



Defence Digital Strategy

Turning strategy into delivery



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Executive Summary

The Defence in a Competitive Age review published in March 2021 and the associated Digital Strategy for Defence, published in April 2021, present a bold and ambitious vision for modernising the UK's Military capability.

As a software vendor specialising in products that support Human - Machine Teaming and Business Process Transformation, we at Pegasystems were particularly interested in the Digital Strategy element.

We are a provider of the core platform that will support RAF and Navy recruitment, through the RITS project. Therefore we are already a natural fit in many of the administrative functions across all services. Our work on RAF Fuels also demonstrates our experience.

We note with interest the strong emphasis on maturing the digital function processes across People, Performance, Governance and Enterprise Operations and the importance of this to the overall Digital Backbone vision.

We feel there are a number of aspects, beyond the administrative paradigm, up to the boundary of operational military capabilities, where our view of strong, structured, insight driven process management can help the MOD and TLB organisations.

Specifically, helping to achieve a much greater cohesion and connective tissue between people, process and existing system investments. We will do this in a way that is wholly consistent with your digital vision, but doesn't not require wholesale replacement of your valuable historical ICT investments.

This belief in the power of insight driven process/ case management has been our motivation for creating this document. It is our external view of the Defence Digital Strategy.

We hope to draw your attention to key considerations that will help you turn your strategy into tangible and governable business cases for change.

We have structured this document around four key topics.

These topics paraphrase some themes covered in your document and can help shift thinking towards a pragmatic realisation of your strategy.



For each topic we have provided a background, how the topic relates to the Strategy and the key considerations we think are relevant for generating deliverable outcomes.

This is not intended to be an exhaustive view of what is a detailed strategy, but a focus on the elements that we as a company most identify with.

In general, each of the backgrounds and key considerations boil down to ensuring you make the most of the resources you already have, so:



That siloed data becomes a strategic asset.



Your legacy systems add greater value in their run-up to sunset.



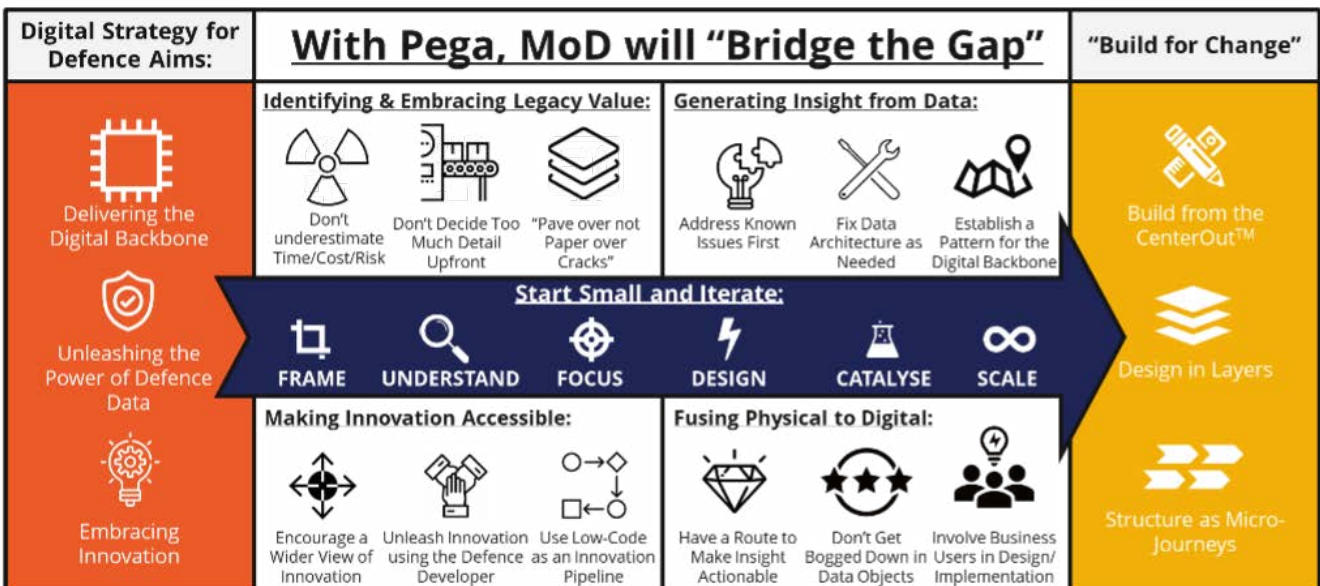
Service personnel can become "Defence-Developers".

