



# Annex

## A20.09 Business Services

### Engineering Justification

#### paper December 2019

As a part of the NGGT Draft Business Plan Submission

**nationalgrid**

Engineering Justification Paper Business Services			
<b>Asset Family</b>	Business Services Applications		
<b>Primary Investment Driver</b>	Asset Health		
<b>Reference</b>	NGGT_A20.09_Business Services		
<b>Output Asset Types</b>	Business Service Applications		
<b>Cost</b>	£84.8m		
<b>Delivery Year(s)</b>	2021/22 - 2025/6		
<b>Reporting Table</b>	GTO 3.07, GSO 3.08		
<b>Outputs included in RIIO T1 Business Plan</b>			
<b>Spend Apportionment</b>	<b>T1</b>	<b>T2</b>	<b>T3</b>
	£151m	£84.8m	

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## 1. Executive Summary

National Grid delivers business services via a shared services model with support functions that provide the efficient delivery of common services such as HR, Finance, IT, Legal and Procurement to all the National Grid Group businesses. They support the delivery of our core activities, helping us to find and retain our people, control the financials of the company, ensure legal and regulatory compliance and manage our IT systems.

In RIIO T2 we look to invest £84.8m to maintain and evolve the IT systems delivering these business services. This investment assures the continuation of these critical services and supports the delivery of 1.1% year-on-year efficiency improvements across the support functions through adoption of new capabilities, representing almost three times the current UK trend for productivity improvement.

The investment also ensures the ongoing availability and maintenance of our systems, without which the investments made in RIIO T1 will become outdated, inefficient and non-compliant with legislation and regulations exposing our systems and data to an increased cyber risk and operational failure.

The investment has been independently benchmarked by Gartner. All of the investments have been reviewed against relevant peer organisation projects and are within the benchmark range.

In RIIO T1 we focused on rationalising our systems and establishing core foundational standard technology platforms that allow the efficient delivery of business services. We have now established our core ERP services on SAP S/4HANA, our employee services on SAP SuccessFactors, our service desk functions on ServiceNow and we have consolidated all risk functions on to the RSA Archer GRC platform.

This strategy has met the immediate needs of the businesses and put in place platforms for sustainable development. Wherever possible we have used these technologies without customisation so we can fully leverage these industry standard platforms as they continue to be evolved by the manufacturers. Our strategy for RIIO T2 is to keep platforms current through incremental investment exploiting new functionality to further increase our efficiency, thereby avoiding the need for major system replacements with associated cost and risk whilst maintaining a secure and controlled eco-system. This strategy also strengthens our data management capability by adding advanced analytics that come with core platforms helping minimise the movement of data between systems.

2. Introduction

2.1 Business Services Operating Model

National Grid delivers business services via a shared services model with support functions that provide the efficient delivery of common services such as HR, Finance, IT, Legal and Procurement to all the National Grid Group businesses (see diagram below). This model creates economies of scale in delivering these services.



2.2 RIIO T2 Investment Overview and Benchmarking

The total investment over the RIIO T2 period is £84.77. Providing modern well-maintained IT solutions to our support functions is fundamental to enabling high quality, cost effective and efficient services to the functional entities they support. Equally to deliver on their goal to have a 1.1% year-on-year improvement in operating productivity which represents almost three times the current UK trend for productivity improvement.

It is critical that we invest in the ongoing maintenance of our systems, without which the investments made in RIIO T1 will become outdated, inefficient and non-compliant with legislation and regulations, exposing our systems and data to an increased cyber risk and operational failure.

All investments have been independently benchmarked by Gartner against appropriate peer group projects. Gartner have reviewed each investment and all investments are within the benchmark envelope. We have broken the back-office down into 5 themed sections (Finance, HR, Procurement, Stakeholder and Employee Communications, Other Core Systems). The following table shows the projected investment in each of these areas.

	<b>RIIO T2 Total (£m)</b>
<b>Finance</b>	<b>46.5</b>
<b>HR</b>	<b>11.9</b>
<b>Procurement</b>	<b>8.4</b>
<b>Stakeholder and Employee Comms</b>	<b>7.8</b>
<b>Other Core Functions</b>	<b>10.2</b>
<b>Grand Total</b>	<b>84.8</b>

### 3. Background Information

#### 3.1 RIIO T1 Investment Summary

National Grid will have invested approximately £151m in back-office and related systems during RIIO T1, based on investments to date and planned investments to the end of the period.

This has included major investments in Finance, HR and Procurement systems. We focused on rationalising our systems and establishing core foundational standard technology platforms, delivered through the cloud where possible, that allow the efficient delivery of business services. For example, we have now established our core ERP services on SAP S/4HANA, our employee services on SAP SuccessFactors and our service desk functions on ServiceNow. We have also consolidated all risk functions on to a single RSA Archer GRC platform. Our strategy now is to maintain and evolve these platforms keeping them current and taking advantage of the new capabilities offered as they are introduced into the platforms.

During RIIO T1 we made major investments in response to new legislation (such as GDPR), changing financial reporting obligations and improving our financial and operational risk control frameworks. Continued investment in our systems is critical to ensure we respond to increasing compliance demands including evolving Sarbanes Oxley requirements and the ever-increasing threat of cyber-attacks.

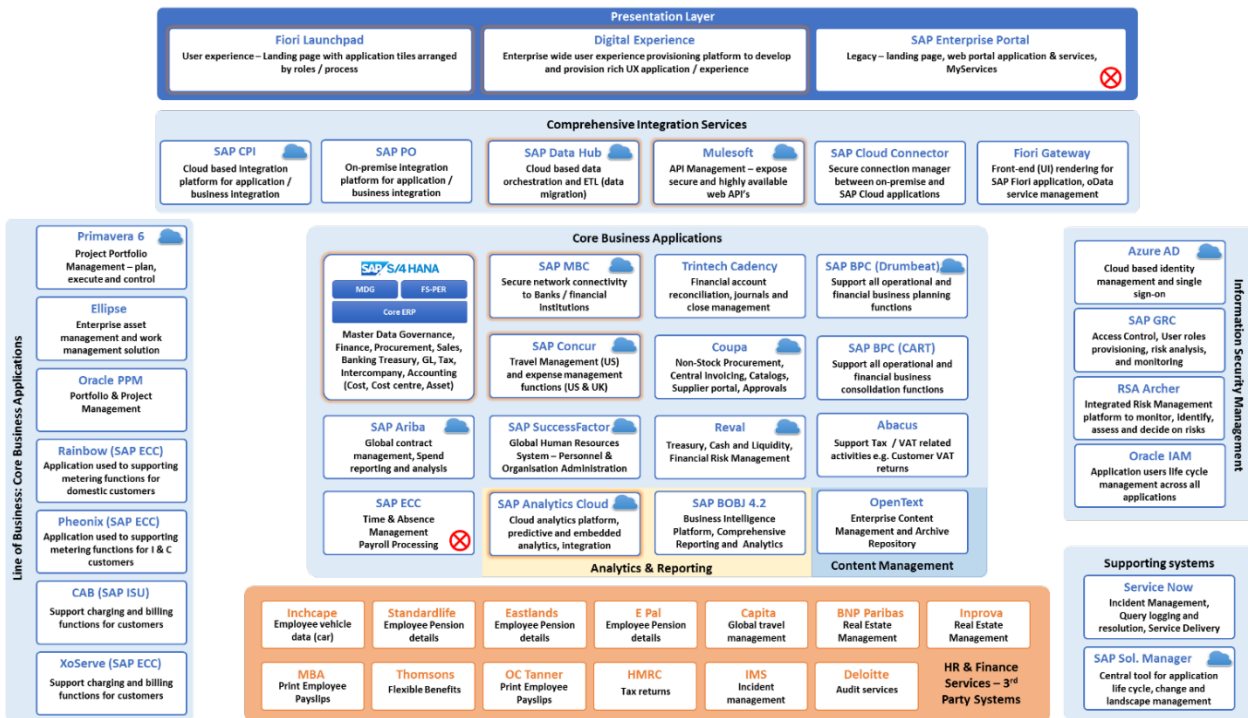
A summary of RIIO T1 investments by theme and the corresponding planned investment in RIIO T2 is shown in the following table:

