



# THE GOLDEN THREAD

A study of the contribution of project management and projects to the UK's economy and society



Research commissioned by APM  
and undertaken by PwC Research

THE CHARTERED BODY FOR THE  
PROJECT PROFESSION

**Contents**

- 1 Foreword
- 2 Executive summary
- 4 Rationale for the study
- 5 The contribution of project management to the UK economy
- 10 Sector insight: Construction
- 12 A positive future
- 13 Challenges: experienced and expected
- 14 Sector insight: Aerospace and defence
- 16 Reflecting a global trend
- 18 Sector insight: Transport
- 20 The project professional of the future
- 22 The way forward
- 24 Authors



ORGANISATIONS PARTICIPATED  
IN THIS STUDY—  
THE FIRST OF ITS KIND.

**Acknowledgements**

APM and PwC are grateful for the contribution of the academic advisory panel who provided valuable input and challenge at each key stage of the project:

- **Professor Andrew Edkins**, The Bartlett School of Construction and Project Management, UCL
- **Dr Simon Addyman**, The Bartlett School of Construction and Project Management, UCL
- **Dr Peter Hill**, St Mary’s University, London
- **Dr Andrew Schuster**, PwC Canada

We also thank the APM Research Advisory Group for its help in formulating the research idea.

In addition, the authors acknowledge the input and assistance provided by the organisations and individuals who supplied company vignettes to illustrate and provide additional perspective to our research findings:

- **Jonathan Stewart**, Gleeds
- **Sue Millington**, Network Rail
- **Alistair Kirk**, Rolls-Royce

The contribution of the 438 organisations that took part in our UK-wide, cross-sector online survey is also acknowledged, including the 10 that agreed to share their expertise and insights in an in-depth interview.

**FOREWORD**

**The Association for Project Management (APM) attained chartered status in 2017 and announced its first chartered project professionals (ChPPs) in 2018. APM has over 28,000 individual members and more than 500 organisations participating in the Corporate Partnership Programme, making it the largest professional body of its kind in Europe.**

Project management has, in our view, too long been seen as a ‘hidden’ profession and its value under-appreciated. It is generally asserted that much of

organisational activity is undertaken through projects, yet in the UK at least, there is relatively little data on the size of project activity, the number of people involved and the economic contribution of projects – creating the impetus for this research to create a baseline of evidence. This piece of research is a major step forward to benchmark the contribution of project management to the UK economy and society. We commissioned PwC Research to conduct the research and develop a research approach to create baseline findings. →

The study attempts to:

- Provide an estimate of market size in terms of total Gross Value Added (GVA)<sup>1</sup> and total employment which is attributable to project management in the UK (that is, the number and type of economic activity of people directly working in project management and those working in the management of projects).
- Provide initial estimates of project activity by sector and region. ↓

“ A H I D D E N



P R O F E S S I O N ”

This research explores ‘projectification’<sup>2</sup> within the UK. We hope that the study will provide a benchmark for future research and generate debate to better understand the importance of the project profession. We believe this report is an important step in trying to evaluate the size and contribution of the project profession and project activity to economic and societal benefit.

We are confident that the evidence from this report will:

- Create a set of robust and evidence-based benchmark statistics around the size and contribution of the profession to the UK economy – this includes a GVA estimate range. Contribute to the greater awareness of the

project profession and the importance and value of projects and project management, particularly with academic, senior business and organisational leadership audiences.

- Generate debate over the coming years through partnerships, events and future research to create a better understanding of the value of project management and the benefits of well-managed projects.

As this is a pioneering research endeavour we do not seek to make the claim that this is the definitive set of metrics. Rather, by creating this baseline, we aim to collaborate with partners and stakeholders to develop this research as a contribution to the future of

the project profession and what we believe is project management’s increasingly important role in developing the economic and social fabric of the country.

We encourage you to contribute to this debate going forward.

**John McGlynn**  
Chair, Association for Project Management

1. GVA (Gross Value Added) is a measure of total output and income of a sector, region or activity (in this case project and programme and portfolio management or PPM) in the economy. It is the total value of services produced and is estimated by calculating the total wages and salaries bill of all employees who work in PPM (full-time and part-time).  
2. The term ‘projectification’ was coined to describe the increased use of project, e.g., in organisations or society (see e.g. Jensen, Thuesen and Gerdal, 2016 for a recent thought-piece on this).

## EXECUTIVE SUMMARY

From our ancient ancestors' building of iconic structures such as Stonehenge or the Great Pyramids to more recent challenges of the implementation of EU General Data Protection Regulation (GDPR), 'projects' have, over time, characterised human endeavour and benchmarked human progress. Undoubtedly, the 21st century has witnessed a growing recognition of the role and importance of projects to the economy, society and environment. This has led to a growth in the demand for people who have the knowledge, skills and capabilities to manage and direct projects efficiently, effectively and professionally. →

Added to this, there is increasing recognition that projects and project management are no longer confined to the traditional domains of construction and heavy engineering, and large capital investments. Instead, project management can be seen to be a 'golden thread' helping to drive quality, efficiency and the effectiveness of strategic change in all sectors and organisations, ranging from the contributions being generated within local schools and charitable organisations through to central government and major technology programmes. →

Project professionals play a vital role in shaping projects and then keeping them on track, using budgets effectively and ensuring investments are successful.

In spite of the prevalence of projects in the UK, their importance to economic stability and growth, and the fact that there are ever more people in professional project management roles, there has remained limited evidence as to the size, scale and impact of the project profession and its contribution to the UK economy. ↓

## WHY THIS STUDY?

It was against this background that APM—the chartered body for the project profession—commissioned PwC Research to undertake a robust measurement of the value of the profession in terms of GVA and jobs in the UK.

