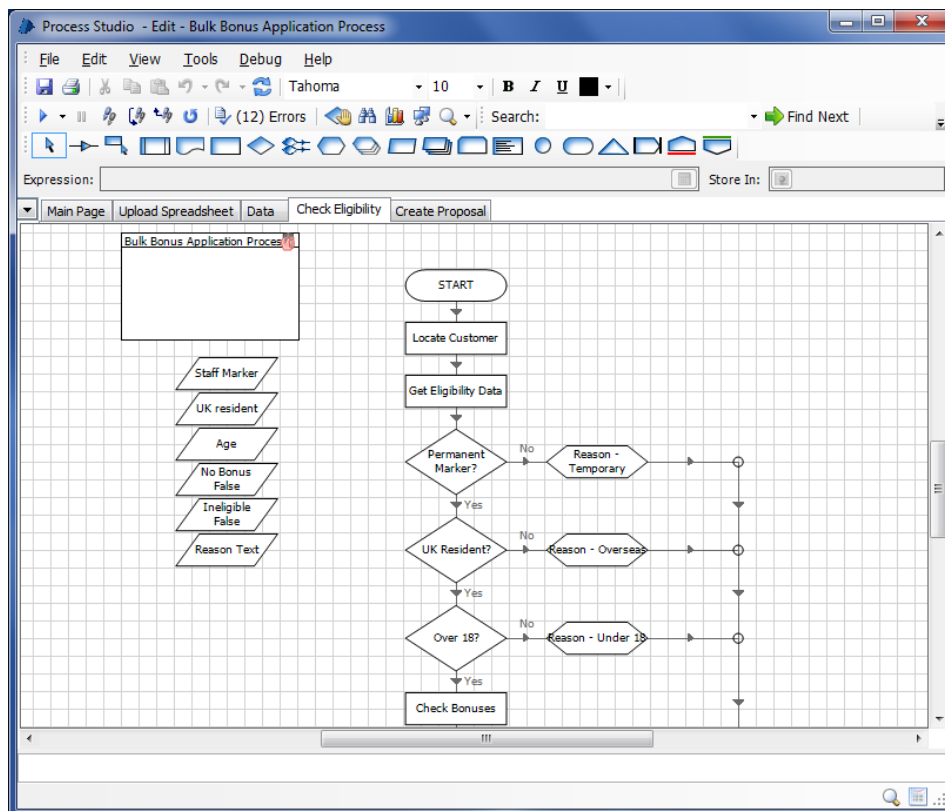


Blue Prism is also supplied with a number of built in business objects, providing off the shelf functionality for functions such as Microsoft Office automation, e-mail automation, encryption and credential management.

5.2 Process Studio - Business Process Configuration

As the library of business objects is built, the actions can be sequenced and controlled in the upper tier of the Blue Prism hierarchy, the Process layer.

Process Studio has a similar interface to Object Studio, and allows business logic, control loops, variables and object calls to be sequenced and tested in a visible business flow.



Blue Prism processes are similar to software procedures – they can call objects and processes, in order to drive applications, automate rules based processes and business logic.

This highly flexible, re-useable model enables processes to be rapidly configured using ready-made and tested business logic and validation rules, with parameterisation used to change the behaviour or control the implementation in context.

Designing a new process using Process Studio is simple yet powerful. Using the components provided within the product, complex business processes can be rapidly automated.

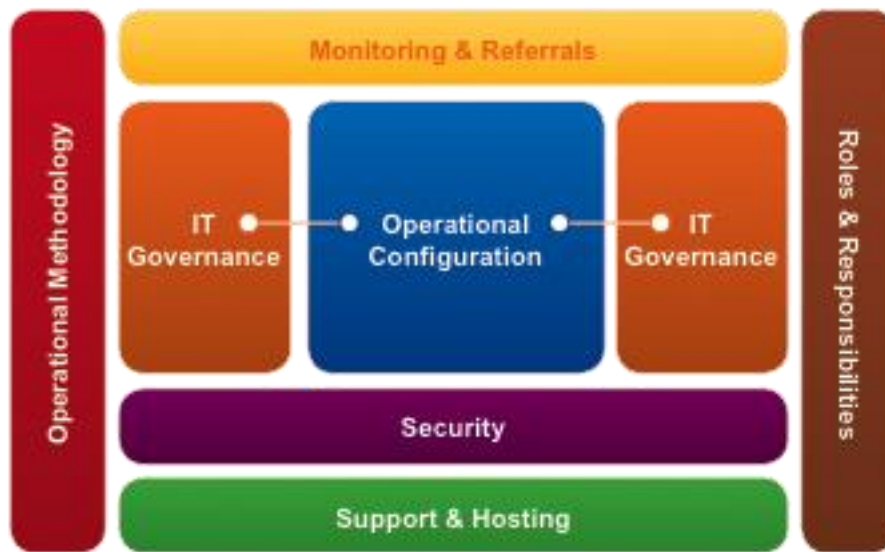
5.3 Control Room

The Blue Prism Control Room interface enables Blue Prism platform administrators to monitor and review the status of the inter-connected runtime resources in the production environment.