In this way, your services and agencies work better together, transforming by breaking down dependencies and becoming self-sufficient - so you "bridge the gap" and become a more integrated and effective military.

We end the document with a conclusion section. This connects the topics to the most promising initial elements to take forward. It then shows where we are already engaging with you and how this relates to the strategy delivery view through to 2027. Finally we will show you how we can continue to support you and leverage your investment in the Pegasystems Infinity Platform.

Finally, the following graphic is provided as a single page view of the topics discussed in this document and their relevance to your Digital Strategy.

Pega Platform™ at the heart of UK MoD Digital Transformation and Innovation



Identifying and Embracing Legacy Investment Value

Like all large mature organisations, MOD and the TLBs have an extensive legacy IT estate, with a range of age, complexity, serviceability, functional utility and, future desirability.

Clearly across this continuum there are systems, services and, technologies that should and will be replaced in the short to medium term, but also performant systems and services with sunk investment from which you can unlock more value.



Connection to Strategy

Your strategy presents an ambitious transformation vision, but also acknowledges the need to “get the best out of ‘sunset’ systems”.

Delivering IT Transformation and long-term strategy, means we must be realistic about where, what and, how much to start with, to balance pace of change with risk and cost.

Equally, there is always a need to realise initial value quickly and continue to iterate that value. So transformation should naturally be a pragmatic evolution over-time, leveraging old and new, rather than a big bang event.



Orchestrate

Quickly connect to existing systems.

Focus on managing work by leveraging automation to reduce mundane tasks, removing complexity and normalising data, through a single “new aggregating platform”.



Renovate

With orchestration in place, ROI can be realised earlier.

And ongoing decisions and strategies to replace and retire can be worked on progressively.



Evolve

Constant evolution should be the norm.

Deepen capabilities, automation & application reach, and empower personnel to take ownership of solutions.

Key Considerations

There are three considerations that a wrap and renew approach to Digital Transformation should follow:



1. Don't underestimate Time, Cost and Risk

Complex, distributed and, siloed systems borne of, in some cases, decades of tactical decisions on scaling and business service maintenance, lead to high interdependency and a disconnected experience for all users.

Unravelling this during a digital transformation programme is complex and time consuming.

Hence the need to think about a more pragmatic approach where you progressively abstract function into a new overarching platform, orchestrate processes over the top of legacy systems, and achieve the business and operational outcomes your users demand.



2. Don't decide too much detail upfront

Trying to decide whether to replace, upgrade and/or retire systems as part of a transformation is hard. It requires lengthy requirements gathering, understanding all the interdependencies, establishing the commercials, managing multiple vendors simultaneously, not to mention the non-incumbent vendors looking for opportunities.

As with all the topics we discuss, we advocate starting modestly, and iterating, based around known and understood process journeys and their current issues.

Again, people play a huge part in understanding what's required to transform an operational/business process, so allow them to be part of the transformation process to achieve real value quickly.



3. "Pave over, not Paper over the Cracks"

In wrap and renew transformations, risk is most effectively managed by overlaying the IT landscape with another enterprise-wide application. This essentially paves rather than papers over the cracks, addressing problem areas by augmenting processing to harden and add value to process journeys and flows.

Once the paving commences, rationalisation, complexity and end state of processes and systems can be quickly tackled at your own pace to achieve the right levels of transformation demanded.

Generating Insight from Data

The Defence Digital Strategy rightly identifies the importance of data as a strategic asset to drive sustainable military and business advantage.