The study involved a three-phased approach and took data and insight from a number of key sources. PwC Research undertook a detailed analysis of data from existing sources including the 2017 Office of National Statistics (ONS) Labour Force Survey, the Department for Business, Energy and Industrial Strategy (BEIS) Small Business Survey, the APM Annual Salary Survey<sup>3</sup> and other published market statistics. The available data was then supplemented by a PwC survey of 438 UK businesses. To test the validity of the emergent results, in-depth discussions were held with a small group of experienced project management professionals from across the UK.

**Key findings**

The research concluded that the profession makes a significant contribution to the UK economy, with

2.13 million<sup>4</sup> full-time equivalent workers (FTEs) employed in the UK project management sector and the profession generating £156.5bn<sup>5</sup> of annual GVA. This represents 7.9<sup>6</sup> per cent of UK employment (full-time equivalent workers or FTEs) and 8.9 per cent of UK GVA.

This compares favourably with the construction industry, with a GVA of £113bn, and the financial services sector at £115bn.

As the recognition of the importance of good project management grows, so too does the level of optimism among organisations in all sectors about the future of project management. Forty per cent predict a growth in project size, and 34 per cent expect project budgets to grow over the next three years. However, this will not happen in the absence of challenges and more than half of organisations expressed concern over the perceived impact of political uncertainty in the UK. Skills and capability shortages were also cited as a potential barrier by a third of organisations.

This research has, for the first time, provided robust data on the contribution of the project profession to the UK economy. It has highlighted the significant impact of the profession across many sectors and revealed some of the challenges that are just around the corner. The aim is to generate debate and discussion among project professionals around how to take the profession out of the shadows to embark on the next stage of its evolution.

*“The project management profession is relatively new compared to some other professions, such as lawyers, teachers and doctors. However, as project management is a core competence vital to organisations in the UK, the profession is critical and will continue to grow in stature.”*

**Sandie Grimshaw**  
Partner, PwC UK

3. <https://www.apm.org.uk/resources/find-a-resource/project-management-salary-and-market-trends-survey/2018/>

4. 2.13 million is the mid-point in our estimated range of 1.68-2.57 million FTEs.

5. £156.5bn is the mid-point in our estimated range of £148-£165bn.

6. ONS Labour Force survey as a source of total UK employment. In Jan 2018 32.25 million people were employed in the UK – link below. PwC applied a ratio of 0.84 to estimate FTEs, resulting in 27.0m. Our estimate of 2.13m in PPM is 7.9% of total FTEs. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/january2018>  
Source: ONS 2017.

2.13  
MILLION FULL-TIME EQUIVALENT WORKERS (FTEs)

£156.5  
BILLION OF ANNUAL GROSS VALUE ADDED (GVA)

7.9%  
OF UK EMPLOYMENT (FTEs)

8.9%  
OF UK GVA

This study is an attempt to test an assumption: namely that the size of the project profession in the UK is significant and growing. The 21st century has continued to witness a surge in the recognition of the role and importance of projects to the economy, society and environment. As organisations strive to get to grips with the digital age, as the need to innovate becomes critical for success and as the drive for projects to become more effective and efficient escalates, the demand for projects to be designed, managed and directed by skilled project managers has become fundamental. →

In the past, project management was principally associated with the construction and engineering sectors, with fixed and other large capital projects dominating the social and economic landscape. Today, project management can be seen as a 'golden thread' running through all sectors to help drive strategic change including quality and efficiency improvements, the development of new services, organisational restructure and even sector-wide reform. Project professionals play a vital role in shaping projects and then keeping them on track, using budgets effectively and ensuring investments are successful. →

Project management is now a core competence for most organisations and sustaining this core competence depends on having the right frameworks, methods and tools, and project management professionals to use them well. ↓

## THE PROJECTIFICATION OF SOCIETY

The projectification of society has been widely studied and is well documented in North America, Australasia and Europe<sup>7,8,9,10,11</sup>. Public, private and not-for-profit organisations are striving to change and adapt in response to external drivers, including changing market conditions, such as the profound impact of the internet, and regulatory reforms such as the new GDPR. The diversity in the types of projects and rolling programmes of change within sectors is broad. For example, major public projects in the UK range from infrastructure projects such as HS2,

technology modernisation projects such as Universal Credit and transformation programmes such as NHS Digital Health. There are numerous smaller projects in all sectors and the people leading these may not be in traditional project roles. Increasingly we are seeing people with job titles such as events manager, site supervisor and contracts manager taking on a formal project management role using the tools and techniques of the project management profession. Within this context, more people are acting as project

managers in their role, with job titles varying widely across sectors and functions.

In spite of the prevalence of projects in the UK, their importance to economic growth and the fact that there are more people acting as professional project managers, there remains limited evidence as to the size, scale and impact of the project profession and its contribution to the UK economy. This study helps to provide a baseline from which to measure future growth and expansion.

7. Source: ONS 2017.  
 8. Dodson, J. (2009). The 'infrastructure turn' in Australian metropolitan spatial planning. *International Planning Studies*, 14(2), 109-123.  
 9. Schoper, Y.-G., Wald, A., Ingason, H. T., and Fridgeirsson, T. V. (2018). Projectification in Western economies: A comparative study of Germany, Norway and Iceland. *International Journal of Project Management*, 36(1), 71-82.  
 10. Ekstedt, E. (2009). A New Division of Labour: The "projectification" of working and industrial life. *Building Anticipation of Restructuring in Europe*, 65, 31-53.  
 11. del Cerro Santamaría, G. ed. (2013). *Urban megaprojects: A worldwide view*. Emerald Group Publishing Limited.

