Infrastructure and Projects Authority

Annual Report on Major Projects 2016-17

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Cover image:
DEFRA Thames Tideway Tunnel

The Infrastructure and Projects Authority

The IPA is the government's centre of expertise for infrastructure and major projects. We sit at the heart of government, reporting to the Cabinet Office and HM Treasury.

We work across government to support the successful delivery of all types of infrastructure and major projects; ranging from railways, schools, hospitals and housing, to defence, IT and major transformation programmes.

Our purpose is to continuously improve the way infrastructure and major projects are delivered in order to support government priorities and improve people's lives. We aspire to create the best-performing project system of any government in the world.

To achieve this, the IPA prioritises the following four activities:

- Setting up projects for success
- Creating market confidence
- Building delivery capability in government
- Measuring and improving performance.

The IPA operates as the home of the Project Delivery function across government, helping government to deliver projects better and bringing specialist project delivery skills to the Civil Service. The Project Delivery function is part of a wider community of other functions in government such as Commercial, Communications and Digital.

The IPA and the Government Major Projects Portfolio (GMPP)

The IPA oversees and provides support to the GMPP – an evolving portfolio of the most complex and strategically significant projects and programmes across government. This includes arranging and managing more than 200 independent expert assurance reviews of major government projects each year and providing bespoke project support throughout each project's lifecycle. Projects on the GMPP provide quarterly returns of key data to enable the IPA to monitor their progress.

The Annual Report and transparency data on major projects

Under its mandate from the Prime Minister, the IPA is required to produce an Annual Report on the GMPP. This is the fifth Annual Report, with some previous reports having been published by the Major Projects Authority (MPA). In accordance with the government's major projects transparency policy, the Annual Report is published at the same time as departments publish the data on their projects that are part of the GMPP. The data published this year was submitted to the IPA in September 2016. The delivery confidence assessments within that data, and included in this report, are as assessed by the IPA at that time. The narratives from departments that accompany their published data provide an update on progress since then.

Departments are only permitted to exempt data from publication under exceptional circumstances and in accordance with freedom-of-information requirements, for example regarding national security or commercial confidentiality.

The IPA oversees an evolving portfolio of the most complex and strategically significant projects and programmes across government.

From top:
MOD Spearfish
MOJ Digital Courts
CO GOV.UK Verify
DEFRA Thames Tideway Tunnel

Foreword

Parliamentary Under Secretary of State for the Cabinet Office
Exchequer Secretary to the Treasury

It is our responsibility to ensure that the government is providing public services and spending taxpayers' money as efficiently and effectively as possible. This year's Annual Report on the Government Major Projects Portfolio (GMPP) shows how we deliver some of the largest and most complex projects in the world for the British people.

Projects on the GMPP reflect the government's priorities: making our infrastructure fit for the 21st century, maintaining the security of the realm, and modernising and digitising our public services. As we continue to deliver these projects, their benefits will be felt across the nation.

The largest growth area in the portfolio has been in infrastructure and construction, with infrastructure projects reaching a record £222 billion, making up almost half the value of the GMPP. This is in line with our commitment to infrastructure investment and the record levels of investment in the National Infrastructure and Construction Pipeline.[1]

Government Service Delivery and Transformation projects remain the most complex and challenging projects to deliver. This is unsurprising given the level of organisational and societal change they often require. We are getting better at understanding what it takes to deliver these unique programmes, and our enduring ambition in this area is reflected by the fact that, at 40 projects, it continues to represent the largest GMPP category by number.

We continue to make steady improvements in the way we deliver government projects. This is thanks to the hard work of the cadre of world-class project delivery professionals working across government. The IPA's expertise and independence supports departments to deliver, and enables a process of continuous improvement in the way we deliver projects in this country.

The government is also committed to transparency, and to being responsive and accountable to the public we serve. Accordingly, we have collected and published this data consistently over the past five years, enabling us to track the progress of projects on the GMPP over time.

We will continue to be responsive and accountable to the public. This will include navigating our exit from the European Union, and continuing to deliver complex and challenging projects in the emerging landscape that this will create. We remain dedicated to improving capability and investing in infrastructure so that we can meet these new challenges and continue to deliver improvements, as part of the government's commitment to support growth right across our country for the benefit of every community.

Caroline Nokes MP
Parliamentary Under Secretary of State for the Cabinet Office

Andrew Jones MP
Exchequer Secretary to the Treasury

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1 https://www.gov.uk/government/publications/national-infrastructure-and-construction-pipeline-2016

Introduction
Tony Meggs, Chief Executive, IPA

The vast majority of government policies are delivered through projects of various forms. It is therefore vital that we deliver projects successfully, and continuously build our capability to do so. If projects fail, then the government's policy objectives are not delivered.

This year's portfolio of major government projects continues to reflect a broad and ambitious policy agenda. In total, on the GMPP alone, the government is delivering 143 projects worth over £455 billion.

These projects are diverse in their nature, scale and objectives. They span 17 government departments, and range from capital-intensive infrastructure projects that drive economic growth and productivity, to ICT and transformation programmes, that change the way the government provides services to its citizens.

The IPA is the guardian of this portfolio. We have set ourselves the aspirational goal of creating the best-performing project system of any country in the world. To do this, we first need to be able to measure performance, so we can learn important lessons and make continuous improvements to the system over time.

We aspire to create the best-performing project system of any country in the world. To do this, we first need to be able to measure performance, so we can learn important lessons and make continuous improvements to the system over time.

The purpose of the Annual Report is to give a snapshot of the major projects currently in delivery, and to provide analysis of how well they are performing each year. This year, we continue to see slow and steady improvement, with most projects' Delivery Confidence Assessment (DCA) ratings improving as they progress on the GMPP.

Nevertheless, the majority of government projects are complex, and there are still many areas for further improvement. We are building a Performance Framework that will enable us to better understand project performance over time, and we continue to work with government departments and industry to improve the way individual projects are being delivered. One of our priorities is to build the necessary delivery capability in government so we have the very best people managing our projects.

The most recent data indicates that Senior Responsible Owner (SRO) turnover is falling, and project leaders are spending on average three to three-and-a-half years in post on projects. If this trend continues, then it is a good sign, as consistency and continuity in project leadership are key for successful delivery.

Another vital component is ensuring projects are initiated in the right way, a theme we draw particular attention to in this year's report. Evidence shows that the best way to ensure successful delivery is by setting up projects correctly in the first place. The most common causes of failure are well rehearsed: lack of clear objectives, insufficient resources, and over-ambitious cost and schedule, among others. All these mistakes can be avoided if tackled early and effectively.

Therefore early engagement and support has been a key focus for the IPA this year. Our collective progress in this regard is an ongoing endeavour, and I encourage all departments to continue to work with us on projects as early as possible so we can help ensure they are set up for success.

Tony Meggs
Chief Executive, Infrastructure and Projects Authority

The Government Major Projects Portfolio

The 2016-17 Annual Report continues to reflect a broad and ambitious portfolio of major projects across government and demonstrates the government's policy priorities: improving and enhancing the UK's infrastructure, transforming public services, and maintaining the security of the nation.