It goes on to recognise that aggregating sensors, effectors and deciders across the organisation and its wider partner ecosystem, is the key to realising the “Digital Backbone” ambition and, successful exploitation of your data assets.

Connection to Strategy

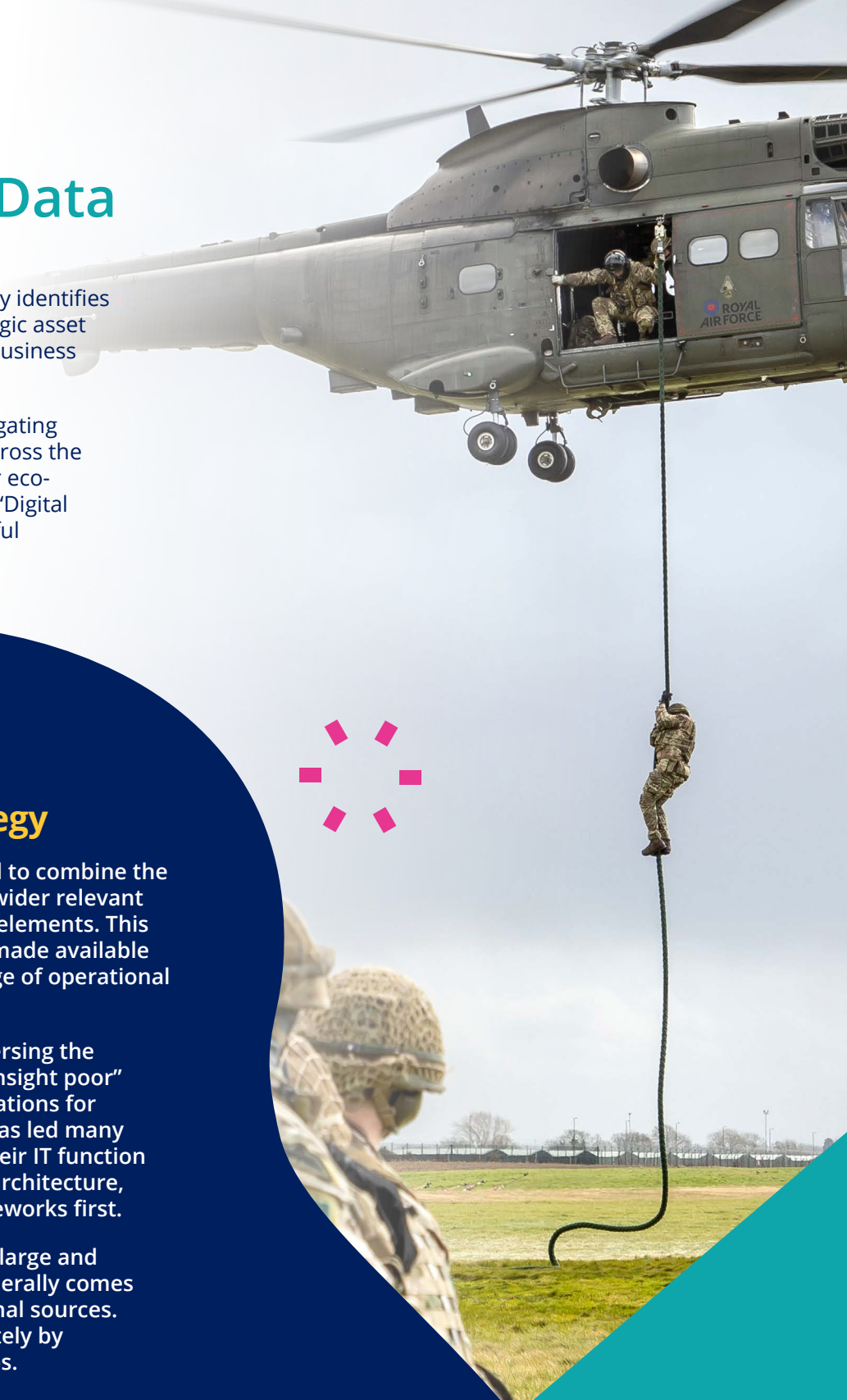
The strategy recognises the need to combine the Digital Backbone ambition with wider relevant People, Process and Technology elements. This will ensure that data assets are made available to provide insight through a range of operational and administrative functions.