The primary aim of this study was to identify and quantify the contribution of projects and project management to the UK in terms of jobs and revenues. Using an established approach developed by PwC Research, this study has, for the first time, provided a comprehensive first estimate of the shape and size of the project profession in the UK using a tested, reliable and repeatable method. The team included researchers and economists from PwC, project management professionals from APM and an academic advisory panel. →

There are many definitions of 'a project' and 'project management' and it is critical when measuring value and impact that all contributors use the same point(s) of reference. Therefore, for the purpose of this study the research team needed to take an inclusive yet contained approach to capture the essence of the project management discipline. It is known that the role of projects is changing, and that many projects are in fact rolling programmes of change. ↓

## IMPACT

As such, the research team has defined a project as follows:

A temporary, non-routine endeavour or rolling programme of change designed to produce a distinct product, service or end result. It has a defined beginning and end, a specific scope, a ring-fenced budget, involves an identified and potentially dedicated team with a project manager in charge and is undertaken to achieve planned objectives, typically to bring about generation and creation of outputs and outcomes. It is distinct from 'business as usual'.<sup>12</sup>

The research team has defined project management as follows:

The application of processes, methods, knowledge, skills and experience to achieve the project objectives and bring about planned outputs and/or outcomes. This includes initiating the project, planning, executing,

controlling, quality assuring and closing the work of an identified and dedicated team according to a specified budget and timeframe.<sup>13</sup>

It is important to note that where this report refers to project management and the project profession it includes project, programme and portfolio management.

### Key findings

The research concludes that those employed and working as project managers – the profession – make a significant contribution to the UK economy, with approximately 2.13 million<sup>14</sup> FTEs employed in the UK project management sector and the profession generating £156.5bn of annual GVA.

This represents 7.9 per cent of UK employment (FTEs) and 8.9 per cent of UK GVA.

The research team considers these to be conservative estimates due to exclusions of potential GVA explained in the methodology section; hence, it is confident that its estimates represent at least the minimum contribution in terms of both employment levels and GVA.

*"This report demonstrates that project management is no longer a peripheral business activity but is instead at the core of what businesses do. It also shows that project management is central to the UK economy, adding billions in value and employing millions of UK workers. Project management professionals should rightfully be proud of this contribution."*

Dr Peter Hill  
 St Mary's University

12. Source: APM and PwC Research 2018.  
 13. Source: APM and PwC Research 2018.  
 14. 2.13 million is the mid-point in our estimated range of 1.68-2.57 million FTEs.

The GVA and FTE estimates are expectedly noteworthy. To illustrate, one can compare the baseline GVA result to another data point for reference – this one based on Gross Domestic Product (GDP). Although GDP and GVA measure different things, they can both be used as indicators of significance to the UK economy. The Government Major Projects Portfolio (GMPP) in 2017/18 comprised 133 large government projects. The 2017/18 budget for these projects was £27bn, which equates to about 1.9 per cent of the GDP for

that year. Although these projects are large, there are around 130 of them. Although rudimentary, one can reason how, after including all public, private and third sector projects, the percentage could increase to 8.9 per cent total.

**Strength of using GVA to quantify impact on the economy**

This study is the first of its kind for APM. In designing the research, the research team considered

methodologies used by the small number of other studies attempting to size project management. Methodologically, the approach taken was chosen as it is transparent and replicable, and employs the use of reliable data sources including the APM Annual Salary Survey and the ONS Labour Force Survey. The research team expects that confidence in the methodology and the GVA calculations will increase as future, possibly annual, calculations are repeated. ↓

O V E R V I E W O F M E T H O D O L O G Y

This research aimed to estimate the number of people (FTEs) who work in project management or equivalent job titles in the UK. By calculating their direct contribution in terms of wages and salaries, GVA could then be estimated. The research did not set out to estimate the value of all projects in the UK, nor the total number of FTEs engaged in projects, only those who have a project management role.

Our study involved a three-phased approach and took data and insight from a number of key sources. PwC Research undertook a detailed analysis of data from existing sources including the 2017 ONS Labour Force Survey, the BEIS Small Business Survey, the APM Annual Salary Survey and other published market statistics. The available data was then supplemented by a PwC survey of 438 UK businesses. To test the validity of the emergent results, in-depth discussions were held with a small group of experienced project management professionals from across the UK.

The survey included sectors and types of organisation identified by APM as representative of the project profession. As a significant element of the UK project profession is undertaken and delivered by PM professionals operating as contractors but employed by third parties, it was important to avoid double counting. To that end, the survey asked respondents to identify only those project professionals directly employed by, and paid by, their organisations, and not project professionals engaged by them but employed by third parties.

Due to the known limitations of this type of research, the research team applied a pragmatic approach and excluded very small (micro) businesses (with fewer than 10 employees) from the survey. In addition, by their nature, very large corporate organisations can be difficult to survey and so a limited sample of these were included in the survey analysis. However, in its final calculations the research team

applied a set of established and tested assumptions to reincorporate micro businesses and very large corporates. The research team's assumptions err on the side of caution, meaning that its final estimates can be viewed as conservative.

The academic advisory panel was involved at each stage of the project, from scoping and design, through to the final validation of the GVA and FTE estimates. This external scrutiny of the methodology, data sources, analytical methods and final calculations added a vital challenge function throughout. Assumptions were tested and retested, adding rigour and robustness to the final estimates.

40%

EXPECT PROJECT MANAGEMENT TO GROW IN NEXT THREE YEARS

56%

ANTICIPATE UNCERTAINTY DUE TO GOVERNMENT POLICY

2/5

OF RESPONDENTS THOUGHT QUALIFICATIONS WOULD BE VITAL FOR A CANDIDATE'S CV

82%

EXPECT DIGITAL SKILLS TO BE IMPORTANT

**GVA estimates in other professions and industries and project management GVA by sector**

UK RESEARCH AND EVIDENCE MARKET **£4.8BN**



MARKETING **£35.5BN**



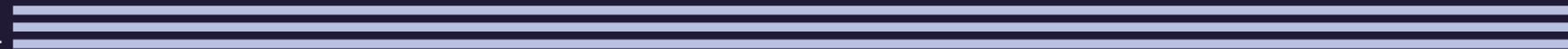
ARTS, ENTERTAINMENT AND RECREATION **£25.8BN**



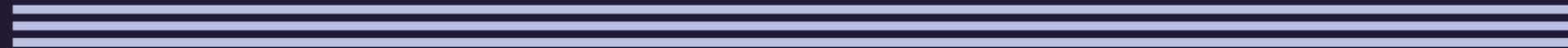
ACCOMMODATION AND FOOD **£52.9BN**



CONSTRUCTION **£113.0BN**



FINANCIAL SERVICES **£115.3BN**



PROFESSIONAL AND BUSINESSES SERVICES (INCLUDING LEGAL) **£186.0BN**



**PROJECT MANAGEMENT £156.5BN BETWEEN £148 AND £165BN 8.9% OF TOTAL GVA**



**Sectoral comparison**

The financial and professional services, construction and healthcare make up almost two thirds of the total project management GVA. The size of the GVA in these sectors is driven by the size of these sectors and the size of projects in these sectors (e.g. megaprojects such as HS2 and Crossrail). However, the project management profession (as defined in this study) is relevant to all sectors, as the report includes smaller projects such as charity fundraising events, development of learning and development programmes and livestock monitoring.