The GMPP includes the largest, most complex and highest risk projects across government. Though the number and type of projects on the GMPP varies as projects join and leave, the criteria for inclusion remain unchanged. These are mainly projects where approval is required from HM Treasury, either because the budget exceeds a department's delegated authority level, or because the project is novel, complex or requires primary legislation.

In September 2016, the GMPP comprised 143 major projects representing £455.5 billion in expenditure across 17 government departments. Over the course of the past year, 36 projects left the GMPP and were replaced by 36 new projects.

There are four main categories of project on the GMPP: government transformation and service delivery (transformation), information and communication technology (ICT), military capability, and infrastructure and construction. This year, we have seen a reduction in the number of transformation projects, offset by an increase from the other three categories, primarily from infrastructure and construction.

Figure 1: **Summary of the 2016-2017 GMPP**

Number of projects	**143**
Whole-life cost of GMPP	**£455.5bn**
2016-17 budget	**£24.6bn**
Government transformation and service delivery **40 projects worth**	**£71.1bn**
ICT **39 projects worth**	**£18.6bn**
Infrastructure and construction **37 projects worth**	**£222.5bn**
Military capability **27 projects worth**	**£143.3bn**

Data used to calculate these figures can be found in the GMPP data table.
http://www.gov.uk/government/publications/infrastructure-and-projects-authority-annual-report-2017

Project categories

With 40 projects, transformation remains the largest single category in the portfolio, despite a net reduction of 13 in the year. Transformation continues to be an area of high priority for government as we strive to deliver government services more efficiently and to improve the way government interacts with its citizens.

ICT represents the second largest group with 39 projects, though these have the lowest total whole-life cost. ICT projects enable cost savings through the restructuring of legacy IT contracts and the development of new, flexible and more effective systems.

Infrastructure and construction represents the largest growth area, with nine new projects joining, including five Network Rail projects following the reclassification of Network Rail as a central government body. It is also the largest category in terms of whole-life cost, with a current value of over £222.5 billion. This is consistent with levels of investment in the National Infrastructure and Construction Pipeline, and government investment in UK economic infrastructure.

Military capability continues to be the smallest category by number, with 27 projects, but as with last year, it remains the second highest in terms of whole-life cost. This reflects the complexity and scale of individual military projects, and the continuing investment in maintaining UK national security.

Figure 2: Movement of projects on the GMPP since 2013 Annual Report (AR)

	Projects joined prior to AR 2013	New projects at AR 2014	New projects at AR 2015	New projects at AR 2016	New projects at AR 2017	Leavers
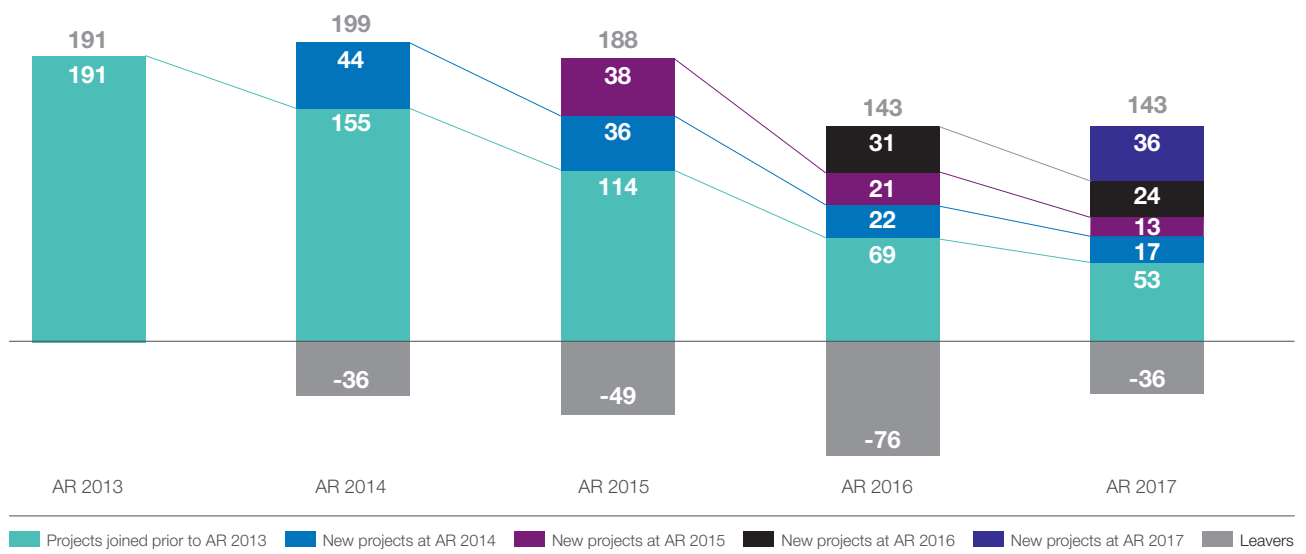
Figure 3: Summary of 2016-2017 GMPP by project category

	Number of projects	Total whole-life cost (£bn)	Median whole-life cost (£bn)
Government transformation and service delivery	40	71	0.3
ICT	39	19	0.2
Infrastructure and construction	37	222	2.2
Military capability	27	143	1.8
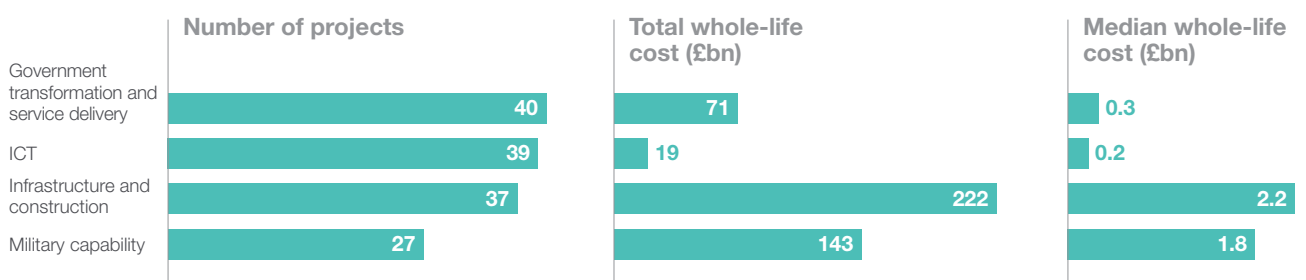
The Government Major Projects Portfolio continued

Figure 4: **Example project from each category**

ICT

Home Office Biometrics Programme

The Biometrics Programme will establish a single, integrated real-time biometrics service that will help protect our borders and communities.

Infrastructure and construction

Highways England A14 road scheme

The A14 Cambridge to Huntingdon scheme is a strategic east-west road link that will relieve traffic congestion in the area, connect communities and unlock local economic growth.

Military capability

MOD Airseeker project

The Airseeker project will change the Boeing KC-135 aircraft into a new surveillance aircraft, which will enable the military to gather more data from the air in order to support troops on the ground.

