

White Paper

Advancing Defence Operations

with Pega's AI Capabilities



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Introduction

Battles have been won and lost on technological differences since the dawn of time. But these crucial differences in technology aren't always seen on the front line. Enhancing operational efficiency, agility and resilience underpins effective defence capabilities.



The United Kingdom's Ministry of Defence (MOD) faces a critical imperative to modernise its operations swiftly and effectively. This is made clear in both the Haythornthwaite Review's call for rapid transformation across defence strategy, policy, and systems, and the publication of the Defence AI Playbook.

In order for the MOD to navigate the challenges outlined in the review and the playbook, including rising attrition rates, operational inefficiencies, and geopolitical uncertainties, the adoption of cutting-edge technologies is paramount.

Artificial Intelligence (AI) has emerged as a pivotal enabler in this transformation journey, offering the potential to enhance decision-making processes, optimise resource allocation, and further drive operational excellence.

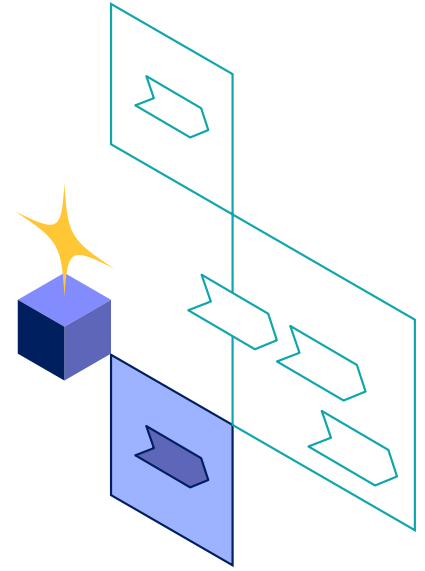
Within this context, Pega's advanced AI capabilities present a compelling solution for empowering the MOD with the tools and insights needed to address immediate challenges and chart a course towards a more agile, resilient and future-ready service.

Pega's AI Capabilities

Pega's Infinity Platform makes AI-driven innovation rapidly attainable reality.

At the core of Pega's offering is its AI-integrated low-code application development platform, which enables rapid development and deployment of AI-powered applications for unparalleled efficiency, agility, and effectiveness.

Pega's AI capabilities span a wide spectrum, including:



1. Outcome Prediction

Pega's AI Outcome prediction capabilities, part of the Pega Infinity software suite, are designed to optimise business processes and predict customer behaviour.

With Pega Process AI, you can create and manage Predictive and Adaptive Models that generate predictions for self-optimised workflows.

These predictions can help route tasks, predict the risk of fraud or missing the SLA, and analyse emails and chat messages. AI-generated prediction explanations then provide a natural-language explanation of the prediction, helping you understand the factors impacting the predicted outcome. This insight can be used to make better informed decisions optimise performance more swiftly than ever before.

For example, by leveraging Pega's Adaptive and Predictive models, the Ministry of Defence can actively monitor equipment and predict in advance when a part is likely to fail, then guide the technicians through the service and repair process.

Throughout this process, Pega's AI models actively monitor the work for both compliance and timely completion, proactively alerting the necessary individuals as required.



2. Natural Language Processing (NLP):

Pega's Natural Language Processing (NLP) is a key feature of the Pega Platform. It focuses on text categorisation and extraction, allowing the system to understand and process human language in a meaningful way.

NLP can be used to analyse large volumes of text, identify the topic of a message, extract necessary entities, and create a case based on the analysis.

This capability is crucial for automating and optimising business processes, improving customer service, and driving more intelligent interactions.

For example, an individual feels they have been unfairly looked over for promotion and decides to raise a complaint on the portal, they've already taken the time to collect together some supporting evidence and decide to attach the document along with a brief description of the complaint.

Pega's Natural Language Processing reads through the summary provided and the evidence in the attached document, it assesses the topic of the complaint and determines it relates to a promotion, then proceeds to extract the relevant information and populate a case to be reviewed by the Complaints Team.

3. Task and Process Mining

Business process optimisation is predicated on quality insight into processes and the tasks within them. Process Mining provides a wide view across your enterprise, revealing how processes are truly executed, not just how you think they are. It uses logs from enterprise systems to identify bottlenecks, rework loops, and areas for improvement.

Task Mining, on the other hand, offers a deep dive into specific activities within a process. It provides visibility into how employees complete their work, highlighting areas for automation, system integration, user experience improvement, and technology retirement. Used together, these tools offer a comprehensive view of your business processes, enabling meaningful improvements.