	<b>RIIO T1</b>	<b>RIIO T2</b>
<b>Finance</b>	<b>110.6</b>	<b>46.5</b>
<b>HR</b>	<b>19.7</b>	<b>11.9</b>
<b>Procurement</b>	<b>6.3</b>	<b>8.4</b>
<b>Stakeholder and Employee Comms</b>	<b>7.1</b>	<b>7.8</b>
<b>Other Core Apps</b>	<b>7.5</b>	<b>10.2</b>
<b>Grand Total</b>	<b>151.2</b>	<b>84.8</b>

#### 3.2 Back-office Technology Strategy

ERP is at the heart of our back-office systems strategy. It delivers our core Finance, Procurement and HR services and is the single source of data for operational and business systems across the organisation. We will continue to remain SAP-centric in our approach to delivering back office services, building on previous investments and leveraging the benefits of an extended SAP platform.

The diagram below shows the systems that underpin the services offered by the supporting functions; highlighting the interconnected nature of National Grid controlled and maintained solutions versus SaaS.

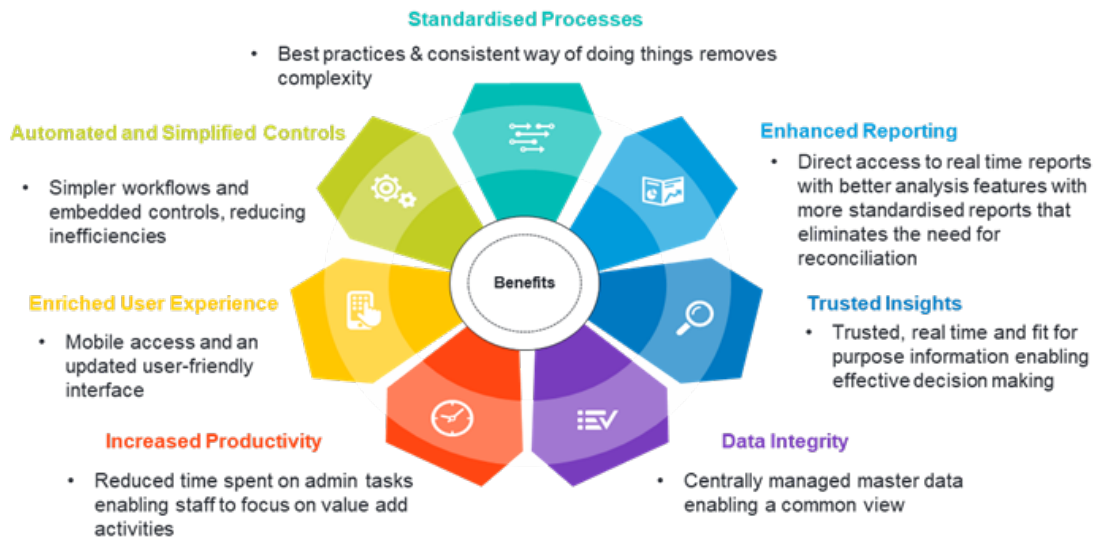


Our legacy ERP was implemented in 2007, and whilst the underlying software has been kept up to date, its age means that improvements are inhibited, for example in relation to mobile use and process automation. Our procurement solution (as an example) was out of support and will not natively support mobile use. As a result, National Grid moved HR and Procurement to market leading SaaS products (SAP SuccessFactors for HR, and Coupa for Procurement) in 2018.

We are currently in the process of moving to S/4HANA as our core finance system. SAP has focused on its S/4HANA product which delivers significant simplification, performance improvements and standard processes which have much of the same value proposition as SaaS – providing “out of the box”, market leading processes. This product has various subscription based simple SaaS offerings and as the market for these services matures, we will evaluate the benefit of moving to the SaaS platform.

Our platform strategy implemented in RIIO T1 has met the immediate needs of the businesses and put in place platforms for continued evolution. Wherever possible we have used these technologies without customisation so we can fully leverage these industry standard platforms as they continue to be evolved by the manufacturers. Our strategy for RIIO T2 is to keep platforms current through incremental investment, avoiding the need for major system replacements with associated cost, change management and risk, exploiting new functionality to further increase our efficiency, whilst maintaining a secure, compliant and controlled eco-system. This strategy leads to a smoother investment profile and lower cost over the life of the systems, rather than having periodic peaks of investment which incur additional costs through, for example, mobilising large project teams.

The following diagram depicts the benefits which are being achieved through the RIIO T1 investments which need to be maintained and built on throughout RIIO T2.



The Y & Z generation, who have grown up in a connected, collaborative and mobile world, will account for over half of the workforce before the end of the RIIO T2 period. This change in workforce balance will redefine corporate culture and expectations of work shifting the business to think mobile first. Our systems will need to support flexible working, a more open and social approach to collaboration, that are increasingly automated, intelligent and very data-centric. In the years ahead through RIIO T2 the benefits of our RIIO T1 investments will be extended as we invest in deepening our digital transformation focusing on:

- Intelligent process automation and mining with machine learning
- Increasing levels of integrated control
- Enhanced data management and cleansing
- Advanced and predictive analytics
- Forward looking intelligent financial forecasting

In the Gartner 2019 CIO Agenda for Utilities they noted the two focus areas are data analytics (including advanced analytics) and artificial intelligence, machine learning and innovation. Both these themes are identified as priorities to support optimising utilisation, minimising operations and improving engagement. As these technologies mature and are made available via our core platforms we will look for opportunities to leverage them to bring efficiencies to business operations.