Transformation

DWP Fraud, Error and Debt Programme

The Fraud, Error and Debt Programme supports the Department for Work and Pensions (DWP) and wider government strategy to reduce the levels of fraud, error and debt across the benefit and tax credit systems.

Transformation projects are often the most complex and challenging projects to deliver in government due to the large range and scale of change required.

Major transformation projects are typically delivered over multiple phases, require new operating models, new and innovative ways of working, and cultural and organisational change. They also change the way services are delivered to citizens and businesses.

There is a wide variety in the types of transformation project being delivered. One example is the Courts and Tribunal Reform Project, which will improve the efficiency of the justice system and enable citizens to use digital court services. Another very different transformation example is the Ministry of Defence's Future Accommodation Model Project, which will change how the department's estate and workforce are managed.

In response to the challenges, and to improve how government delivers transformation projects, the Transformation Peer Group (TPG) was established in 2016. The TPG is an advisory group that brings together the combined expertise of the delivery departments with the IPA and the Government Digital Service (GDS), to help government improve how it identifies, defines and delivers transformation.

Projects by department

As of September 2016, the portfolio included projects from 17 government departments, demonstrating the continued breadth of government project delivery activity.
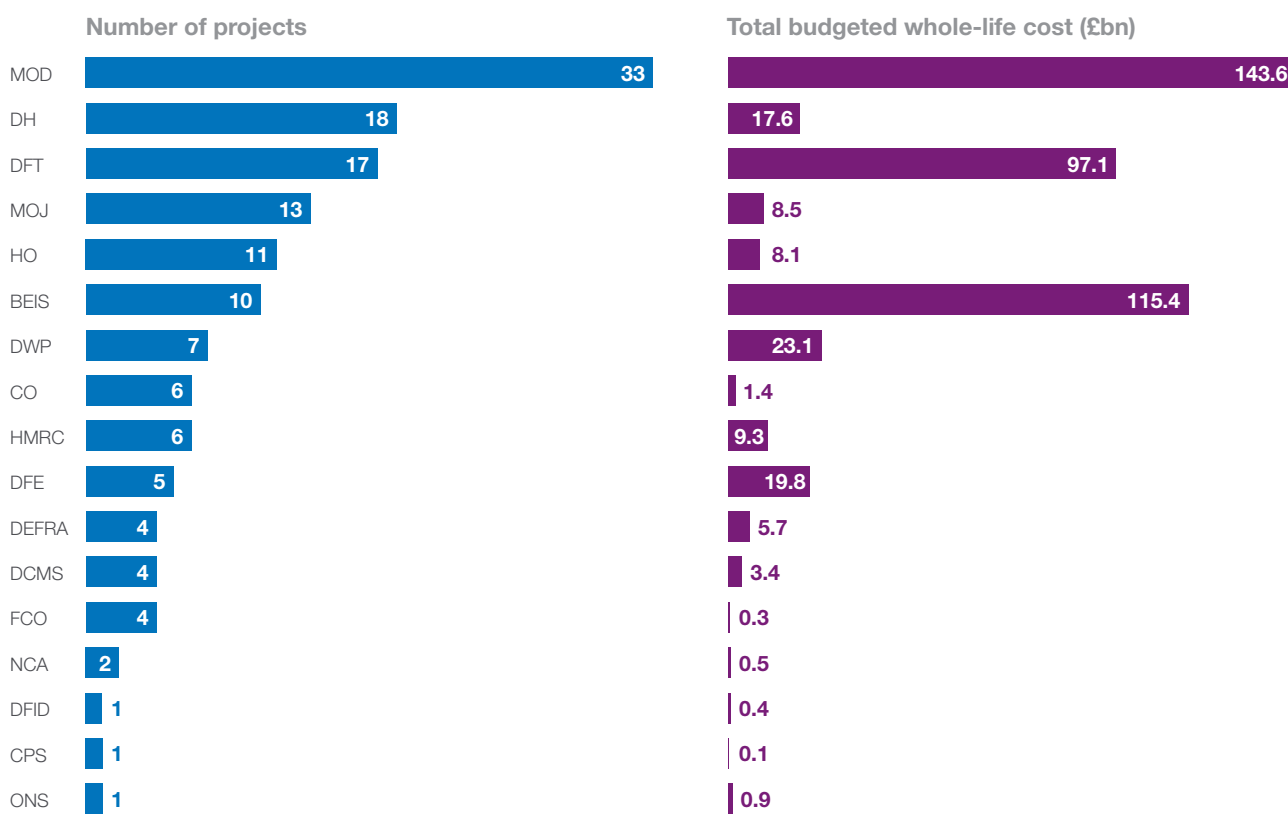
As with previous years, the Ministry of Defence (MOD) continues to be the largest contributor, both in terms of the number of projects and their whole-life cost. These are primarily military equipment projects, such as the Merlin Mk2 Helicopter Programme, which delivered the upgrade of the Royal Navy's anti-submarine helicopters, plus a smaller number of ICT projects, such as the Emporium Programme, which develops cloud-based hosting for defence applications.

The Department for Business, Energy and Industrial Strategy (BEIS) is the second largest contributor to whole-life cost with a total of £115.4 billion spread across 10 projects. Many of these involve nuclear energy or nuclear decommissioning.

The Department for Transport (DFT) is the third largest contributor with £97.1 billion in whole-life costs. In the year, eight projects joined the portfolio, of which five were Network Rail.

Overall MOD, BEIS and DFT account for 75% of the whole-life cost of the portfolio, and 42% of the total number of projects.

Figure 5: Breakdown of projects on the GMPP by government department

	Number of projects	Total budgeted whole-life cost (£bn)
MOD	33	143.6
DH	18	17.6
DFT	17	97.1
MOJ	13	8.5
HO	11	8.1
BEIS	10	115.4
DWP	7	23.1
CO	6	1.4
HMRC	6	9.3
DFE	5	19.8
DEFRA	4	5.7
DCMS	4	3.4
FCO	4	0.3
NCA	2	0.5
DFID	1	0.4
CPS	1	0.1
ONS	1	0.9

The Government Major Projects Portfolio continued

Progress this year

The Delivery Confidence Assessment (DCA) is the IPA's evaluation of a project's likelihood of achieving its aims and objectives, and doing so on time and on budget.

We continue to use a standard five-point scale ranging from green, where successful delivery is highly likely, to red, where delivery appears unachievable unless significant, urgent and often substantial action is taken.

The data in this year's report provides a snapshot of how well projects are progressing as of September 2016. The data shows that of the 143 projects in the GMPP, worth a total of £455.5 billion in whole-life cost, only four, worth a combined £2.4 billion (0.5%), were rated red. Over 60% of projects by whole-life cost were rated amber or better.

By consolidating DCAs, we are able to identify those categories that are performing well. For example, this year 68% of infrastructure projects by whole-life cost have a DCA rating of amber or better. Eight are currently rated amber/red, and only two are red. The two red projects represent just 0.3% of the whole-life cost of this category.