For example, Pega can be deployed to monitor the Overseas Living Allowance process, through the set of dashboards the Ministry of Defence can pinpoint where a bottleneck has been created, such as through the need to copy and paste information from a PDF.

Task and Process Mining then recommends leveraging NLP to automatically extract this information. Once deployed, the same dashboards are automatically updated to reflect the new process improvements.

4. Low Code App Development

Pega's Low-Code App Development platform is designed for speed and agility. With minimal coding knowledge required, business users can build and adapt applications quickly, promoting iterative refinements and improving flexibility.

This approach allows the organisation to deliver high-value applications into production swiftly, and then continuously develop and improve them based on evolving business needs.

For example, utilising Pega's Low-Code platform, a supplier onboarding application is swiftly developed by the Ministry of Defence. Service Personnel, not developers, design intuitive workflows and data structures to streamline the onboarding process for new suppliers.

With its rapid deployment capabilities, the application is quickly put into production, bringing essential supplies into the business more quickly. Over time, new processes around launching procurement programmes are added. Continuous development ensures the application evolves alongside changing procurement policies, maintaining agility, efficiency and effectiveness in supplier relations.

5. Intelligent Virtual Assistant and Email Bot

Pega's Intelligent Virtual Assistant and Email Bot utilise artificial intelligence and natural language processing to provide essential business services in a conversational and consistent manner.

The Email Bot can automatically detect the intent of an email, pick up relevant information, and automate the processing and response. This results in a consistent experience and faster response times.

The Intelligent Virtual Assistant, on the other hand, can understand human intent, get real work done, constantly learn, and support different queries. These capabilities enable more efficient and effective communication and task completion.

For example, leveraging Pega's Intelligent Virtual Assistant and Email Bot, an Army Unit HR application is developed to streamline personnel management processes.

The Virtual Assistant efficiently handles inquiries regarding leave requests, benefits, and personnel assignments, providing quick and accurate responses. Meanwhile, the Email Bot automates the processing of HR-related emails, swiftly detecting intents and responding accordingly. These AI-powered features ensure consistent communication and expedite HR tasks, enhancing efficiency and effectiveness within the army unit.

For example, incorporating Pega's Voice AI and Messaging AI, a Welfare application is crafted to cater to armed forces personnel and their families.

The Voice AI offers real-time support and guidance during interactions, ensuring seamless communication. Meanwhile, the Messaging AI automates tasks like form filling through speech-to-text analytics and intelligent automation, enhancing efficiency.

These AI-driven features streamline welfare services, providing personalised support and simplifying interactions for both military personnel and their families, thereby improving their overall well-being.

6. Knowledge Buddy

Knowledge Buddy is an enterprise-grade, generative AI-powered assistant designed to quickly and easily enable users to get specific answers synthesised by generative AI from content scattered across knowledge bases.

It combines an innovative AI architecture with security features, allowing organisations to transform how users access knowledge while adhering to high standards of trust and responsibility. Users can also ask Knowledge Buddy to generate new content, such as emails or documents, based on their existing libraries.

For example, with Knowledge Buddy, aircraft maintenance personnel can efficiently retrieve answers to technical inquiries from aircraft manuals.

By querying the system, users can receive synthesised responses derived from scattered manuals, ensuring accuracy and timeliness in troubleshooting and maintenance tasks, maintain aircraft safety and reliability.

7. Generative AI Development

Pega GenAI™ is an integrated suite of AI-powered features within Pega Infinity™, aiming to boost developer productivity and business operations. Its standout feature lies in accelerating low-code application development. Pega GenAI Blueprint revolutionises the traditional application design process by leveraging generative AI.

It facilitates quick alignment on project goals and creates a blueprint outlining the application's structure, components, and flow swiftly. Once the Blueprint has been finalised, it can then be imported directly into the Pega Platform where again significant acceleration in application development is achieved by automating routine developer tasks.

Pega generates stages, steps, data models, and test data in seconds rather than days or weeks, freeing up developers to focus on strategic and experience-related aspects of what end users need.

This makes it faster and easier to adapt as businesses evolve and change. This combination of GenAI and Pega's architecture changes the way software is built, making it more efficient and adaptable.

For example, a project team are evaluating a number of solutions to support the Royal Military Police's day to day activities, one of the options is to leverage the existing relationship with Pega.