Becoming “data-driven” and reversing the position of being “data rich but insight poor” has been an objective of organisations for the past decade. This ambition has led many complex organisations to task their IT function with defining and building data architecture, standards and governance frameworks first.

However, the data generated by large and numerous legacy IT systems, generally comes from a mix of internal and external sources. These are then managed separately by responsible business units in silos.

So it is a daunting and never-ending challenge to start with a consolidation around a common data architecture approach, enabling different data types and user needs to come together by means of an efficient and enabling data governance framework.

The concept of a digital backbone is a refreshing move away from the recently traditional notion of large lakes of normalised data at rest. But having data flow throughout your IT Estate and, creating valuable interactions by getting it to the right people in the right contexts, remains a challenge.



Key Considerations

We believe there are several pragmatic considerations that will help to focus thinking.

We recommend setting a realistic number of actionable initiatives. These can step MOD progressively toward the end state vision of a Data Driven organisation iteratively over time.



1. Address Known Issues First

Put energy into rapidly solving problems that will make a business case for being data driven.

Address a business problem or opportunity rather than creating a generic “data initiative”.

Address data transformation from the perspective of business outcomes and process improvement. This is an effective way of creating a combination of early value and progressive data resolution, standardisation and transformation.



2. Fix Data Architecture as Needed

Improving the data architecture incrementally in the context of builds for specific business solutions allows you to “fix” data architecture as you go and, where it is in the critical path for your process improvement.

Furthermore, starting to do this in the context of a “wrap and renew” strategy allows a progressive approach to aligning data structures with your strategy vision.



3. Establish the Right Physical Pattern for the Digital Backbone

The strategy rightly alludes to this being a “logical” composition of people, process and technology, but ensuring the right view of the supporting technology component(s) is crucial. Although there is clearly industry consensus that a “Digital Backbone” deals in agile and insightful data provisioning across an organisation, there are a range of views on what physically constitutes this function(s) and the component(s) that comprise it.

At one end of this spectrum is Integration/Messaging Technology and, at the other is Functional Building Blocks, that can be composited to provide varied transformational value. As a software company we subscribe to the later view, especially because this recognises and supports that the most valuable composite is that of People, Process and IT, not simply infrastructure technology.

Making Change and Innovation Accessible

One of the three statements made in the strategy summary of “Where Digital Needs To Be By 2030” was about persistently delivering transformative digital capabilities.

We believe this connects with engaging the whole organisation in change and innovation.

This will ensure that everybody feels that they have a stake and voice in transformation, which in turn taps into an incredible wealth of knowledge, ideas and entrepreneurial spirit.



Connection to Strategy

Throughout the strategy, there are cues to the importance of the people component of digital transformation, from skills, to ways of working and of course the importance of establishing a digital culture.

Throughout the strategy, there is also the recognition that realising the Digital Backbone ambition is equally as much about people as it is technology.

With that is the deeper recognition that an environment that allows people to find new ways to exploit technology across operational and business domains, is an essential ingredient to establishing the culture that will give rise to a successful Digital Backbone.

In this regard, why we highlight “Making Change and Innovation Accessible” is not just the obvious connection to your ambition to create a digital innovation culture, but to also emphasise the importance of doing this in a scalable, governable way that avoids the pitfalls of viral “Grey IT”.

With that in mind, we think there are a number of points that can further direct thinking.

Key Considerations

In our view there are a number of things to consider to ensure the right balance between freedom to innovate, whilst keeping within the “guardrails” that ensure the wider organisation can benefit from, continue to sustain and, evolve with each innovation.



1. Encourage a wider view of innovation

Since the rise of intuitive desktop business tools, workforce in large organisations have routinely used productivity software to innovate in their daily life, creating a focus mainly on localised operational efficiency.