The relevance of project management to all sectors is evident when we recognise that job titles for individuals varied widely (e.g. events manager) and included specialist project management roles (e.g. contract manager).

**A variety of job titles**

Reflecting the growth of project management in sectors other than construction and engineering, and in activities other than capital projects, the research team encountered a variety of job titles over and above the traditional 'project manager' description. These job titles go beyond the traditional SOC (specific occupation) and SIC (specific industry) codes used by ONS, highlighting the value of undertaking primary research and talking directly to organisations about their project management activity. Here are some examples of the job titles provided by survey respondents:

- Events manager
- Contracts manager
- Site supervisor
- Account manager
- Campaign manager
- Festival coordinator

**Types of project**

Based on our survey, the distribution of project types varied from sector to sector. However, overall IT and digital transformations, and new product development projects tended to dominate, with 55 per cent and 46 per cent, respectively, of organisations in the research sample having undertaken these types of project in the past year. Not surprisingly, in the construction and local government sectors, fixed capital projects were the main project type undertaken.

**GVA comparison with other professions**

While the aim in this study was to create a baseline estimate of the value and contribution of the project management profession, the study also enables comparisons with other professions, industries and sectors to give an element of perspective to the research team's estimates. This demonstrates the relevant scale of projectification relative to other economic activities.

## SECTOR INSIGHT: CONSTRUCTION

Gleeds is an independent property and construction consultancy with more than 130 years' experience and an extensive global reach. In the UK, Gleeds has advised on some of the country's most prestigious projects including Crossrail and the London 2012 Olympics, and has played a pivotal role in more than £2bn of defence projects. Gleeds has 71 offices and employs over 1800 staff in 20 countries around the world.

With a UK turnover of over £100m in the UK, the company has approximately 900 employees in the UK, of which 200 (22%) are project managers. This includes a range of job titles such as site managers, contract managers, project directors and leads, project administrators and engineers. Gleeds delivers a wide range of projects, large and small, across a range of sectors, including the public sector, private sector and infrastructure, with values from under £1m to multi-billion pound programmes.

Jonathan Stewart is UK Managing Director at Gleeds, and is responsible for leading teams to deliver project and programme management, cost management, asset management and advisory services to commercial and public sector clients. Jonathan brings extensive strategic experience across programmes and projects in the public and private sectors. He combines strategic advisory and stakeholder engagement skills with business case development, programme management, procurement and delivery services to create tailored solutions for our clients. ↓

J O N A T H A N

gleeds

S T E W A R T

Jonathan wasn't surprised to hear that across the construction sector as a whole 20%, or one in 5 employees, is engaged in project management activities.

*"Construction is all about project management, so that makes perfect sense to me."*

He also wasn't surprised at the extent of the contribution of the project profession to the UK economy in terms of output and jobs, given that all sectors use project management as a way of getting things done more efficiently.

Jonathan is optimistic about the future and expects that the number of projects and the size of project budgets is set to increase.

*"The number of projects is likely to increase. You've only got to watch the news to see that we need more schools, more hospitals, more housing, more infrastructure. New forms of energy need to be created, advances in technology ... and all this requires project management ... it just goes on and on."*

Jonathan also predicts an increased focus on quality as well as time and cost, which, he believes will lead to an increase in project budgets going forward.

*"At last we are seeing a shift towards quality; I'm starting to see tenders come in with cost excluded from the evaluation criteria."*

**Jonathan Stewart**  
UK Managing Director, Gleeds

M A N U F A C T U R I N G  
£ 9 . 3 5 B N ( G V A )

A POSITIVE FUTURE

For the most part, businesses across all sectors were optimistic about the future of project management. Fifty per cent of our survey respondents expected that the number of projects they undertake would remain at a similar level over the next three years and 40 per cent predicted growth in project-based activity. This PwC analysis confirms APM's most recent salary survey, which showed rising confidence and optimism within the profession despite the wider organisational and economic challenges.