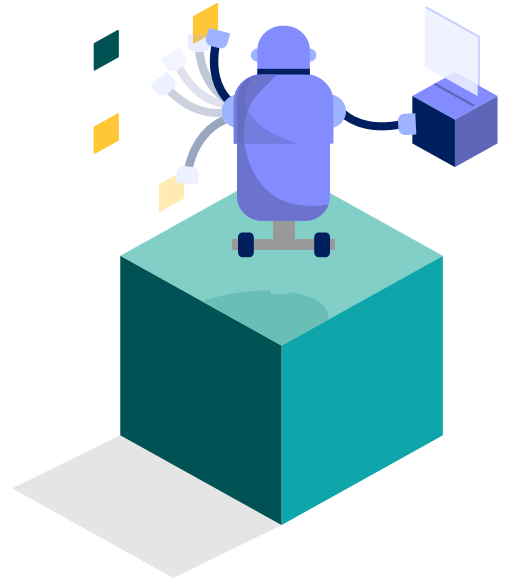
The team spend a few hours discussing their requirements in a Blueprint Workshop and generate a map of the work, data and personas involved in a concise, easy to read document.

The team hand the exported Blueprint over to the Pega team and after importing it into the Pega Platform, they work with them over a few days to quickly build out the stages and steps in a number of cases to prove the concept. After reviewing the outputs of the different options they select Pega.

The same Blueprint and PoC are handed over to the implementation team who continue work with the project team to put together their application leveraging features such as test data creation and automated API mapping to rapidly deliver the application.

Application Across Defence Domains

Pega's AI capabilities can be applied to various defence domains, enhancing operational efficiency, agility and resilience:



Supply Chain Management

Predictive maintenance, spare parts failure prediction, and procurement process transformation, reduce downtime and enhance operational efficiency in managing the supply chain.

Pega AI can significantly enhance Supply Chain Management in the United Kingdom by providing detailed insights about force readiness, through the operational state of assets central to mission success.

Pega's AI-powered decisioning and workflow automation can reduce risk and transform operations from reactive to prescriptive, while preserving the security and integrity of the supply chain. It can optimise forecasting, service life management, and equipment availability.

Furthermore, Pega AI can guide the diagnostics process to accurately determine root causes via intent-led processes and real-time analytics, ensuring the best resolution the first time; improving efficiency and operational performance.



Workforce Management

Optimise personnel allocation, training, and deployment processes with Pega AI. Pega can analyse vast amounts of data on military personnel skills, experience, and availability to intelligently match personnel with specific tasks or missions.

Additionally, Pega's AI capabilities can facilitate predictive workforce planning, anticipating future staffing needs based on operational requirements and historical data. Furthermore, Pega AI can streamline training programmes by identifying skill gaps and recommending personalised training modules to enhance the readiness and effectiveness of military personnel.

Overall, Pega AI revolutionises military workforce management by providing real-time insights, automating administrative tasks, and maximising the efficiency and effectiveness of military operations.



Personnel and Welfare Support

Pega AI can significantly enhance Military Personnel and Welfare Support by providing proactive and pre-emptive assistance throughout their service lives. It can help automate manual processes, improve decision-making, and enhance engagement.

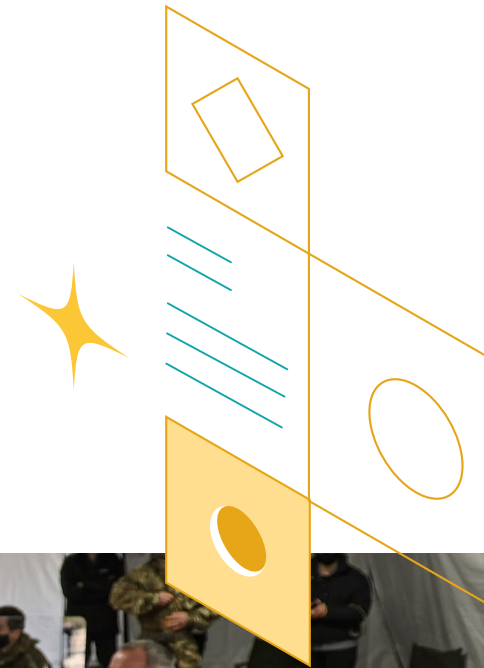
Pega AI assists in managing complex cases, from addressing complaints to handling accommodation requests, thereby streamlining service personnel relocation processes. Additionally, it offers personalised plans for departing service members, ensuring a smoother transition out of the military.

Overall, Pega AI can enable the MOD to deliver a world-class employee experience, enhancing the overall well-being of military personnel and their families.



The Critical Role of Low-Code in Operationalising AI

In the context of rapidly evolving technological landscapes, the agility and adaptability offered by low-code platforms are indispensable for operationalising AI initiatives within the Ministry of Defence.