Through RIIO T1 we responded to the efficiency challenge from Ofgem by reassessing and extending the technical lives of our IT infrastructure assets, accepting higher levels of risk whilst maintaining levels of availability. However, as we continued through RIIO T1 we found this had negative impacts on productivity and effectiveness of our employees. Coupled with the increasing threat of cyber-attack on our systems resulted in a review of the IT asset health policy to mitigate this. Taking on these learnings, we have updated our IT asset health policies, which have been reviewed by independent IT experts Gartner who confirmed that they are in line with industry practice. Therefore, in RIIO T2 it is important that we continue to invest in the back-office applications in line with these policies to support further improvements in process, automation and data to drive insights in delivering against further efficiencies whilst mitigating the risk of cyber-attacks.

### 3.3 Finance Systems

By the end of the RIIO T1 period Finance and Business Services plans to have invested approximately £111m, primarily focused on investment in 3 key areas; ERP, Controls and Data & Analytics.

During 2018-20 a major business transformation programme, Project One, will deliver a refreshed platform

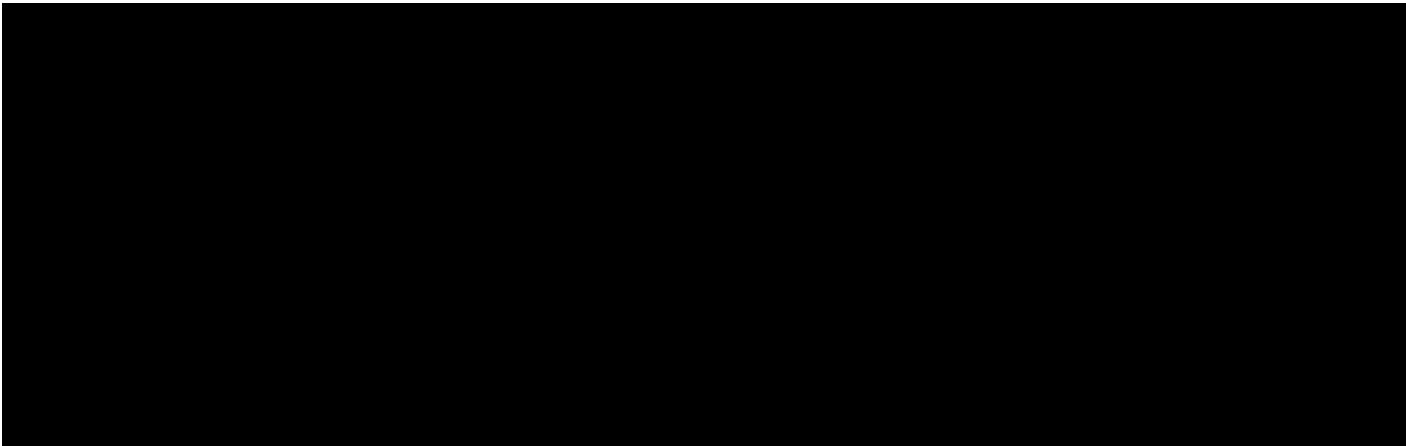


and suite of applications. The core ERP platform will have been refreshed from SAP ECC to SAP S/4HANA. In conjunction to the ERP investment, Payroll will have become a managed service and a new travel and expenses solution SAP Concur will be implemented. This will see the consolidation of systems across Finance into a digital core with connected best in breed applications forming building blocks for further digital transformation as we move into RIIO T2.

The diagram below summarises the key elements of the digital core:



As we move into RIIO T2 we will need to invest £39.5m in S/4HANA and connected applications, both to maintain the current versioning of software and to leverage new capabilities. Maintaining the systems to the supported software releases will be needed to ensure we maintain appropriate security, compliance with appropriate regulations (including SOx) and continue enabling seamless connectivity with SaaS solutions. Investment in the new capabilities (such as AI, RPA, ML and data & analytics) in the future will be needed to enable the business to deliver ongoing efficiency saving (reference 1.1%).



SAP Analytics Cloud (SAC) is the primary reporting and analytics tool used to deliver Finance domain data and analytics capabilities. SAC is a new generation of SaaS offering that provides advanced analytics capabilities in one product in a secure and trusted public cloud offering which is managed on a quarterly release cycle. SAC will form a core part of the analytics and reporting landscape in the future and as such is the source of innovation. We will work to further exploit SAC and various in-application offerings as the products mature and additional functionality / pre-built packages are added to drive further business value. SAP’s operational analytics strategy is to push analytics to where the data resides to provide real time

insights, whether that be in-application within S/4HANA or via cloud connectivity to other SaaS products like Coupa or Concur. A further shift towards the reduction in data persistence will continue to be enabled through S/4HANA with virtual and logical data modelling driving more real time analytics and advanced insight through having data available immediately without waiting for periodic refresh of the data. This in turn will continue to strengthen the security of data, reduce the unnecessary movement, processing and storage of data around the organisation in turn reducing costs and improving integrity.

In addition to new functionality there will be further opportunities to rationalize other reporting and analytics tools / processes. The SAC roadmap already outlines where capability will be developed in the years ahead. As such we intend to decommission the use of SAP BOBJ within the Finance and Business Services area where the functionality will be available via SAC. This will further reduce costs for both products and processes associated with data and analytics.

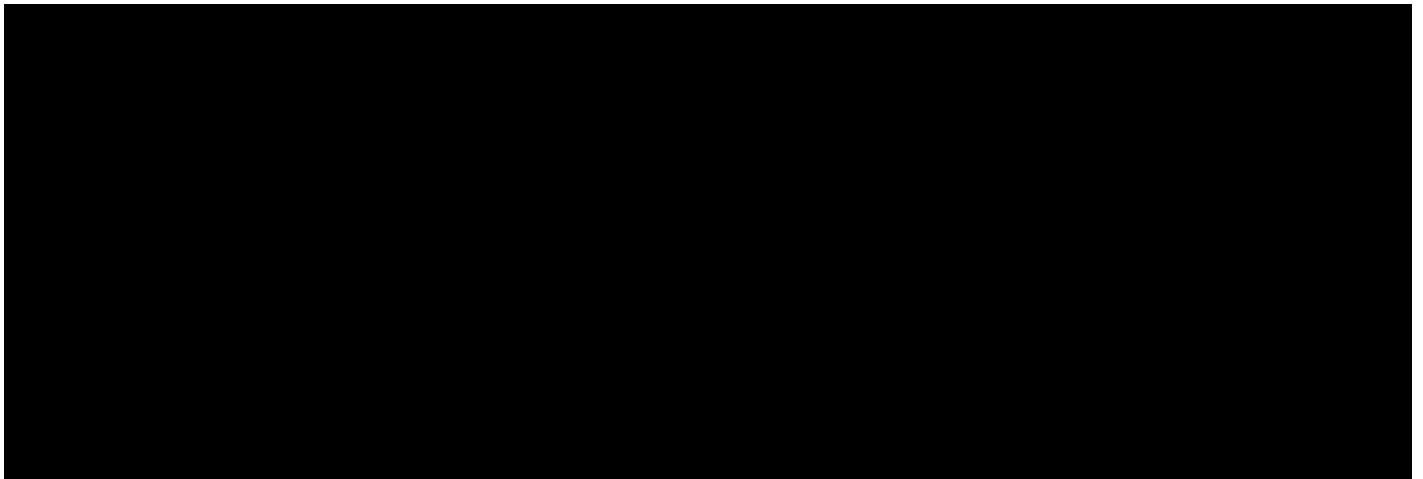
### **3.4 Procurement Systems**

The major investment during RIIO T1 was the replacement of our legacy Procurement Purchase to Pay system (SAP SRM5) with a new Cloud solution Coupa which brought improvements in data, mobility and user experience. There have also been investments in the SAP Ariba platform which enables us to effectively manage our source to contract and tendering processes ensuring that procurement activities are run in an efficient and compliant manner.