Since the last Annual Report, the total number of projects has remained the same, but the number rated red or amber/red has reduced from 44 to 38, thus continuing the improvement from 48 seen the previous year. At the same time, there has been a reduction in the number of green and amber/green rated projects, from 39 to 28. However, the picture is not straightforward as projects will have joined and left the portfolio as well as changed DCA during the course of the year.

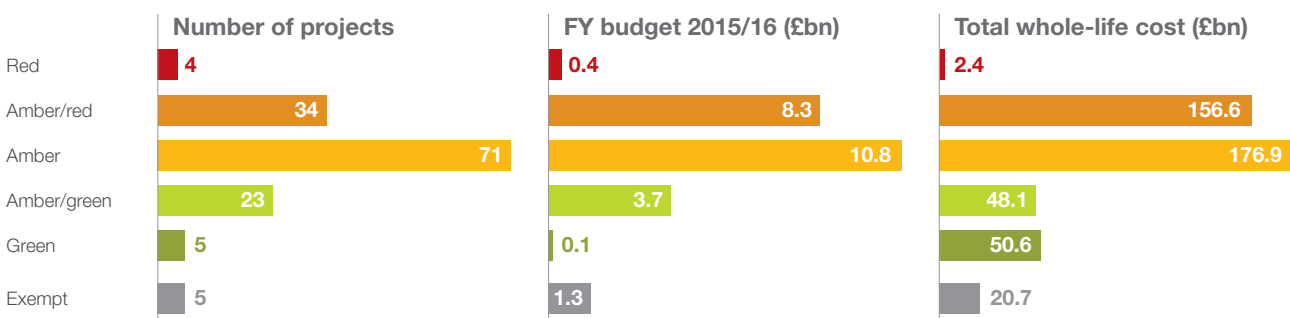Figure 6: **Summary of DCAs for projects on the GMPP[2]**

	Number of projects	FY budget 2015/16 (£bn)	Total whole-life cost (£bn)
Red	4	0.4	2.4
Amber/red	34	8.3	156.6
Amber	71	10.8	176.9
Amber/green	23	3.7	48.1
Green	5	0.1	50.6
Exempt	5	1.3	20.7

Figure 7: **DCA by project category**

	Red	Amber/red	Amber	Amber/green	Green	Exempt	Reset
Government transformation and service delivery	1	11	23	5			
ICT		9	17	8	2	2	1
Infrastructure and construction	2	8	16	7		3	1
Military capability	1	6	15		3	2	
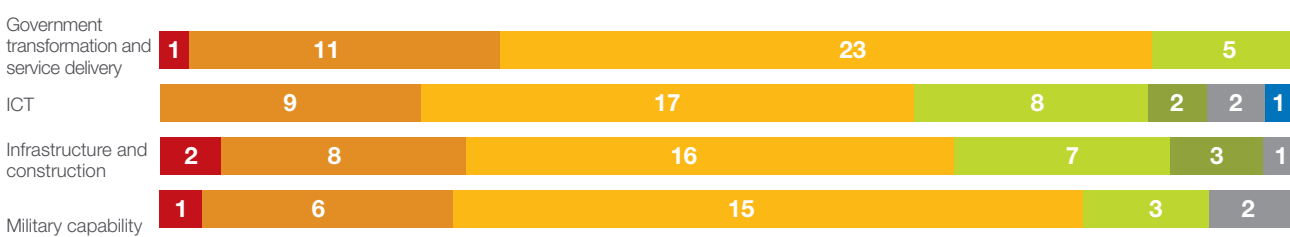
Figure 8: **DCA analysis of projects 2013-2017**

	Red	Amber/red	Amber	Amber/green	Green	Exempt		
AR 2013	8	23	58	49	32	21		
AR 2014	4	37	63	54	17	15	1	8
AR 2015	8	40	64	44	28	4		
AR 2016	6	38	55	29	10	5		
AR 2017	4	34	71	23	5	5	1	
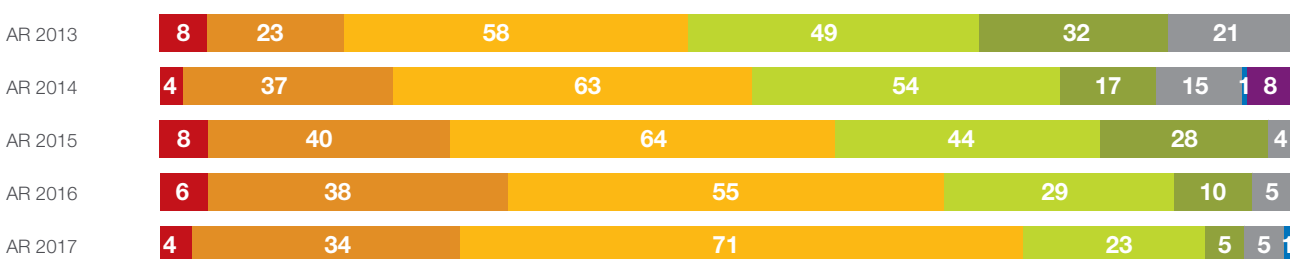
2 This chart does not include the one ICT project that has been reset this year.

Progress over time

Delivery confidence tends to improve over the time a project spends on the GMPP, as evidenced by an improved DCA rating. This is because when a project comes on it will be at an early stage of development, and so more likely to have a higher number of inherent risks. By being on the GMPP, projects are able to access greater levels of support, such as independent expert assurance reviews, with the aim of addressing risks and improving the probability of success.

Collecting data consistently over the past five years has enabled the IPA to track the progress of a particular tranche of projects over time. Based on currently available data, we are seeing signs of steady improvement in the delivery of government projects. We have seen a minor reduction in amber/red projects since last year's report, reflecting the overall improvement of projects as they progress through delivery.

In the majority of cases, once a project has reached the point of likely delivery and is suitably mature in its delivery lifecycle, it would then be in a position to be considered ready to exit the GMPP. One example of these projects was the Office for National Statistics European Systems of Accounting Project, which left the GMPP in Q4 2015-2016 having gradually improved its DCA over its lifecycle. At its last IPA assurance review, this project was judged to be on track to deliver, with low levels of residual risk, and assurance activity was able to be passed to the department.

When looking at the tranche of 70 projects that have been on the GMPP since 2014, there is an overall trend of steady improvement, with a gradual reduction in the number of amber/red or red ratings.

When we look at the 76 projects expected to complete by 2020, 18 are rated red or amber/red, while 39 are rated amber, and 18 amber/green or green. This reflects the assessment that a significant portion of the tranche is currently on track to deliver, recognising that some projects will need more support and oversight than others to maximise their chances of successful delivery.