Pega's low-code approach empowers domain experts, including military personnel and civilian administrators, to actively participate in the development and deployment of AI solutions without requiring extensive coding expertise.

By removing the complexities inherent in traditional software development, low-code platforms enable faster prototyping, iteration, and deployment of AI-powered applications. This accelerates time-to-market for innovative solutions while promoting cross-functional collaboration and knowledge sharing.

Moreover, Pega's low-code approach provides robust governance mechanisms and compliance controls, ensuring that AI deployments adhere to regulatory requirements and organisational policies.

By embracing low-code development, the Ministry of Defence can quickly harness the full potential of AI to drive operational efficiencies, enhance decision-making processes, and achieve mission objectives with agility and confidence.

Future Readiness and Innovation: The Autonomous Enterprise

Pega's commitment to advancing AI capabilities include generative AI and the concept of the Autonomous Enterprise, but what exactly is it?



By integrating advanced AI capabilities with automation, the Autonomous Enterprise enables Defence organisations to operate with unprecedented efficiency, agility, and resilience. Pega's platform empowers Defence agencies to automate complex decision-making processes, optimise workflows, and rapidly respond to operational demands.

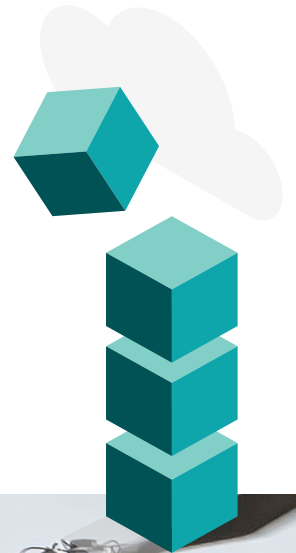
Through predictive analytics and adaptive intelligence, the Autonomous Enterprise not only streamlines operations but also proactively identifies potential risks and opportunities, enabling Defence leaders to make informed decisions with confidence.

Moreover, Pega's Autonomous Enterprise fosters a culture of continuous improvement by providing actionable insights and feedback loops, driving ongoing innovation and optimisation across Defence operations.

In essence, embracing Pega's Autonomous Enterprise framework equips Defence organisations with the tools and capabilities needed to navigate the operational complexities of modern warfare while maximising efficiency, effectiveness, and readiness.

Ethical Use of AI

In alignment with Pega's AI Manifesto, our commitment to ethical AI extends beyond technical considerations to encompass broader ethical imperatives.



We recognise that AI systems must operate within a framework that prioritises human well-being, privacy, and autonomy.

Therefore, Pega advocates for the responsible and transparent use of AI technologies, guided by principles of fairness, accountability, and inclusivity.

Our AI governance framework incorporates safeguards to mitigate the risk of bias and discrimination, ensuring that AI-powered decisions are equitable and aligned with societal values.

Furthermore, Pega is committed to fostering a culture of ethical awareness and accountability among AI practitioners, empowering them to proactively identify and address ethical challenges in AI development and deployment.

By upholding ethical principles at every stage of the AI lifecycle, Pega seeks to build trust with stakeholders and contribute to the responsible advancement of AI for the benefit of society.

Conclusion

In conclusion, Pega's advanced AI capabilities offer a transformative solution for the United Kingdom's Ministry of Defence as it navigates the challenges outlined in both the Haythornthwaite Review and the Defence AI Playbook.



Working with Pega, the MOD can enhance decision-making processes, optimise resource allocation, and drive operational excellence across diverse defence domains.

The critical role of low-code development in operationalising AI initiatives cannot be overstated, as it empowers domain experts, rather than developers, to actively participate in the development and deployment of AI solutions while ensuring regulatory compliance and governance.

Looking ahead, Pega's commitment to advancing AI capabilities, particularly through the concept of the Autonomous Enterprise, underscores a dedication to future readiness and innovation within the MOD. By embracing ethical AI principles and fostering a culture of responsible AI use, Pega aims to build trust with stakeholders and contribute to the responsible advancement of AI for the benefit of society.

In essence, Pega's AI capabilities empower the MOD to chart a course towards a more agile, resilient, and future-ready defence enterprise, better equipped to address immediate challenges and seize opportunities for innovation and growth.



Pega provides a powerful platform that empowers the world's leading organisations to unlock business-transforming outcomes with real-time optimisation. Clients use our enterprise AI decisioning and workflow automation to solve their most pressing business challenges – from personalising engagement to automating service to streamlining operations. Since 1983, we've built our scalable and flexible architecture to help enterprises meet today's customer demands while continuously transforming for tomorrow.