During the RIIO T2 period we plan to invest £8.4m in these areas maintaining the asset health of the enabling technology and, ensuring the continued efficient operation of our procurement solutions.

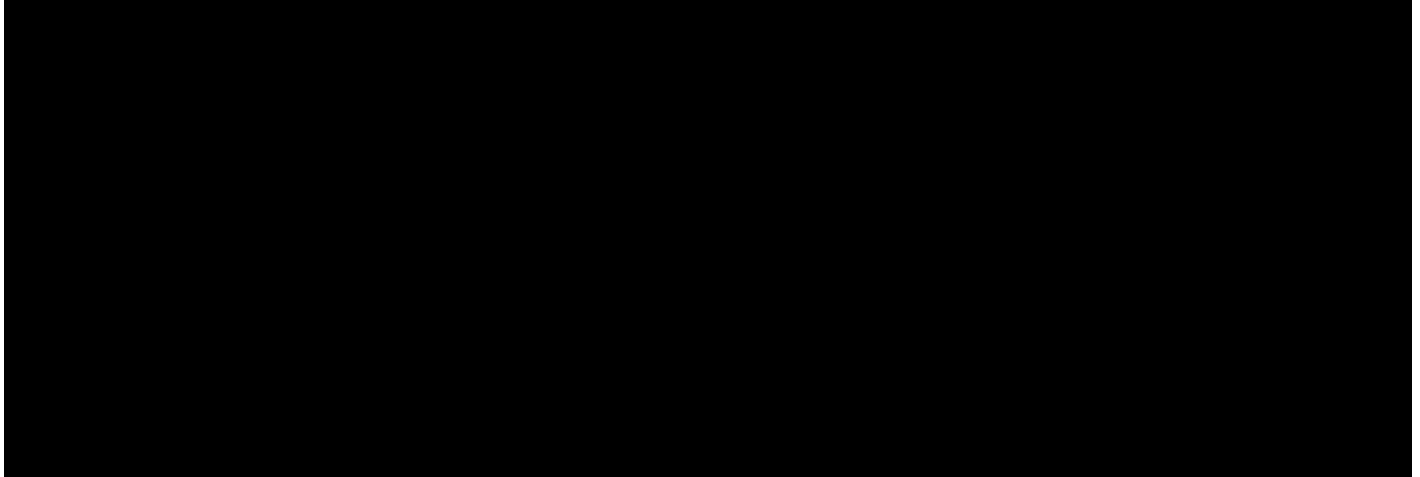
Within purchase to pay, investments for RIIO T2 will focus on required upgrades and refresh of systems to enable the integration of the purchasing function with the accounts payable function. Capabilities include; supply management, purchase requisition, purchase order, receiving, invoice reconciliation and accounts payable. Finally, we will invest in AI and robotics to automate the contract to award processes, reducing human effort and increasing efficiency.

Within the source to contract process area we will invest in required upgrades and refresh of systems to enable maximum leverage and management of procurement spend on goods and services. Capabilities include digital contract management to provide easy access and real time alerts to vendor performance; supplier relationship management to track vendor interactions and drive consistency in how we interact with suppliers and benefits management to accurately capture and track value from strategic contracts and category management activities.



### 3.5 HR & Workforce Systems

We plan to invest £11.9m in HR related systems during the RIIO T2 period. This area of investment relates to the required upgrades and refresh of the core HR systems including SAP SuccessFactors.



Implemented in RIIO T1, SuccessFactors is a cloud-based Human Capital Management (HCM) system which will be regularly refreshed and updated throughout T2 and T3 by SAP. SuccessFactors is the core foundation upon which we will base future IT investments in HR. This means that - although we will invest further to supplement and expand our HR IT capability in coming years, both in and outside SuccessFactors - we will avoid any major HR systems re-implementation.

Technology is changing the face of HR, so naturally IT is a vital enabler to the realisation of our HR Strategy. The Y & Z generation, who have grown up in a connected, collaborative and mobile world, will account for over half of the workforce before the end of the RIIO T2 period. This change in workforce balance will redefine corporate culture and expectations of work shifting the business to think mobile first. Our systems will need to support flexible working, a more open and social approach to collaboration, that are increasingly automated, intelligent and very data-centric. We will need to consider employee experience, enabled by technology, across the full hire-to-retire lifecycle.

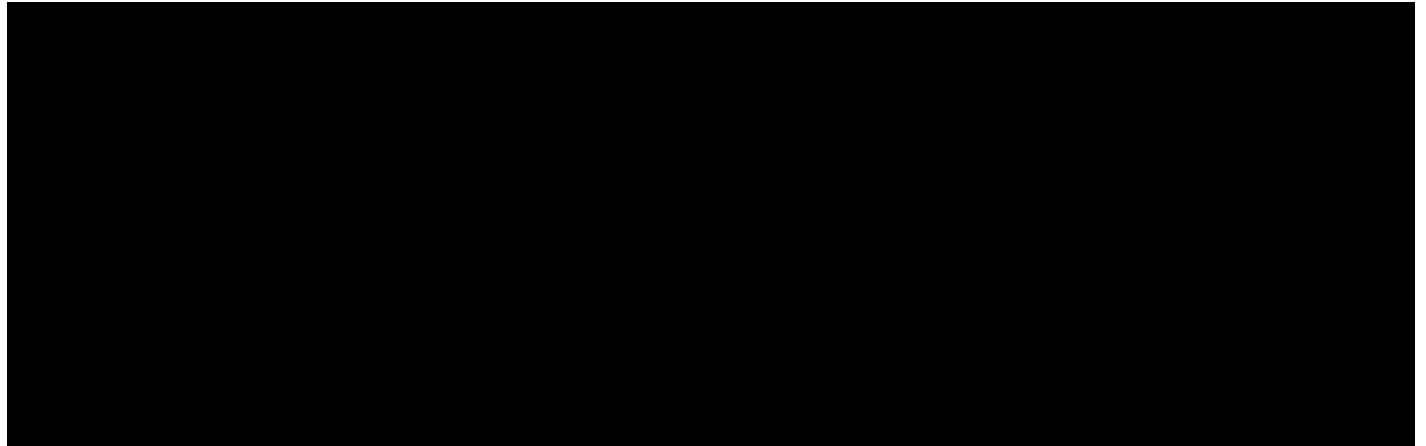
The continued rise of digital technologies and the shifting workforce dynamics are fundamentally changing how our HR functions work for overall operational effectiveness and business-value. For our people - digitally led self-enablement services, for our millennial workforce – digitally powered to enable our reach ability to identify, attract, retain and develop the best people and for the businesses we serve - driving lower costs to operate through incremental efficiencies and effectiveness.