Figure 9: Comparison of DCA ratings from 2014-2017, tranche of 70 projects

	Red	Amber/red	Amber	Amber/green	Green	Exempt	Reset
AR 2014	2	21	23	12	3	8	1
AR 2015	4	15	28	17		3	3
AR 2016	2	17	29	18	1	3	
AR 2017	2	12	35	14	5	2	
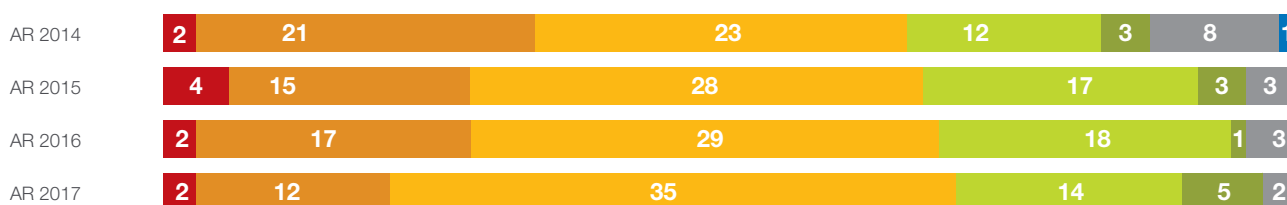
Figure 10: DCA ratings for tranche of 76 projects expected to complete by 2020

Red	2
Amber/red	16
Amber	39
Amber/green	14
Green	4
Reset	1

Red   Amber/red   Amber   Amber/green   Green   Exempt   Reset   No DCA
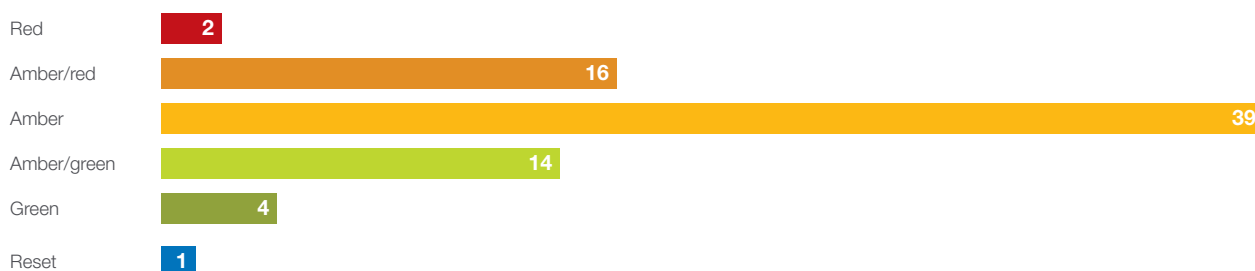
Leaving the GMPP

Projects leave the GMPP for a variety of reasons. In the majority of cases, it is because they have been delivered effectively, and last year 30 of the 36 projects leaving the GMPP did so with a DCA of green, amber/green or amber. Five left with a DCA of amber/red, and one with a DCA of red.[3]

An example of a project that left the GMPP this year with a green DCA was the DWP's New State Pension Project, which enabled citizens to claim and receive their correct pension entitlement under the Pensions Act 2014. The project team were asked to deliver a year ahead of the original target of April 2017, which they did successfully by changing the approach and the way the new system was delivered.

Another example is Thames Tideway Tunnel, a brand new 15-mile sewer which will help clean up the River Thames in London. Construction started in 2016 and is due to complete in 2023. The programme left the GMPP with an amber/green rating – a significant improvement from its amber/red rating the first time it featured in 2013/14.
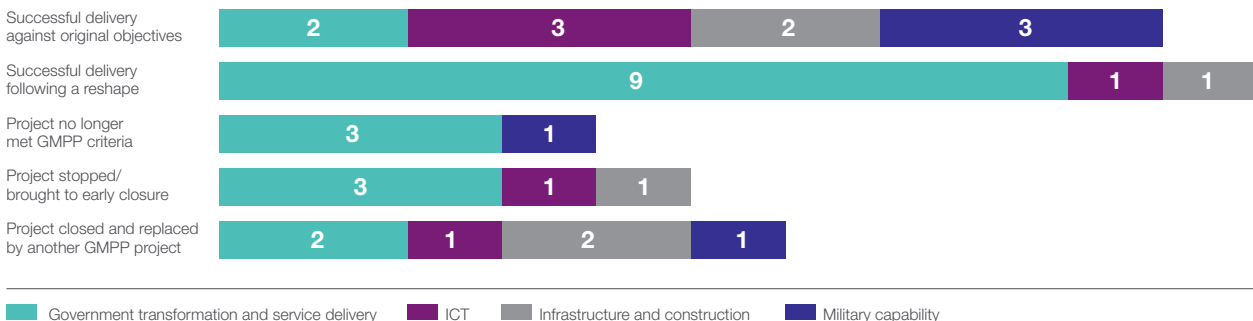
Projects also leave the GMPP for other reasons: four did so as they no longer met the criteria for inclusion (with departmental assurance teams continuing to provide assurance), and six changed status as they were either merged with or replaced by another project on the GMPP. This is recognised practice as departments merge or compartmentalise projects as required to ensure effective delivery.

A further five projects left the GMPP because they were stopped altogether. This can happen for a number of reasons, including changes in government priorities. One example is the DECC Carbon Capture and Storage Commercialisation Programme, which was cancelled as funding was reprioritised toward other initiatives.

Figure 11: DCA comparison of projects that left and joined the GMPP this year

AR 2017 joiners: 2 | 13 | 19 | 2

AR 2017 leavers: 1 | 5 | 10 | 7 | 13

Figure 12: Breakdown of reasons for leaving the GMPP, by project category

Successful delivery against original objectives: 2 | 3 | 2 | 3

Successful delivery following a reshape: 9 | 1 | 1

Project no longer met GMPP criteria: 3 | 1

Project stopped/ brought to early closure: 3 | 1 | 1

Project closed and replaced by another GMPP project: 2 | 1 | 2 | 1

Legend: Government transformation and service delivery | ICT | Infrastructure and construction | Military capability

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3 The red-rated project that exited during the period was stopped and superseded by a new programme. The exit was agreed jointly between IPA and the relevant department.

CASE STUDY: DCMS Super Connected Cities Programme (SCCP)

The Department for Culture, Media and Sport's Super Connected Cities Programme (SCCP) is an example of a project that was delivered effectively this year and left the GMPP. Its main objective was to improve the digital infrastructure of UK cities by increasing the availability of fast broadband. It extended the Connection Voucher Scheme – from 22 to 50 cities – so that 42,500 small businesses had access to faster broadband.

The SCCP exceeded its delivery targets, completing on time and almost 25% under budget. The project enabled many thousands of businesses and third-sector organisations to reap the benefits of an improved broadband connection, and an impact study found it had successfully removed a key barrier for small businesses.[4]

The IPA supported DCMS with this project while on the GMPP by providing:

- Five independent expert assurance reviews throughout the project's lifecycle
- Commercial support during the project's initiation
- Training for the project team.

"Assurance reviews throughout the lifecycle of the programme by the IPA helped to shape the approach to the programme, and kept focus on the importance of having the programme's objectives at the forefront of our minds."

Dean Creamer
SCCP Programme Director

Above: Bristol, a super connected city.

Project leadership

Projects are delivered by a cadre of over 10,000 project delivery professionals across government. They are responsible for delivering some of the largest and most complex projects anywhere in the world.