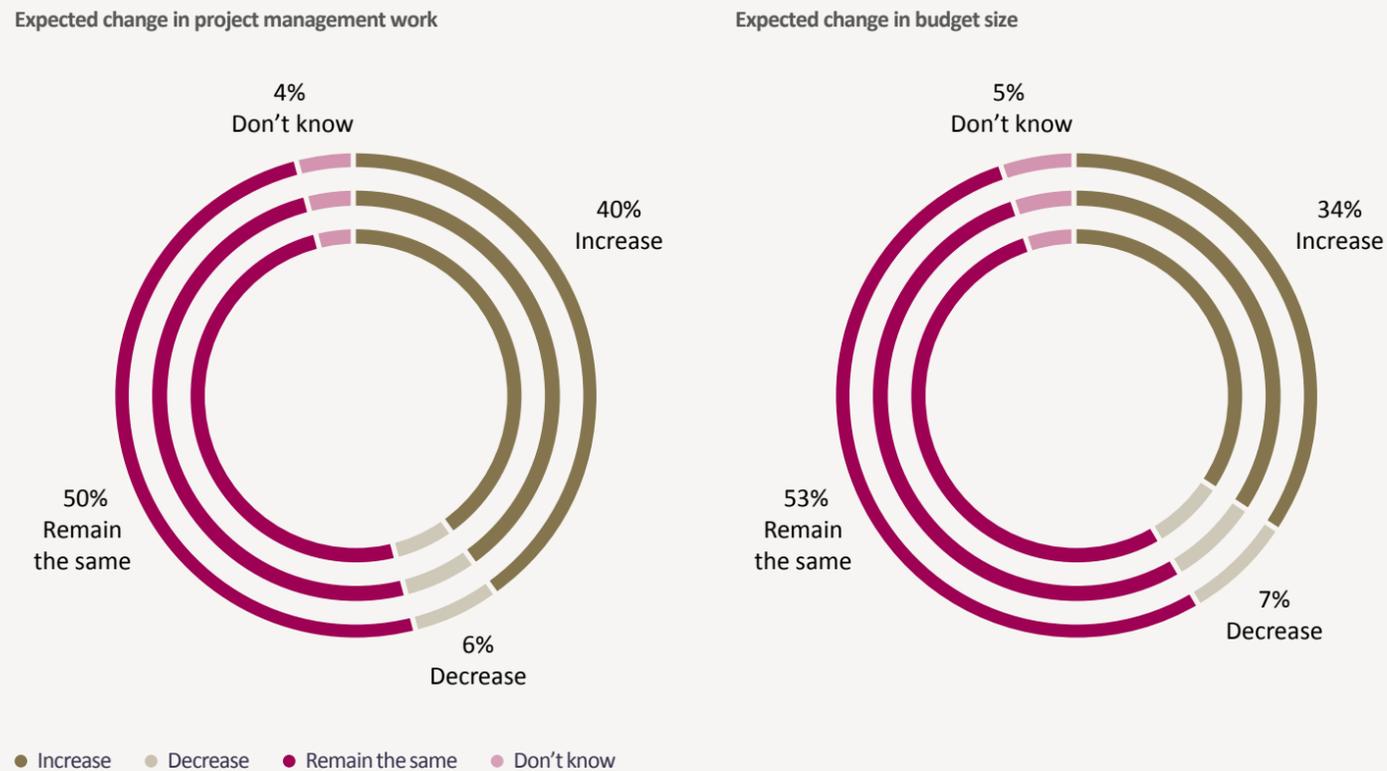
With regard to budgets, a third of those surveyed expected that the size of project budgets would increase

in the coming three years. An increased focus on value over cost, especially in the construction sector, and an expected increase in the number of international projects are predicted to be key drivers of growth, according to the expert contributors. Additionally, as awareness of the profession continues to increase, it is expected that a greater proportion of project work will gain more distinct attribution to the profession itself, giving more recognition and appreciation of the role of the project manager.

To fuel this future pipeline of professional project managers, there is a wide range of project management

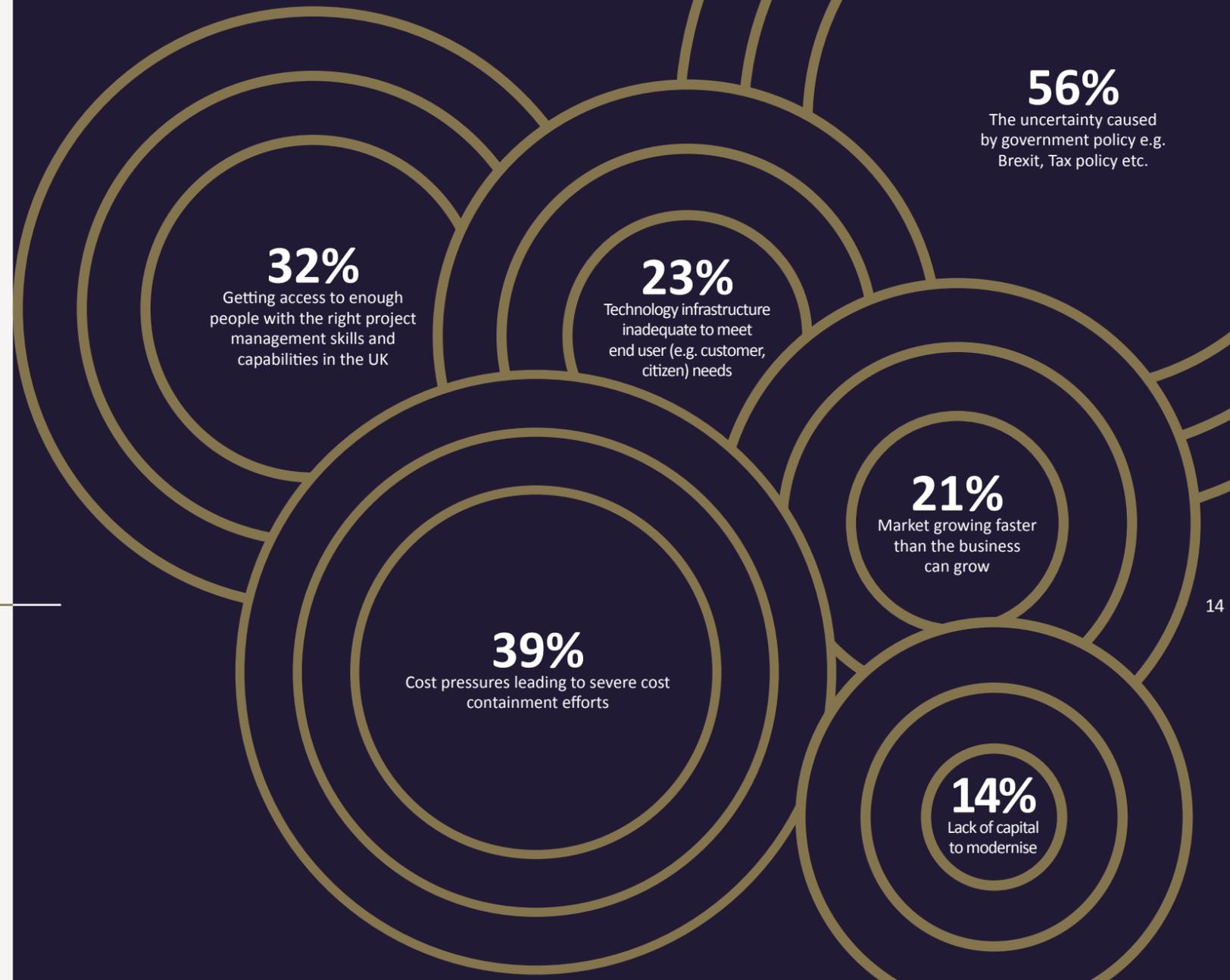
training and education courses, with a variety of associated qualifications. In higher education there are currently 46 undergraduate and postgraduate courses and modules holding APM academic accreditation, primarily in the UK<sup>15</sup>. This supports the survey data in this report, which showed that a master's degree or postgraduate certificate was the most desired educational qualification or designation that organisations sought in the project managers of the future. ↓