Building on the investment made in the SuccessFactors platform during the RIIO T1 period, we will continue to leverage the new functionality that the platform provides particularly focusing on the consolidation of data. This will support delivering the data foundations needed for a data centric HR function with all employee data in a single system to support the shift in ways of working in the years ahead and equally ensure continued compliance around data risk, control, security and enablement.

Harnessing of advanced analytical technologies will underpin our ability to deliver value-unlocking insights on our people and organisation to empower the businesses to run their operations more efficiently and effectively. We will continue to embed, sustain and grow the foundational transformation investments already made in RIIO T1.

### 3.6 Stakeholder and Employee Comms

We intend to invest £7.8m to maintain appropriate and valued digital channels and have the right end-to-end processes in place to improve our capabilities in stakeholder management, customer engagement and data management in a secure way.



Our digital communication channels sit at the heart of how we connect with stakeholders, customers, and colleagues. Our customers are increasingly dependent on mobile technology and modern digital communications enable our employees to work effectively, efficiently and add value. Our customers and stakeholders have told us they want us to develop improved communications channels that enable access to self-serve data, enhancing the effectiveness of communication across the energy utility sector.

Efficiency and effectiveness benefits expected from investment in this space include:

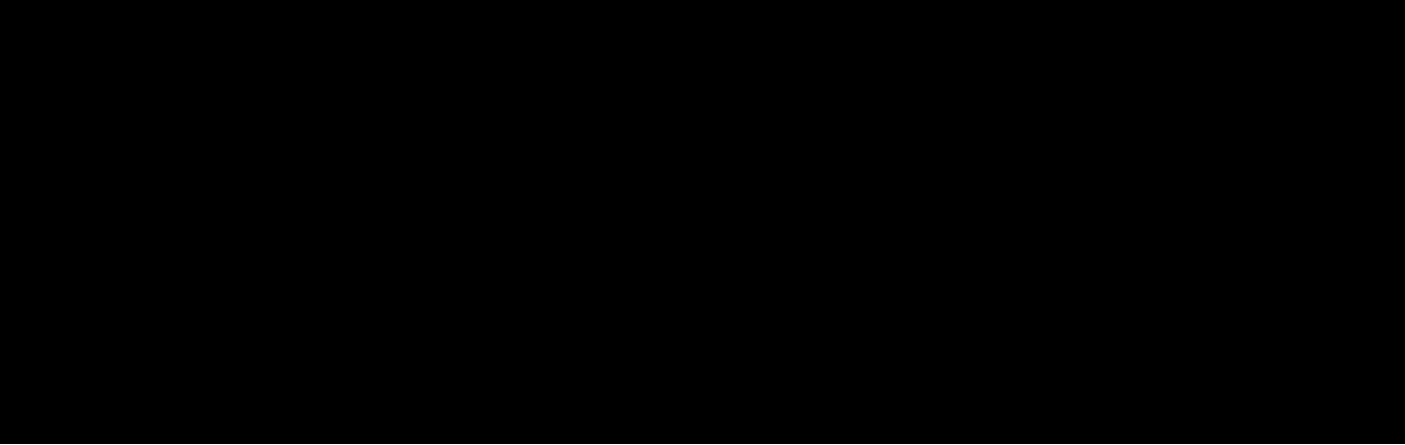
- Less wasted time (quick to find or access things that matter)
- Targeted news and communications giving us an effective internal voice
- Reduction in the number of systems we use
- Increased productivity (self-service, increasing ability to complete tasks when needed)
- Employee awareness - access to expertise
- Enables us to work at a higher velocity, bringing alignment between departments for employees in a visible way

### 3.7 Other Core Functions

Within Business Services there are other key services which, for the purpose of this paper, have been grouped into 'other core functions'. These comprise of:

- Safety, Health and Sustainability
- Internal Audit
- Enterprise Risk Management
- Legal
- IT for IT

Investments of £10.2m are required during the RIIO T2 period in order to refresh, sustain and/or implement capability and functionality required within these core functions to deliver ongoing service improvements and meet efficiency targets.



Safety is and always will be our number one priority – we will continue to invest in our incident management systems to ensure they remain fit for purpose and reflect the increasingly mobile nature of our workforce. We will also invest in increasing the capability of our Health and Sustainability systems with a number of initiatives, including but not limited to safe driving, health dashboards and sustainability management.

We will maintain our investment in RSA Archer to provide an integrated governance risk and compliance platform connecting the first, second and third line of audit and assurance defence and consolidating all risk related data within one strategic platform.

There will be a requirement to maintain our legal document management, contract automation and spend tracking platforms to enable the effective operation of our legal function.

In addition, maintaining and/or upgrading our IT for IT tooling (internal IT enabling tools to manage services and projects) will be required to ensure we have effective and integrated platforms to support software and project delivery.

The benefit of maintaining and/or upgrading internal IT Tooling will enable our IT organisation to effectively manage cost, vendors and contractual agreements in addition to providing cost and service transparency. This will result in a reduction to operating costs across the business supporting the IT strategy for application rationalisation and minimisation.

## 4. Optioneering

We have used the following criteria for the assessment of the options identified in the Justification Report:

- Total cost of ownership – capital investment and associated operating costs borne by consumers and the need to ensure value for money
- Capacity to deliver - the level of risk associated with the ability of NG and its supply chain to deliver the option
- Business/strategic fit - the alignment of this option to our overall business direction
- Addressing the problem – how well the option resolves the identified issue
- Risk – the overall risk to the business associated with this option

### **Finance (ERP)**

The following table describes the high-level options considered for the major investments for this business theme. In this case this is S4/Hana – representing █████ of the investment within this theme Other initiatives in this group, being relatively low-level individual investment lines, will go through a rigorous optioneering phase during the sanctioning process.