We know that great project leaders deliver great projects. One of the IPA's main priorities is to build capability in government by leading the project delivery profession. We do this by shaping career pathways, setting standards for how professionals deliver projects, and by providing world-class project leadership programmes such as the Major Projects Leadership Academy (MPLA). More than 400 professionals have enrolled on the MPLA and 250 have graduated to date.

This year's report shows we are seeing consistency and continuity in project leadership across government, and perhaps early signs of a more encouraging trend: a reduction in the turnover of project leaders. The average turnover of Senior Responsible Owners (SROs) and Programme Directors (PDs) recently reduced to 8% a quarter, down from a previous consistent average of 11%. If this trend continues, it will mean leaders spend longer – around three to three-and-a-half years on average – in post on projects.

While some turnover is inevitable, we seek to minimise frequent changes in leadership and achieve continuity and consistency where possible, so as to minimise disruption to delivery. We are also supporting our project delivery community in innovative ways through such initiatives as the Project Delivery Capability Framework.

Figure 13: Turnover of SROs and PDs

Percentage turnover of SROs and PDs — Number of projects

— Programme/Project Directors — Senior Responsible Owners — Number of projects
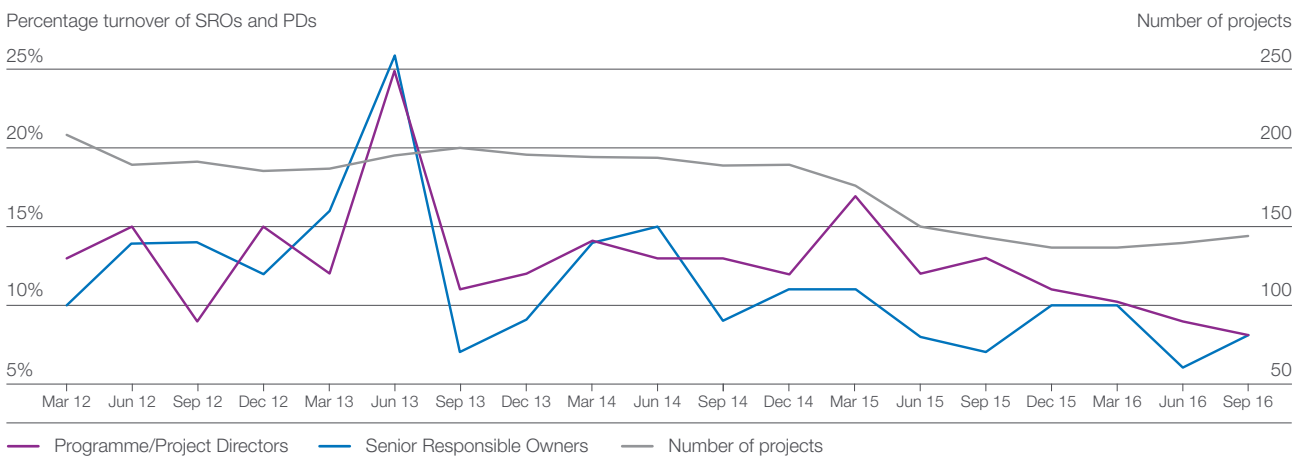
Project Delivery Capability Framework[5]

In May 2017, the IPA, in collaboration with government departments, launched a new Project Delivery Capability Framework – a tool that provides a common language and perspective on jobs, grades and skills for the project delivery profession.

The Framework comprises three main elements: career pathways and a common set of job roles; technical and behavioural competencies aligned to these roles; and links to development opportunities specific to job roles.

The aim of the Framework is to drive consistency in language, recruitment and job specification across government, and to ensure the right people with the right skills are working on the right projects.

Ultimately, it will help project delivery professionals manage their own careers more effectively, and enable them to move across departments and up into project leadership roles.

5 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/613477/project_delivery_capability_framework.pdf

Improving our delivery of major projects
Setting up projects for success

Evidence shows that success or failure of a project is very often determined by how it is set up. A well-initiated project has a good chance of succeeding; a poorly set up one is almost guaranteed to fail.

The National Audit Office[6] and the 2010 Infrastructure Cost Review[7] both noted that projects continued to encounter problems in their early stages, particularly when project timelines and costs are publicly announced before they have been properly tested for deliverability.

More recently, the Public Accounts Committee (PAC)[8] emphasised the importance of understanding the interventions required at the start of projects, and recommended the IPA identify how it can support projects in their early stages.

Consequently, one of the IPA's key priorities is to help set up projects for success. It is our aim to help any new or emerging initiatives, or potential future projects on the GMPP, to be set up in the right way. We do this by influencing the policy environment, deploying our expertise as early as possible, developing useful tools and standards to ensure realistic project objectives are established from the outset, and helping projects access the resources they need.

We encourage all departments to work with the IPA at the early stages of their projects, and to draw upon the IPA's following products and services.

Early Development Pool

The IPA has increased its capacity to engage projects or proposed initiatives at the very early stages of development – usually when departments have identified them as being of potentially significant complexity and/or impact.

The IPA provides a tailored support offer to match the needs of initiatives in their early development phase. These tools can include:

- Project Initiation Routemap
- Critical Friend Review
- Project Validation Review
- Bespoke workshops to address key challenges, such as governance or risk management
- Specialist advice.

Through this early phase of engagement, there is no formal reporting requirement. Entry onto the GMPP is discussed and agreed with departments when projects are sufficiently developed.

Specialist advice

The IPA deploys a range of commercial and project specialists who have experience and expertise in setting up projects and putting in place the governance necessary to enable effective decision-making from the start. We deploy these resources within departments, policy teams and major project teams to provide strategic advice.

Because the IPA provides objective advice on delivery, we are able to ask pertinent questions and facilitate in-depth exploration of delivery issues ahead of these issues becoming critical. This enables delivery to be more soundly based, and better grounded in past experience and market knowledge.

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6 https://www.nao.org.uk/report/delivering-major-projects-in-government-a-briefing-for-the-committee-of-public-accounts/

7 https://www.gov.uk/government/publications/infrastructure-cost-review

8 http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/public-accounts-committee/delivering-major-projects-in-government/oral/27233.html

PROJECT VALIDATION REVIEW CASE STUDY: MOJ Digital and Change Programme

The Ministry of Justice's Digital and Change programme was designed to modernise ICT provision for prison staff and prisoners. An initial Project Validation Review was carried out in order to assess the project's viability. The review team saw a worthwhile programme that supported the government's commitment to reduce reoffending and improve prisoner and staff safety and security.

As part of this process, the review team highlighted best programme management practices to significantly improve the clarity and management of objectives. Consequently, a structured programme for the project was formally established, and strategic products such as a clear blueprint and vision were developed by the project team early on. The review also enabled more coordinated planning, risk and dependency management, and the team subsequently established a governance framework and cohesive strategic business case.

When the project comes onto the GMPP it will be subject to rigorous independent assurance, provided by experts who have not previously engaged with it.

"The Project Validation Review provided a useful process to enable a number of separate projects to be pulled together into a cohesive programme. It enabled business, technical and delivery representatives to understand the challenges and opportunities before setting off on a challenging change programme."