Figure 1: Expected changes in project management work and budget size in the next three years.



15. APM. 2018. Accredited Academic organisations. Available at: <https://www.apm.org.uk/qualifications-and-training/accreditation/accredited-academic-organisations/>.

CHALLENGES: EXPECTED



Challenges: Experienced

More than half (52 per cent) of businesses surveyed had experienced challenges associated with the uncertainty caused by government policy, with just over one third (35 per cent) ranking this as the top challenge of all those experienced in the last three years. This challenge is forecast to remain, with 56 per cent of businesses considering it to also be a challenge in the next three years.

The next most frequently cited challenges from the past three years were access to enough people with the right project management skills and capabilities in the UK (32 per cent) and cost pressures leading to severe cost containment issues (39 per cent). Thirty-two per cent and 39 per cent of businesses respectively expected these to continue to be a challenge in the next three years.

Source: PwC analysis



AEROSPACE AND DEFENCE  
£1.79 BILLION (GVA)

SECTOR INSIGHT: AEROSPACE AND DEFENCE

Rolls-Royce is a power systems provider with a substantial presence in the aerospace sector, producing both civil and defence solutions. Turnover is roughly £15bn a year (approximately £2bn in the UK) and the company employs around 50,000 employees globally, 22,500 of these in the UK.

Alistair Kirk is an experienced project manager with nearly 30 years' experience of managing projects, programmes and change initiatives across a range of organisations. During his career, Alistair has worked for several large organisations including BAE Systems, Network Rail and

HS2, where he has been responsible for overseeing various projects and programmes. Currently, Alistair is group director for programme management and operating systems for Rolls-Royce. In this role, Alistair is responsible for ensuring excellence in programme management to enable high performance in project, programme and portfolio delivery. Within this role, Alistair has three key aspects to his job: developing the overall programme management framework; putting in place professional development structures for all PPM managers and a coaching and assurance model within the business for PPM delivery. →

Of Rolls-Royce's £15bn turnover, Alistair believes that circa 10 per cent could be directly attributed to projects and project-managed work. Within the company, he estimates that approaching five per cent would be designated as project managers by role. A significantly higher number of employees would, he says, be involved in delivering projects at any one time but their job title would not designate them as such; this figure could approach 20 per cent of the global workforce. ↓

A L I S T A I R



K I R K 16

Within Rolls-Royce, there are hundreds of projects under way at any one time, varying from small local improvement projects to new product introduction projects costing hundreds of millions of pounds. In terms of effort and time commitment, Alistair estimates this portfolio can be split roughly 50:50 into new product projects and supporting technologies, capital and transformation projects.

PwC estimates that 10 per cent of those employed in aerospace and defence and 3.5 per cent of those employed within manufacturing are engaged in project management activities. Alistair feels that is broadly in line with his experience, with some possible variance due to attribution, with some people designated as

'operations' or 'engineering' despite the fact that what they do is project or project management related.

Looking to the future, Alistair expects the total spending and volume of projects across industry to increase. More specifically, he expects that when project budgets are drawn up, a greater emphasis will be placed on effective project management in the future for two reasons. First, he has seen a growing level of investment in government infrastructure projects which he expects to continue. Second, he believes that project and programme management has become more distinct as its own discipline in recent years. The result of this has been a growing recognition of the need for an increasing level of professionalism in project and programme management disciplines to lead projects.

*"Within Rolls-Royce, we now have a real focus on projects and project management being one of the core competences within the company. Part of my role is to make sure we upskill the whole organisation in project and programme management, as well as those who are specifically badged as project managers."*

**Alistair Kirk**  
Group Director, Programme Management & Operating System, Rolls-Royce

“Project delivery is at the heart of all government activity, whether it’s building roads and rail, strengthening our armed forces, modernising IT or transforming the way government provides public services to citizens. Getting these projects right is essential if we are to ensure that we build a country that works for everyone.”

**Oliver Dowden MP (Minister for Implementation)  
and Robert Jenrick MP (Exchequer Secretary to the Treasury)**

[Foreword – Annual Report on Major Projects 2017-18]

### The rise of the megaproject

It is worth noting that, since the construction of the pyramids in Egypt and the Great Wall of China, right up to the development of the production-line and the construction of nuclear power plants, so-called ‘megaprojects’ have characterised human endeavour and benchmarked human progress. Megaprojects have become bigger, more complex and costly and crucially, more integrated with the extension of existing levels of technology.

Despite their socio-economic significance, megaprojects are increasingly subject to intense media and political scrutiny. Consequently, they have developed a reputation for disappointing performance and even failure – albeit

definitions of failure can range from cost overrun and scope-creep to schedule overrun – while the ultimate performance goals are still achieved. Critics attribute failure to poor planning, inappropriate forms of contract, inflexible suppliers, excessive reshaping of project design, lack of necessary competences and deliberate misleading through the overselling and overpromising of the proposed megaproject<sup>18</sup>.