Option	* TCO over T2	Capacity to Deliver	Business / Strategic Fit	Addressing the problem	Risk	Overall
Maintain Only	<b>This option involves upgrades and minor change continual improvements only</b>					
	GREEN ■	GREEN <ul style="list-style-type: none"> <li>The existing team could be reduced and deliver this option</li> <li>Losing team members would reduce capability to deliver in the future</li> <li>Staff retention likely to become a problem due to work profile</li> </ul>	RED <ul style="list-style-type: none"> <li>Will erode business productivity due to system configuration not reflecting business processes</li> <li>Inhibit ability to leverage new capabilities in the future</li> <li>Will lead to high business change costs in T3</li> </ul>	RED <ul style="list-style-type: none"> <li>Does not evolve business or allow it to adopt new capabilities in line with the industry standards and efficiency levels</li> </ul>	RED <ul style="list-style-type: none"> <li>Could result in manual off-line process workarounds</li> <li>Limited ability to exploit new efficiencies offered by new features and functions</li> <li>Governance and compliance will become more challenging</li> </ul>	Rejected
Maintain and Enhance	<b>This option is to deploy upgrades, deliver business driven functional changes and exploit new functions and features from software releases</b>					
	GREEN ■	GREEN <ul style="list-style-type: none"> <li>Solution Development Team in place</li> <li>Support model matured from RIIO T1 system deployment</li> </ul>	GREEN <ul style="list-style-type: none"> <li>Maximise return on investment from RIIO T1</li> <li>Support business pursuit of further efficiencies</li> <li>Supports continual integration with SaaS and third-party systems</li> </ul>	GREEN <ul style="list-style-type: none"> <li>Aligns to continual improvement to allow business to reach their operational efficiency targets</li> </ul>	GREEN <ul style="list-style-type: none"> <li>Internal capability/expertise is required to ensure that new functions and features are exploited in a cost-efficient way</li> </ul>	Recommended
Replace	<b>This option would see the S4 / ECC SAP replaced with a new ERP</b>					
	RED ■	RED <ul style="list-style-type: none"> <li>Would require significant FTE effort</li> <li>Require a team with new technical skillset</li> </ul>	RED <ul style="list-style-type: none"> <li>Wasted sunk cost in S4/HANA during RIIO T1</li> <li>Potential to increase integration complexity with surrounding systems</li> <li>Alternatives may/may not cover the full scope of services required leading to proliferation of products/systems</li> </ul>	RED <ul style="list-style-type: none"> <li>No real advantage over staying with SAP – any potential commercial RTB benefit will be outweighed by implementation costs</li> </ul>	RED <ul style="list-style-type: none"> <li>Financial write-off of assets not fully depreciated</li> <li>Implications on integrated systems, such as Procurement suites</li> <li>Risk of change to supplier who is not familiar with NG processes</li> </ul>	Rejected

The following table describes the high-level options considered for the major investments for this business theme. This is for SAP Successfactors – representing almost █████ of investment in this theme Other initiatives in this group, being relatively low-level individual investment lines, will go through a rigorous optioneering phase during the sanctioning process.

Option	* TCO over T2	Capacity to Deliver	Business / Strategic Fit	Addressing the problem	Risk	Overall
Maintain Only	<b>This option involves upgrades and minor change continual improvements only</b>					
	AMBER ████	GREEN <ul style="list-style-type: none"> <li>A reduced existing team could deliver this option</li> <li>Losing team members would reduce capability to deliver in the future</li> </ul>	RED <ul style="list-style-type: none"> <li>Will erode productivity due to stagnating processes</li> <li>Inhibit ability to leverage new capabilities in the future</li> <li>Will lead to high business change costs in T3</li> </ul>	AMBER <ul style="list-style-type: none"> <li>Allows for legal and mandatory changes to occur</li> <li>Does not evolve business or allow it to adopt new capabilities in line with the rest of the industry</li> </ul>	AMBER <ul style="list-style-type: none"> <li>Could result in manual off-line process workarounds</li> <li>Limited ability to exploit new efficiencies offered by new features and functions</li> </ul>	Rejected
Maintain and Enhance	<b>This option is to deploy upgrades, deliver business driven functional changes and exploit new functions and features from software releases</b>					
	GREEN ████	GREEN <ul style="list-style-type: none"> <li>Solution Development Team in place</li> <li>Support model matured from RIIO T1 system deployment</li> </ul>	GREEN <ul style="list-style-type: none"> <li>Maximise return on investment from RIIO T1</li> <li>Support business pursuit of further efficiencies</li> </ul>	GREEN <ul style="list-style-type: none"> <li>Aligns to continual improvement to allow business to reach their operational efficiency targets</li> </ul>	GREEN <ul style="list-style-type: none"> <li>Internal capability/expertise is required to ensure that new functions and features are exploited in a cost-efficient way</li> </ul>	Recommended
Replace	<b>This option would see the Coupa and SAP Ariba replaced with a competitive product</b>					
	RED ████	RED <ul style="list-style-type: none"> <li>Would require significant FTE effort</li> <li>Need to reskill / replace team</li> </ul>	RED <ul style="list-style-type: none"> <li>Wasted sunk cost in Coupa / Ariba during RIIO T1</li> </ul>	AMBER <ul style="list-style-type: none"> <li>Minimal possibility of capability uplift as current solutions are already top quartile products</li> </ul>	RED <ul style="list-style-type: none"> <li>Premature investment in replacing existing application estate</li> <li>Risks inherent of a new supplier</li> </ul>	Rejected



## HR & Workforce Systems (Success Factors)

The following table describes the high-level options considered for the major investments for this business theme. Other initiatives in this group, being relatively low-level individual investment lines, will go through a rigorous optioneering phase during the sanctioning process.

Option	* TCO over T2	Capacity to Deliver	Business / Strategic Fit	Addressing the problem	Risk	Overall
Maintain Only	<b>This option involves renewal of software licenses at contract end and continued infrastructure provision but no changes to application stack or versions</b>					
	<b>GREEN</b> ■	<b>GREEN</b> <ul style="list-style-type: none"> <li>A reduced existing team could deliver this option</li> <li>Losing team members would reduce capability to deliver in the future</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Won't meet corporate IT asset health policies</li> <li>Inhibit ability to utilise new capabilities in the future</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>No impact on improving efficiency</li> <li>Or stakeholder experience</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Security vulnerabilities will not be addressed</li> <li>Legal / Mandatory updates not possible</li> <li>Some enhances will be required to meet new regulations</li> <li>Vendor support</li> </ul>	<b>Rejected</b>
Maintain and Enhance	<b>This option is to deploy upgrades, deliver business driven functional changes and exploit new functions and features from software releases</b>					
	<b>GREEN</b> ■	<b>GREEN</b> <ul style="list-style-type: none"> <li>Solution Development Team in place</li> <li>Support model matured from RIIO T1 system deployment</li> </ul>	<b>GREEN</b> <ul style="list-style-type: none"> <li>Exploits RIIO T1 investment</li> <li>Maintains security compliance</li> <li>Maintains compatibility with wider on premise and SaaS eco-systems</li> </ul>	<b>GREEN</b> <ul style="list-style-type: none"> <li>Minor capability improvements advance the efficiency of operations</li> </ul>	<b>GREEN</b> <ul style="list-style-type: none"> <li>Internal capability/expertise is required to ensure that new functions and features are exploited in a cost-efficient way</li> </ul>	<b>Recommended</b>
Replace	<b>This option would see the SAP Success Factors functionality moved to a competitor's platform following a competitive tendering process and a large-scale multi-year programme to migrate data and processes</b>					
	<b>RED</b> ■	<b>RED</b> <ul style="list-style-type: none"> <li>Would require significant FTE effort</li> <li>Need to reskill / replace IT team</li> <li>Business disruption when replacing and adopting the new solution</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Wasted sunk costs in SAP Success Factors during RIIO T1</li> </ul>	<b>AMBER</b> <ul style="list-style-type: none"> <li>Any new solution would be evaluated to ensure it meets business needs</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Creates need for complex integrations with surrounding SAP landscape</li> </ul>	<b>Rejected</b>

## Stakeholder and Employee Communications

The following table describes the high-level options considered for the major investments for this business theme. Other initiatives in this group, being relatively low-level individual investment lines, will go through a rigorous optioneering phase during the sanctioning process.