Bryan Clark
Senior Responsible Owner, Her Majesty's Prison and Probation Service (HMPPS)/Ministry of Justice

Project Initiation Routemap

A key tool which has been developed by the IPA as part of the Early Development Pool offering, in collaboration with academia and industry, is the Project Initiation Routemap. The Routemap is particularly relevant to large infrastructure and construction projects at the early stages of development, and helps sponsors align the expected project complexities with the capabilities required for delivery. The tool incorporates a large library of best practice solutions based on common

challenges, and draws upon a pool of external experts to help facilitate the process.

More than 20 major projects across the rail, road, regeneration, transformation, water, flood defence and energy sectors have now undergone a Routemap exercise. During 2016-17, 10 applications of the Routemap were completed with public, regulated and local authority stakeholders.

PROJECT INITIATION ROUTEMAP CASE STUDY: DEFRA and EA Six-Year Capital Settlement

During 2014, DEFRA and the Environment Agency (EA) proposed extending the EA's capital programme from an annual to a six-year settlement. To apply best practice learning to the EA's existing plan for this proposal, the IPA was commissioned to carry out a Routemap exercise. This exercise focused on governance, commercial arrangements, vision, scope and requirements. The independently facilitated exercise brought together all parties who could make this transformation a success (HMT, DEFRA, EA and the supply chain) to create a single plan in which everyone had confidence from the outset. The exercise helped secure agreement for the six-year settlement, which was approved and announced in the Autumn Statement 2014.

"The IPA Routemap exercise proved very helpful in identifying the improvements needed, and providing a process that all were comfortable with. Securing the six-year funding settlement is a very positive step forward. It provides a credible basis on which to negotiate funding contributions and consult with communities. As a result, we will greatly reduce the risk of flooding."

John Curtin
Executive Director of Flood & Coastal Risk Management Environment Agency

Looking ahead

The data in this report shows that government continues to deliver a varied, complex and challenging portfolio of projects to provide a wide range of public benefits, including better infrastructure, effective services for citizens, and ongoing national security.

Delivery of major infrastructure and construction projects continues to be a priority and, with a record £222 billion whole-life cost in this category, we should expect this to be a focus for delivery in the coming years. Transformation projects will also continue to make up a key part of the GMPP as government services are developed and updated to provide efficiency and quality for users.

Successful project delivery will become even more important in the context of Britain's exit from the EU. Projects and programmes will be the vehicles to deliver much of the essential work of making systems and services ready at the point of exit. Departments are reviewing their portfolios to assess the impact of EU exit, and the IPA will continue to provide support in setting up these projects for success.

Above: DFT A14 road scheme

Statistical annexes

Annex A
Explanation of DCA colour ratings

The Delivery Confidence Assessment (DCA) is the IPA's evaluation of a project's likelihood of achieving its aims and objectives, and doing so on time and on budget.

Green
Successful delivery of the project on time, budget and quality appears highly likely and there are no major outstanding issues that at this stage appear to threaten delivery significantly.

Amber/Green
Successful delivery appears probable; however, constant attention will be needed to ensure risks do not materialise into major issues threatening delivery.

Amber
Successful delivery appears feasible but significant issues already exist, requiring management attention. These appear resolvable at this stage and, if addressed promptly, should not present a cost/ schedule overrun.

Amber/Red
Successful delivery of the project is in doubt, with major risks or issues apparent in a number of key areas. Urgent action is needed to address these problems and/or assess whether resolution is feasible.

Red
Successful delivery of the project appears to be unachievable. There are major issues with project definition, schedule, budget, quality and/or benefits delivery, which at this stage do not appear to be manageable or resolvable. The project may need re-scoping and/or its overall viability reassessed.

Reset
A significant change to a project's baseline which involves a business case refresh or change.

Annex B
Key of department names

BEIS	Department for Business, Energy and Industrial Strategy
CO	Cabinet Office
CPS	Crown Prosecution Service
DCLG	Department for Communities and Local Government
DCMS	Department for Culture, Media and Sport
DEFRA	Department for Environment, Food and Rural Affairs
DFE	Department for Education
DFID	Department for International Development
DFT	Department for Transport
DH	Department of Health
DWP	Department for Work and Pensions
FCO	Foreign and Commonwealth Office
HMRC	Her Majesty's Revenue and Customs
HMT	Her Majesty's Treasury
HO	Home Office
MOD	Ministry of Defence
MOJ	Ministry of Justice
NCA	National Crime Agency
ONS	Office for National Statistics

Changes since last year reflect the formation of the Department for Business, Energy and Industrial Strategy (BEIS) following the amalgamation of Business Innovation & Skills (BIS) and Department for Energy and Climate Change (DECC).

Annex C
Project DCA heatmap over Annual Report years

The table below reflects the DCAs of the 143 projects that were used in the Annual Report analysis, as well as the previous DCAs if they were included in previous Annual Reports.

AR 2013	AR 2014	AR 2015	AR 2016	AR 2017	Project name	Department
					The Francis Crick Institute (formerly UKCMRI)	BEIS
					Urenco Future Options	BEIS
					Geological Disposal Facility Programme (GDF)	BEIS
					Smart Meters Programme	BEIS
					Hinkley Point C – FID-enabling	BEIS
					Magnox & RSRL PBO Competition	BEIS
					Local Land Charges (LLC) Programme	BEIS
					New Polar Research Vessel	BEIS
					Sellafield Model Change (SMC)	BEIS
					Heat Networks Investment Project	BEIS
					Government Office Hubs Programme	CO
					Commercial Capability Programme	CO
					FOXHOUND Programme	CO
					GOV.UK Verify	CO
					ISSC2	CO
					New Property Model Programme	CO
					ICT Procurement Programme	CPS
					Broadband Delivery Programme	DCMS
					The Tate Modern Project	DCMS
					Blythe House Programme	DCMS
					700 MHz Clearance Programme	DCMS
					CAP Delivery Programme (formerly the Future Options Programme)	DEFRA
					Thames Estuary Asset Management 2100 (Team 2100)	DEFRA
					Thames Tideway Tunnel	DEFRA
					DEFRA UnITy programme	DEFRA
					Student Loan ICR-M	DFE
					Priority School Building Programme - Private Finance	DFE
					30 Hours Free Childcare Project	DFE
					Priority School Building Programme (PSBP)	DFE
					Apprenticeships Reform Programme	DFE
					St Helena Airport	DFID
					Crossrail	DFT
					Shared Services Futures Project	DFT
					High Speed Rail Programme	DFT
					Intercity Express Programme (IEP)	DFT
					Search & Rescue Helicopters (SARH)	DFT
					Thameslink	DFT
					A14 Cambridge to Huntingdon Improvement Scheme	DFT
					Rail Franchising Programme	DFT
					Lower Thames Crossing	DFT
					Airport Capacity Programme	DFT
					A303 Amesbury to Berwick Down	DFT
					East West Rail Programme (Western Section)	DFT