Creating an environment in which the workforce seek opportunities from other perspectives and from the trends that affect the organisation, is highly desirable.

Low-code development platforms can provide the impetus for this wider more collaborative view of innovation.



2. Unleash innovation using the Defence Developer*

For any business undergoing a digital transformation, a Low Code approach to development enables an empowered workforce to use their innate creativity and entrepreneurship to automate back-office tasks, improve internal operations and execute ideas by quickly moving them from inception to prototyping.

It also solves real problems that may not otherwise get the attention they deserve by enabling the people closest to them to resolve. You have the digital skills required to transform today, but they need harnessing and encouraging.



3. Low-Code as an Innovation Pipeline

Innovation and prototyping is an often overlooked capability of Low-Code Platforms, where the “art of the possible” can be explored by the people who best know and understand the challenges.

This allows for an iterative test, learn and, discover approach where users create functional prototypes, that can be iterated towards fully functional production applications.

* Citizen Developer is the emergent terminology for those people within an organisation who participate in system design/build activities but are not “Professional Developers”

Fusing Physical and Digital (Digital Twin)

This is an exciting topic not explicitly referenced in the Defence Digital Strategy paper.

Nevertheless there is a lot of thought and activity ongoing across the wider MOD and its Partner Eco-system, looking at options to realise a Digital Twin model.

This fusion of physical assets with a digital representation of them, has many real-world benefits, especially across the Defence Support space, where supply chain management and preventative maintenance provide two excellent examples.

Connection to Strategy

The implicit reference to Digital Twin approaches is manifest in the description of the Digital Backbone; “connecting sensors, effectors and deciders across military and business domains and with partners”.

This is an excellent definition of a Digital Twin approach that can capitalise on rich streams of data generated from physical assets.

However, as with the “Generating Insight from Data” topic, it requires thinking to start with business outcomes rather than the available data points/objects.

Rather than repeat the considerations we covered under that topic, we have identified some additional ones unique to Digital Twin models as follows.

Key Considerations

Digital Twin models provide an excellent opportunity to uncover insight and model the potential for and value of change.

But as with Data Insight in general the most valuable scenarios are those where the insight can drive real-world actions and outcomes.



1. Have a Route to Make Insight Actionable

Connecting insight into actionable Case Events, Steps or Tasks is the primary route to a real-world value outcome. For instance, in the case of identifying a preventative maintenance task, the ability to identify an organisation persona able to execute it and to engage them and hold them to account.

This is the essence of “Event Driven Case Management” and so in this example, an AI/Automation Driven Case Management Platform becomes the Digital Twin of a category of fixed asset.



2. Don't get Bugged Down in Too Many Data Objects

Having identified the business problem(s) you want to address, be discerning about how many datasets and objects you really need and whether there is a case for a predictive model and AI engine or whether a simpler rules logic is good enough.



3. Involve Business Users in Design and Implementation

A successful digital twin strategy includes users from across your organisation, so it is critical that they understand and appreciate the value a digital twin brings to them individually and to your organisation as a whole. Lack of buy-in due to scepticism, lack of confidence, or resistance can lead to a lack of user participation, which undermines success.

Conclusion

We have touched on a number of repeating themes in this document.

These define our view of pragmatic best practice approach to digital transformation in large organisations.

These themes are overlapping and come to life in the way we are currently progressing a number of streams of activity within the RAF and Navy:



Hire to Retire

Building on our RITs work (to implement an end-to-end digital recruitment journey for RAF and Navy), we are identifying further opportunities to provide “connective tissue” between HR related processes that span a career life-time.

These processes involve many organisation elements and, often include externally contracted services (e.g. some training provision) and so there is a strong value proposition for “Generating Insight from Data” across the many moving parts, that we highlight in our suggested workstreams:

Training

Both immediately after recruitment, throughout a career (e.g. in support of other career pathways) and, the training involved in “Offboarding” on discharge.

Joint Service Publications

Optimise the creation, update and dissemination of these governance artefacts and, make them available for wider digital use such as application in skills, training and workforce management frameworks.