Megaprojects are of such a size and complexity that they are delivered via a network of private and public entities striving to achieve goals set by a core group of stakeholders – itself a mega-organisation comprising governments, land and resource owners, public bodies and local communities – a consensus of which is needed

to bring the megaproject to fruition. As megaprojects become bigger and more complex, the expertise of project management must spread from those charged with the management of project delivery, back up the supply chain to the very mega-organisations setting the outcome goals. Consequently, project managers’ skill sets and attributes will need to change and adapt to, for example, handling intense media and political pressure along with strategic stakeholders in ways that are akin to professional diplomats.

### Projectification of the UK economy

The increased use of projects (i.e. projectification) in the UK reflects a trend that has been witnessed elsewhere. Schoper, Wald, Ingason and Fridgeirsson forecast that growth in project management and the amount of work being run as a ‘project’ was set to continue in Western economies<sup>16</sup>. As an example, project delivery has become a core aspect of government activity through the work of the UK government’s Infrastructure and Projects Authority (IPA), whether it is building roads and rail infrastructure, strengthening the armed services, modernising IT or the digital transformation of the way services are delivered to citizens. Arguably, much of UK government policy is delivered through a wide variety of projects.

In 2018, 26 major government projects were delivered, representing a fifth of the overall Government Major Projects Portfolio (GMPP) of 133 projects with a whole life cost of £423bn (IPA annual report 2017-18.) In addition to this were a plethora of smaller scale projects, and those in early development.

It is increasingly clear that project management is at the heart of government activity and has become critical to its success. This emphasises the importance of providing a suitable skills base to support the growing demand for project management skills. This is recognised by the Infrastructure and Projects Authority (IPA) in the recent launch of the Project Delivery Capability Framework<sup>17</sup>, now being used

by all government departments to further drive project management professionalism. It outlines a common language for the profession of project management, recognises 19 different job roles and sets out defined career paths for each. In addition, the IPA has launched both leadership development programmes and fast track and apprenticeship programmes to boost the project management skills base within government.



While the UK has a strong and growing number of project professionals, the research team believes this research helps provide a better baseline for the skill sets and numbers of professionals required to support the capability for delivering projects – both large and small – in the years ahead.

16. Schoper, Y.-G., Wald, A., Ingason, H.T. and Fridgeirsson, T.V., 2018. Projectification in Western economies: a comparative study of Germany, Norway and Iceland.

17. gov.uk. 2017. Project Delivery Capability Framework. Available at: <https://www.gov.uk/government/publications/project-delivery-capability-framework-for-civil-servants>.

18. Flyvbjerg, B. (2014). What You Should Know About Megaprojects and Why: An Overview. *Project Management Journal*, 45(2), pp.6-19.

SECTOR INSIGHT: TRANSPORT

Network Rail owns and operates most of Britain’s railway infrastructure, including 20,000 miles of track, 30,000 bridges and viaducts and thousands of signals, tunnels, level crossings and points. Network Rail is a public sector company, answerable to the Department for Transport (DfT) and Transport Scotland. Its role is to provide a safe, reliable and efficient railway while growing and upgrading the network to better serve passengers and freight. In 2018, Network Rail’s annual revenue was £6,580m and it

employed 34,000 people – of whom approximately 1,500 (4.4 per cent) were project professionals. In 2018 Network Rail delivered more than 330 projects across the country, including supporting the megaprojects HS2, Crossrail and Thameslink, which collectively have a significant impact on the UK society and economy.

Sue Millington is a programme manager for Network Rail, having previously held various project professional

roles throughout her career. She has more than 25 years’ experience in the sector. Her previous work has included junction renewals, engineering projects, innovation in change management, and designing and implementing new products and processes. Sue is now responsible for the governance of project management at Network Rail. This role involves reviewing lessons learned from past projects to update employee handbooks and policy focusing on driving efficiencies, processes and standards. ↓



SUE

MILLINGTON

Sue explains that the majority of Network Rail’s business activity, around 70 per cent, is project-based. She highlights the diversity of projects, portfolios and programmes in which Network Rail is involved, ranging in size, complexity and economic value from multi-billion megaprojects such as HS2, Thameslink and Crossrail, to maintaining the majority of Britain’s railway with wear-and-tear renewals, remodelling of station areas or changing bulbs in signals, to smaller ‘back office’ projects such as the change management of processes.

been low – regardless of government spend – and it has never been high on the agenda for investment. Sue explains the tension between consistently low investment and the increase in efficiency drives which will affect project budgets. However, “there is a drive to deliver performance and you cannot do that without professional project managers,” she says.

When asked what she thought of this study’s baseline estimate of the contribution of project management to the economic output of the UK and number’s employed, Sue’s reaction was:

*“These figures are impressive as they highlight the importance of the role, of being a project manager in itself. There are probably a lot more people who are project managers that are not included in that FTE figure. It shows how important it is, the value of a good project manager on a project makes a massive difference, so it’s interesting to see the figures..”*

**Sue Millington**  
Programme Manager, Network Rail

Looking to the future, Sue predicts that project budgets in the rail industry will be slightly lower in three years’ time, driven by year-on-year efficiency drives. Historically, investment in the railway has

TRANSPORT  
£ 3 . 5 6 B N ( G V A )