Option	* TCO over T2	Capacity to Deliver	Business / Strategic Fit	Addressing the problem	Risk	Overall
Maintain Only	<b>This option involves renewal of software licenses at contract end and continued infrastructure provision but no changes to application stack or versions</b>					
	<b>GREEN</b> ■	<b>GREEN</b> <ul style="list-style-type: none"> <li>A reduced existing team could deliver this option</li> <li>Losing team members will reduce capability to deliver in the future</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Many current solutions are sub optimal and highlighted by stakeholders as in need of improvement</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>No impact on improving efficiency</li> <li>No impact on improving stakeholder experience</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Health of the current solutions will continue to deteriorate and led to further inefficiencies in operations</li> <li>Mobile / Web technologies will evolve rendering current system redundant / incompatible with end user devices</li> </ul>	<b>Rejected</b>
Maintain and Enhance	<b>This option is to deploy upgrades, deliver business driven functional changes and exploit new functions and features from software releases</b>					
	<b>GREEN</b> ■	<b>GREEN</b> <ul style="list-style-type: none"> <li>Established skills and capabilities follow a more gradual evolution supporting smaller incremental changes that are easier to deliver</li> </ul>	<b>GREEN</b> <ul style="list-style-type: none"> <li>Builds on existing strategic platforms maximising return on investment</li> <li>Existing core platforms can be extended and are not end of life</li> <li>Wider supporting systems can change to maintain fit and meet business needs</li> </ul>	<b>GREEN</b> <ul style="list-style-type: none"> <li>Allows for considered flex and change to meet stakeholder needs</li> </ul>	<b>GREEN</b> <ul style="list-style-type: none"> <li>Smaller incremental changes that are easier to deliver</li> <li>Avoids a “bet the farm” approach</li> </ul>	<b>Recommended</b>
Replace	<b>Wholesale of replacement of all digital channels</b>					
	<b>RED</b> ■	<b>RED</b> <ul style="list-style-type: none"> <li>Employee stretch with also maintaining BAU processes</li> <li>New skills and capabilities needed to support investments</li> <li>Business operation model challenges ability to fully exploit new technology opportunities</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Existing big platform investments lost but offer a wider consolidation or simplification of systems</li> <li>Alignment with business needs can be optimally met</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Technology solutions are all fit for purpose</li> <li>Stakeholder needs fully accounted for</li> </ul>	<b>RED</b> <ul style="list-style-type: none"> <li>Smaller incremental changes that are easier to deliver</li> <li>Avoids a “bet the farm” approach`</li> </ul>	<b>Rejected</b>

## **Other Core Functions**

This is a collection of investments relating to various areas of the business including:

- Safety, Health and Sustainability
- Internal Audit
- Enterprise Risk Management
- Legal
- IT for IT

Despite being relatively low-level individual investment lines, all initiatives in this group will go through a rigorous optioneering phase during the sanctioning process. The largest investment line in the group is related to RSA Archer which is our integrated risk management platform used to monitor, identify, assess and decide on risk. Risk management is key to National Grid to ensure the security and stability of its Critical National Infrastructure and other business operations. It is essential the system is maintained in line with advances in the wider industry to allow us to continue to manage the complexity of today's existing and emerging risks.

## 5. Detailed Analysis & CBA

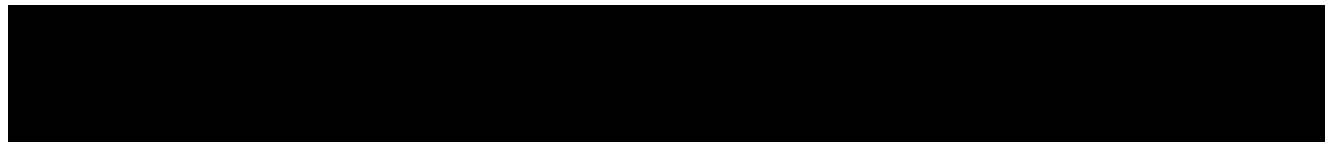
All investments have been independently benchmarked by Gartner against appropriate peer group projects. Gartner reviewed each investment and all investments are within the benchmark range.

	RIIO T2 Total (£m)
Finance	46.5
HR	11.9
Procurement	8.4
Stakeholder and Employee Comms	7.8
Other Core Functions	10.2
<b>Grand Total</b>	<b>84.8</b>

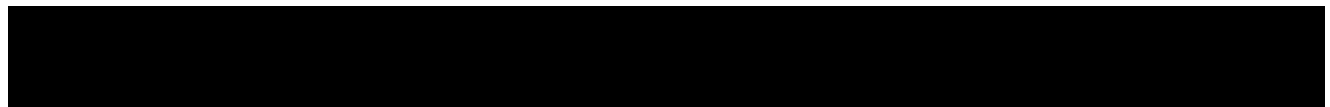
Detailed Cost Benefit Analysis have been created for the investments over £5m:

- S4/Hana - ERP (Finance)
- SAP SuccessFactors (HR)

The investment costs profile for the preferred solutions for ERP and HR Success Factors is set out in the table below.



The table below shows the CBA output, comparing baseline to our preferred solution.



If the NPV is only focused on the RIIO-T2 period, the investment costs associated with the preferred option is greater than the baseline. But, if a whole life type assessment is undertaken, the baseline imposes significant investment costs in RIIO-T3 which firmly shifts the choice to the preferred option.

In addition, there are unquantifiable benefits linked to the option relative to the baseline such as improved cyber security. These would further justify the move to the option.

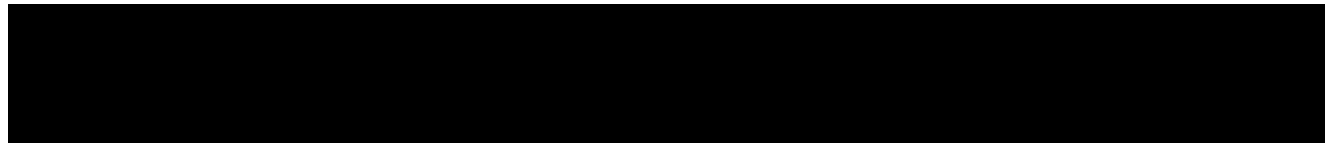
Given that an ERP system is required, the proposed option of S4/Hana is the preferred option as it represents the lowest investment cost over the T2 and T3 periods. This investment will avoid costs due to business disruption and inefficiencies caused by unacceptable system performance, incurs lesser business change costs and provides additional benefits that we have not been able to quantify.

The table below includes sensitivities for a 5% discount rate, and costs at plus and minus 10%. This

indicates that the preferred solution is resilient to a credible level of change.



The table below shows the CBA output, comparing baseline to our preferred HR solution.