Workforce Planning

Understanding the recruitment pipeline, skills status, training status and talent/aptitude assessments of your workforce is key to being able to make intelligent decisions in the workforce planning sphere.

Defence Support/Logistics

Building on our showcase work in Fuels Forecasting, where we demonstrated the benefit of predictive data insight, we have been working with RAF stakeholders to champion a proposition to apply event driven case management to optimise Defence Support activities.

There is a strong value proposition to “Fuse Physical and Digital”, that we highlight in our suggested workstreams.

Predictive Maintenance

Where fusing data streams from IoT enabled assets, historical datasets and, operational planning needs, allows for the optimisation of maintenance cycles, through proactive case tasking in line with operational demand.

Supply Chain Optimisation

Again, where data fusion from key points in the supply chain, to planning requirements, ensures optimisation of purchase, storage, transport and, provisioning decisions for a wide range of materiel.

Pega Innovation Environment (PIE)

Building on the deployment pattern of the core Pega Platform for RITs we have recommended the provision of a sandbox environment that is intended to provide the tools and methodologies that bring the “Making Change and Innovation Accessible” theme to life:

Automated C2 Tasking to MDI

We are sharing our view of “Event Driven Case Management” as a component in Command and Control tasking orders. By facilitating Machine-Human teaming we can help people make better decisions and execute them faster.

For example, by employing automation, effectors like personnel, drones or weapons systems will become more effective in conflict-winning situations.

In this regard, the MOD’s various Multi Domain Integration (MDI) programmes have an opportunity to benefit from well-proven intelligent Business Process Management (iBPMS) and Case Management solutions to automate operational tasking processes.

Here are some examples:

Benefit Opportunity

We hope this “outside in” view of your Digital Strategy is helpful and that you recognise the workstreams we reference in our conclusion. We would welcome a discussion on any of the themes or workstreams we discuss here or any feedback on our observations.

Finally, there are a number of benefits in the topics we discuss, that all come down to two simple things that are essential to sustainable operations and, in that sense must work hand in hand. These are Efficiency and Effectiveness.

To illustrate the benefit opportunity, we provide the following examples:

Platform Access

Providing the environment, physical and culturally for workforce to engage in innovation.

Methods

Governing the engagement in the environment to ensure value in and value out.

Process orchestration

For all predictable tasking “Events” can be effectively choreographed, including autonomous vehicles with their mission profile, the surrounding support process to enable the flight generation, or the deployment of other non-lethal activities.

Modern iBPMS

Systems are easily accessible to defence users with a low-code/no-code based visual platform approach, enabling and empowering the defence user to rapidly create and maintain a C2 orchestration capability.

Enterprise-class

iBPMS platforms that can generate a common library of components that enable reuse and reduce future development time.

A Hire to Retire workforce planning

We believe Automation and AI will create repeatable process, operational performance and, policy compliance improvements in the Hire to Retire Continuum, linking your promotion, career management and training management systems effectively and coherently.

Transforming Support Capability

Utilising our single integrated platform, the Support Transformation programme will be empowered to optimise, and automatically orchestrate, support processes and decision making to drive a paradigm-shift in equipment availability.

Turn insight into orchestrated C2 action

Deliver the C2 automation of the AI-derived response with a tracked and audited ‘man-in-the-middle’ authorisation in the MDI value chain. This includes the orchestration of impacted personnel, tasking of the chosen effectors and related support processes.

About Pegasystems

Pegasystems (NASDAQ: PEGA) develops strategic applications for sales, marketing, service, and operations.

Pega applications streamline critical business operations, connect enterprises to their customers seamlessly in real-time across channels, and adapt to meet rapidly changing requirements. Our Global 500 customers include the world's largest and most sophisticated enterprises.

Pega applications, available on-premises or in the cloud, are built on the unified Pega Infinity © platform, which uses visual tools to easily extend and change applications to meet clients' strategic business needs.

Our clients report that Pega gives them the fastest time to value, extremely rapid deployment, efficient re-use, and global scale.

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