The interface also facilitates manual starting and stopping of processes, automated process schedule configuration and provides detailed Management Information and drill downs into Blue Prism work queues.

6 Product Architecture – Runtime

The flexibility, adaptability and rapid deployment model afforded by Blue Prism solutions are wrapped by a number of layers of control technology. This underpins a robust enterprise methodology for deployment, spanning process control, execution control and change control, as well as the disciplines around business goals and ROI.



Blue Prism is deployed using a grid based virtualised runtime and control methodology, where lightweight Blue Prism resources are interconnected within the data centre through a series of Blue Prism server components to a back end database. This architecture enables a rapid and straightforward expansion of the deployment, and facilitates rapid scalability to deal with peaks in demand and unexpected events.

In addition to this scalability, a number of enterprise strength capabilities reinforce the maturity of the platform:

Monitoring and Referrals

Blue Prism monitoring refers to both maintaining a high availability of the technical aspects of the platform, and also to the process of referring work items to business units for further processing. Blue Prism processes have a full exception management capability which allows system exceptions and process referrals (eg items which require a human review) to be routed automatically to designated processing or technical support teams.

System Monitoring

Blue Prism resources and server components are fully integrated with Microsoft Windows event logging and monitoring solutions in order to allow seamless integration into existing IT support infrastructure and procedures.

Queue Management

Work Queues are used in processes which need to examine cases one by one from a shared list and they facilitate the load-balancing of items across the Blue Prism infrastructure. Typical examples include processing financial transactions from a feed, or migrating customer data from one system to another in a sequential fashion (eg customer by customer).

Blue Prism has integrated support for work queues, and securely encrypts and stores the contents of each queue on a Blue Prism enterprise server. This provides the capability for a number of resources to share a work queue, for individual case locking and reporting to be implemented, and also for the provision of detailed MI regarding unit time, exception rates, case priorities and the pausing and resumption of any work queue.

Web Service Support

Blue Prism can also be used to invoke existing web services - the URL of the Web Service definition is stored within the system and Blue Prism is able to use the WSDL to present the service as a Blue Prism object within Object Studio and Process Studio.

RPC/Literal, RPC/Encoded and Document/Literal based web services are supported, and Blue Prism can support both complex and simple data-types using mappings to Blue Prism data items and collections (which support nesting)

Security

The Blue Prism platform has been designed to meet the most demanding of security requirements. It captures all configuration changes by user and supports full enterprise audit and system management disciplines.

7 The Blue Prism way of working

7.1 Blue Prism University

The Blue Prism robotic automation platform is a sophisticated SW product with associated methodologies and operating models for all aspects of the adoption life-cycle from development through to deployment and on-going operational support. The Blue Prism technology is only one component of an effective operational agility program and Blue Prism University is designed to equip and support organisations with best practice operating models and methodologies to design, build and roll out an effective program. More details on all aspects of the University and Blue Prism's life cycle methodologies can be found at our website www.blueprism.com

One component of the University is the Developer Accreditation Program. Using a combination of eLearning, classroom learning and mentoring by experienced Blue Prism consultants, developers new to Blue Prism can quickly acquire the necessary skills and experience to deliver professional Blue Prism solutions.

Continually guided and supported by Blue Prism, trainees are escorted through a methodical and controlled Accreditation Program at a pace and path suited their individual requirements.

Following accreditation, on-going education is provided online via the Blue Prism Portal. Blue Prism users can benefit from high quality eLearning courses to refresh their skills, learn about more advanced or complex subjects or get up to speed with functionality in the latest release.

8 Summary

Blue Prism's Robotic Automation software enables NHS organisations to be agile and cost effective through rapid automation of manual, rules based, back office administrative processes, reducing cost and improving accuracy by creating a "virtual workforce" to deliver dynamic and rapidly scalable workload capacity.

The virtual workforce is built by the operational teams themselves using the "self-service" robotic automation technology from Blue Prism to rapidly build and deploy their own process automations through leveraging the presentation layer of existing enterprise applications. Critically, the automations are built by the business but are fully managed within an IT governed framework.

Blue Prism's proven technology plays a key role in enabling organisations to rapidly respond to business change through agile back office operations. Forrester Research has recently identified the "mega trend" of "Empowered Business Technology" and Blue Prism is one of the first examples of EBT in action.

Based in the UK, with offices in London and Manchester, Blue Prism was formed by a group of process automation experts in 2001. The company currently operates in the Financial Services, Energy, Telco, BPO and Healthcare sectors.

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