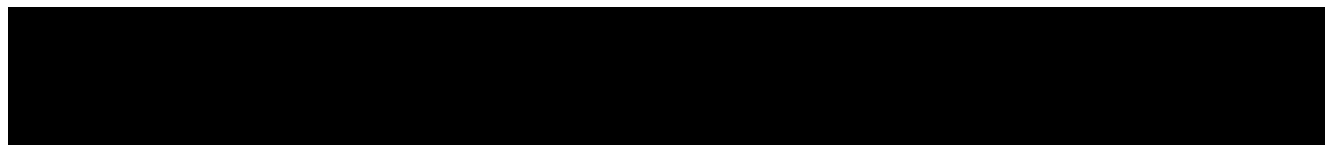


As with S4/Hana, the cost benefits only become obvious once the longer term is considered, with significant cost savings compared to the baseline once the T2 and T3 periods are considered.

In addition, additional unquantifiable benefits arise with SuccessFactors, including the avoidance of:

- financial, safety and reputational penalties for being non-compliant with relevant legislation (eg GDPR);
- increased costs, risk and complexity of large scale upgrades;
- increased HR personnel cost to work-around systems that due to lack of maintenance do not operate efficiently or reflect business processes;
- the risk of cyber incidents; and
- wasted time arising from a reduced mean time to value when enabling new functionality that automate tasks and assist in releasing HR resources to work on higher value tasks.

The table below includes sensitivities for a 5% discount rate, and costs at plus and minus 10%. This indicates that the preferred solution is resilient to a credible level of change.



Based on the cost assessment as well as the unquantified benefits, including the minimisation of disruption to the business and business change costs, the preferred option is to invest in SAP SuccessFactors.

## 6. Key Assumptions, Risks and Dependencies

### Assumptions

- Key business capability requirements will remain generally unaltered

- Scope of functions remains broadly in line with plan for transformation
- Investments in technology remains aligned to current vendor roadmaps e.g. SaaS offerings and releases
- Software versions maintained in line with corporate IT asset health polices
- SaaS products subscription costs based upon volumetrics such as number of users or number of transactions remain largely unchanged as no provision for increases are made

## Risks

Risk	Mitigation
Cyber and security breaches	Ensure all systems are maintained to latest vendor released versions in a timely manner. Maintain a strong cyber capability within National Grid which regularly assesses the IT landscape for vulnerabilities
Cost of reimplementation of systems delivered in RIIO T1	Ensure all systems are maintained to latest vendor released versions in a timely manner. Will avoid systems becoming obsolete and incurring more significant investment or replacement in RIIO T3
Avoid financial and reputational penalties	Ensure all systems are maintained to latest vendor released versions in a timely manner. Will ensure the latest patches to cover any changes as a result of legal and legislation requirements
Unable to unlock new value	Ensure all systems are maintained to latest vendor released versions in a timely manner. Will reduce the mean time to value in enabling new functionality that automate tasks and assist in releasing HR working to work on higher value tasks.
Controls and compliance failures	Ensure both IT systems and business support teams supporting the GRC space are maintained
Loss of talent - lack of enablement	Ensure a program of continual improvement is implemented to help retain talent and knowledge within National grid. Avoid famine and feast mentality in application lifecycle management.
Erode the efficiencies made in RIIO T1	Ensure the IT systems evolve with the business requirements over time to prevent the formulation of offline processes
Unable to fully digitalize the support functions	Maintain a strong business / enterprise architecture capability to ensure the strategy is adopted and matured in line with the business's evolving aspirations.
There is a risk that vendors release exceptional update(s) ("re-platformed" or "re-architected solution") which require major migration activity to continue using the product	Monies may need to be diverted from enhancements that maintain or improve business efficiency to funding an exceptional migration/upgrade activity
Failure to keep whole ecosystem current could seriously impact the value chain due to	Ensure all applications in the estate are maintained in a consistent manner. For

interconnected nature of systems	systems on the perimeter ensure they are integrated through centralized API management rather than point to point.
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## Dependencies

- Reliance upon the business change transformation agenda to align changes in business process, culture and behaviors to support in leverage of new technology
- Reliance upon data enhancement strategy in parallel with new system and processes
- Reliance upon vendor product development delivering against roadmaps
- Interdependency of systems upon each other due to the nature of a fully integrated SAP centric landscape requiring alignment in enhancing against vendor roadmaps
- The pace of technological progress is high and accelerating, we are dependent upon no significant changes to core technologies, contracts to deliver SaaS services or ways of working that significantly impact our plans

## 7. Conclusion

Over the RIIO T2 period we look to invest £84.8m to maintain and evolve the IT systems delivering business services. The proposed investment has been independently benchmarked by Gartner and represents a carefully considered and well-balanced direction of travel to ensure we continue to unlock efficiencies delivered in RIIO T1. The investments are in line with our wider IT Strategy and will support National Grid in becoming a digital enterprise, driving efficiency and effectiveness benefits whilst ensuring the systems landscape remains current; thus, preventing the accumulation of technical debt which would require significant major future investments to resolve.

Our RIIO T1 investment strategy has met the immediate needs of the businesses and put in place platforms for continued growth. Wherever possible we have used these technologies without customisation so we can fully leverage these industry standard platforms as they continue to be evolved by the manufacturers. Our strategy for RIIO T2 is to keep platforms current through incremental investment, avoiding the need for major system replacements with associated cost and risk, exploiting new functionality to further increase our efficiency, whilst maintaining a secure and controlled eco-system. This strategy also strengthens our data management capability by adding advanced analytics that come with core platforms helping minimise the movement of data between systems

This investment supports the delivery of 1.1% year-on-year efficiency improvements across the support functions, which represents almost three times the current UK trend for productivity improvement, through adoption of new capabilities. Without the ongoing maintenance of our systems we will not be able to maintain compliance with relevant legislation and regulations; the investments made in RIIO T1 will become outdated and inefficient, exposing our systems and data to an increased cyber risk and operational failure.

## 8. Outputs included in RIIO T1 Plans

N/A

## 9. Glossary of Terms

<b>Acronym</b>	<b>Description</b>
AI	Artificial Intelligence
BMS	Business Management Standard
BOBJ	SAP Business Objects
BPC	SAP Business Planning and Consolidation
BW	SAP Business Warehouse
CMDB	Configuration Management Database
ERP	Enterprise Resource Planning
ESO	Electricity System Operator
ETO	Electricity Transmission Owner
GRC	Governance, Risk and Compliance
GSO	Gas System Operator
GTO	Gas Transmission Owner
HANA	SAP High performance Analytic Appliance
IT	Information Technology
ITIL	Information Technology Infrastructure Library
ML	Machine Learning
NG	National Grid
NGET	National Grid Electricity Transmission
NGG	National Grid Gas
NGV	National Grid Ventures
RIIO	Revenue = Incentives + Innovation + Outputs
RPA	Robotic Process Automation
SAAS	Software as a Service
SAC	SAP Analytics Cloud
SCP	SAP Cloud Platform
SO	System Operator
SOx	Sarbanes Oxley
SPA	Smart Process Automation
SRM	SAP Supplier Relationship Management
TO	Transmission Owner