AR 2013	AR 2014	AR 2015	AR 2016	**AR 2017**	Project name	Department
					Great Western Route Modernisation (GWRM) including electrification	DFT
					Midland Main Line Programme	DFT
					North of England Programme	DFT
					South West Route Capacity	DFT
					M20 Lorry Area	DFT
					Electronic Prescription Service (EPS) Release 2	DH
					CSC Local Service Provider	DH
					PHE Science Hub	DH
					General Practice System of Choice (GPSoC) Replacement	DH
					Liaison and Diversion Programme	DH
					National Pandemic Flu Service	DH
					National Proton Beam Therapy (PBT) Service Development Programme	DH
					Childhood Flu Immunisation Programme	DH
					NHS e-Referral Service	DH
					Health and Social Care Network	DH
					NHSmail2	DH
					NHS Electronic Staff Record Reprocurement Project	DH
					NHS Pension Re-let Project	DH
					100,000 Genomes Project	DH
					Visitor and Migrant NHS Cost Recovery Programme	DH
					National Data Services Development Programme	DH
					Procurement Transformation Programme	DH
					NHS UK	DH
					Automatic Enrolment Programme	DWP
					Universal Credit Programme	DWP
					Fraud, Error and Debt Programme	DWP
					Application Development Maintenance and Support (ADMS)	DWP
					DWP People and Locations Programme	DWP
					Hosting	DWP
					Work and Health Programme	DWP
					Abuja: New Office and Residence	FCO
					UKERP	FCO
					Movement of Personal Effects Contract	FCO
					Technology Overhaul	FCO
					Tax-Free Childcare	HMRC
					Columbus (formerly Aspire Replacement Programme)	HMRC
					Customs Declaration Services (CDS) Programme	HMRC
					Building Our Future Locations Programme	HMRC
					Making Tax Digital for Individuals	HMRC
					Making Tax Digital for Business	HMRC
					Disclosure & Barring Service Programme	HO
					Communications Capabilities Development Programme	HO
					Emergency Services Mobile Communications Programme (ESMCP)	HO
					Immigration Platform Technologies (IPT)	HO
					Adelphi Modernisation Project	HO
					Digital Services at the Border	HO
					Technology Platforms for Tomorrow (TPT)	HO
					Home Office Biometrics Programme	HO
					Cyclamen Project	HO
					Smarter Working Programme	HO
					National Law Enforcement Data Programme	HO

AR 2013	AR 2014	AR 2015	AR 2016	AR 2017	Project name	Department
		Exempt	Exempt	Exempt	Cryptographic Enabling Services	MOD
Amber	Amber/green	Amber/green	Amber/green	Amber	A400M	MOD
Amber/green	Amber/green	Green	Amber/green	Amber/green	Airseeker	MOD
Exempt	Exempt	Green	Amber/green	Amber	Crowsnet	MOD
Exempt	Exempt	Amber	Amber/green	Amber/red	Marshall	MOD
Green	Green	Amber/green	Amber/green	Amber/red	Maritime Sustainment Programme	MOD
Exempt	Exempt	Exempt	Exempt	Exempt	Nuclear Warhead Capability Sustainment Programme	MOD
Red	Red	Amber/red	Amber	Amber	Queen Elizabeth Programme	MOD
Exempt	Exempt	Amber/green	Amber/green	Amber/green	Spearfish Upgrade (SFU)	MOD
Exempt	Exempt	Exempt	Exempt	Exempt	Type 26 Global Combat Ship	MOD
Red	Amber/red	Amber/green	Amber	Amber	Watchkeeper	MOD
Amber	Amber/red	Amber/green	Amber/green	Amber	Wildcat	MOD
Amber	Exempt	Amber	Amber	Amber	Logistics Commodities Services Transformation	MOD
Amber	Amber/green	Amber	Amber	Amber/green	New Employment Model	MOD
Amber	Amber	Amber/red	Amber/red	Amber/red	Astute Boats 1-7	MOD
Amber	Amber	Amber	Amber	Amber/red	Complex Weapons	MOD
Green	Amber	Amber	Amber	Red	Core Production Capability	MOD
Amber/green	Amber	Amber	Amber	Amber	Lightning Programme	MOD
Exempt	Amber/green	Amber/red	Amber/red	Amber/red	Successor SSBN	MOD
	Amber/red	Amber/green	Amber/red	Amber	Carrier Enabled Power Projection (CEPP)	MOD
	Amber/green	Red	Amber/red	Amber	Army Basing Programme	MOD
	Amber	Amber/red	Amber	Amber	The Materiel Strategy	MOD
			Amber	Amber	Armoured Cavalry 2025	MOD
			Amber	Amber/red	Armoured Infantry 2026	MOD
			Amber/red	Green	Army Reserve Development Programme	MOD
			Amber/red	Amber/red	Contracting, Purchasing and Finance	MOD
			Amber/red	Amber	Future Beyond Line Of Sight	MOD
			Amber	Amber	New Style of Information Technology (Base)	MOD
				Exempt	New Style of Information Technology Deployed	MOD
				Amber	Armour MBT 2025	MOD
				Amber/red	Land Environment Tactical Communication and Information Systems	MOD
				Amber	Maritime Patrol Aircraft	MOD
				Amber	Protector	MOD
Amber	Amber/red	Amber	Red	Amber/red	Electronic Monitoring	MOJ
Amber	Amber	Amber	Amber/red	Amber/red	Future IT Sourcing Programme (FITS)	MOJ
Amber/green	Amber	Amber	Amber	Amber/green	Integrated Delivery Programme	MOJ
Red	Amber/red	Amber	Amber/red	Amber/red	Shared Services (ISSC2) Evolve	MOJ
Amber	Amber	Red	Amber	Green	NOMS ICT Services (NIS) Programme	MOJ
	Amber/red	Amber/red	Amber/red	Amber	CJS Common Platform	MOJ
	Green	Green	Amber	Amber	Berwyn Programme	MOJ
	Amber	Amber	Amber/green	Green	CJS Efficiency Programme Phase 3	MOJ
	Amber/red	Amber/red	Amber/red	Amber/red	HMCTS Reform	MOJ
			Amber/green	Amber/red	Secure Training Centre (STC) Retendering Project	MOJ
				Amber	MoJ Future FM	MOJ
				Amber	Prison Estate Transformation Programme (PETP)	MOJ
				Amber	NOMS Digital Transformation Programme	MOJ
		Amber	Amber	Amber	NCA Transformation Programme	NCA
				Amber	IT Transformation Programme	NCA
Amber/green	Amber/green	Amber/green	Amber/green	Amber	Census Transformation Programme	ONS

Legend: ■ Red ■ Amber/red ■ Amber ■ Amber/green ■ Green ■ Exempt ■ Reset

Annex D
Key to years used in charts

AR 2013   2012-13 Report.
Published in 2013 using data as at September 2012

AR 2014   2013-14 Report.
Published in 2014 using data as at September 2013

AR 2015   2014-15 Report.
Published in 2015 using data as at September 2014

AR 2016   2015-16 Report.
Published in 2016 using data as at September 2015

AR 2017   2016-17 Report.
Published in 2017 using data as at September 2016