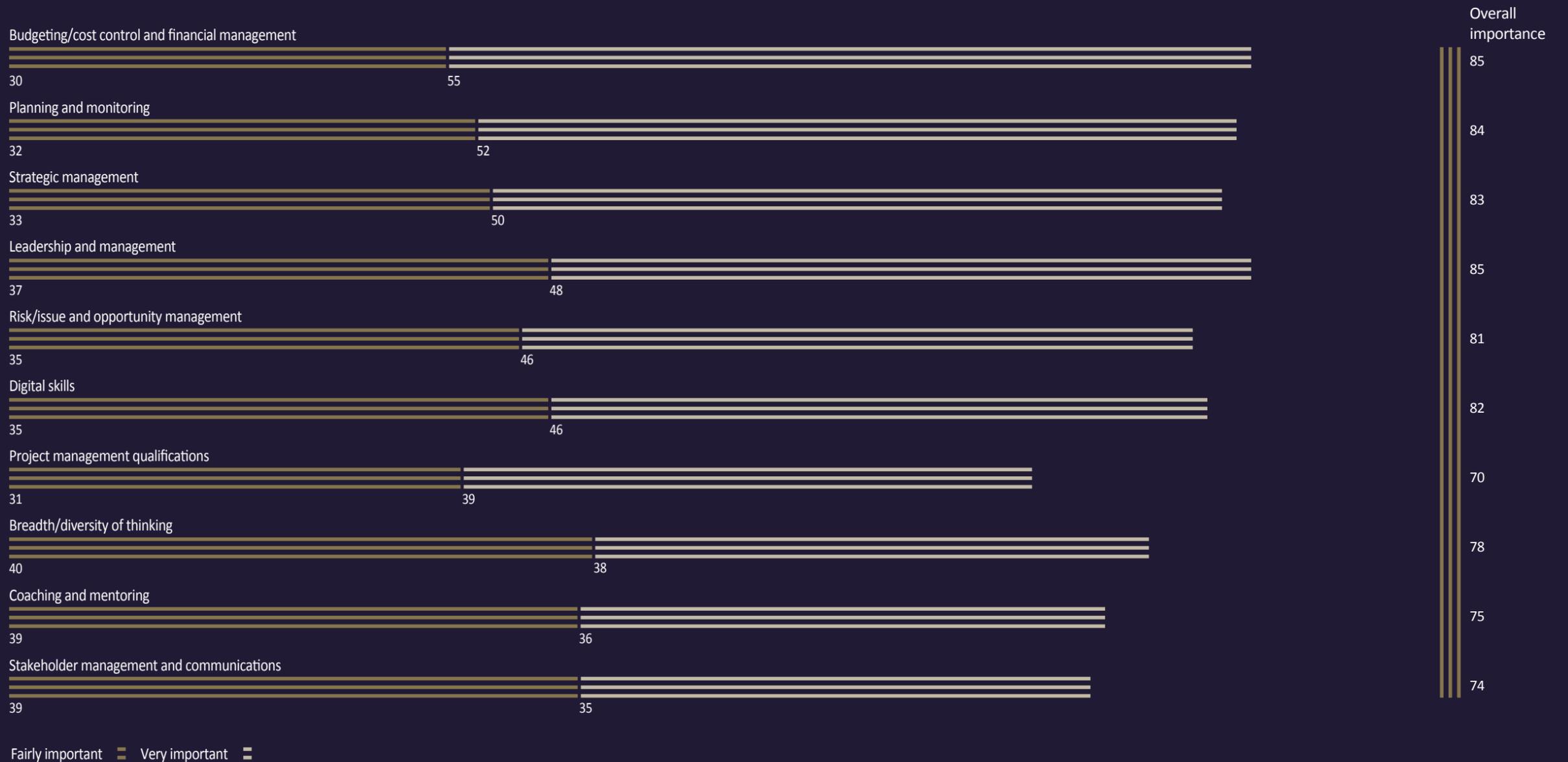
The project professional of the future will require a diverse and flexible skill set to be able to cope with future challenges. Of particular importance are leadership and management skills, budgeting and financial management, planning and monitoring, along with strategic management, digital skills and risk/opportunity management. All of these skills were rated as important by more than 80 per cent of businesses.

Organisations will require a mix of traditional business and management skills, technical and digital skills. The Future of Project Management (FoPM) study<sup>19</sup> confirms this and also addresses how increased globalisation and more diverse workforces mean that project managers may also require new skill sets to manage the shift in flexible arrangements, including virtual workforces.

With businesses placing an internal focus on upskilling project managers as the project profession becomes an increasingly bigger part of their organisation, the above data will provide an important benchmark for the future.

**(Figure 2) Importance of skills required by the project manager of the future**  
All numbers are in percentages (%)

Two fifths of respondents stated that project management qualifications were a very important skill for a potential candidate's CV, so it is not surprising that 37 per cent of those surveyed said they currently sought an APM Project Management Qualification (PMQ) in potential candidates. Just under one third (31 per cent) of businesses also sought future employees who possessed a master's degree or postgraduate certificate. This underpins the growing stature of project management as it develops its profile as a chartered profession in the UK.



19. ARUP. 2017. Future of Project Management. Available at: <https://www.arup.com/perspectives/publications/research/section/future-of-project-management>.

APM has taken an important step in undertaking this study. PwC's research report is crucial in evaluating the contribution of project management to the UK economy and society in identifying its role as a golden thread permeating multiple sectors and types of organisation.

Project management has for too long been seen as a 'Cinderella' profession and the contribution of project management's impact (both good and bad) has been under-appreciated. The difference between well-executed and badly delivered projects is a huge

one – so it is surprising that project management's impact on productivity is often absent from strategic thinking by organisations. The research team hopes this report will shine a light on how project management can make a difference.

This research is an important step in providing a baseline for an area of activity – transformation and change via projects – which the research team believes is increasing in scale and importance.

*"The contribution of project management, whether this is in economic, social or environmental terms, is an under-researched topic. I believe that this study will form an important baseline for the project profession while stimulating wide-ranging debate and providing a platform for deeper exploration."*

Professor Andrew Edkins  
The Bartlett, University College London (UCL)

Act as a focus for debate between APM and its members – both corporate and individual – and with wider stakeholders on the baseline evidence and more specific findings on sectors.

Specifically, help provide better understanding of the future requirements for people and project management skills in the UK, while encouraging investment to develop the future of the profession with schools, colleges and universities.

**The research team hopes that this report will:**

Support the external appreciation of the contribution, size and value of project management and the profession to the public good.

Create a platform for further research, based on the debate with and beyond the project management profession.

Underpin APM's strategic objective to improve the capability and deliver better outcomes through better-delivered projects.

## Recommendations

The research team recognises that this report is just beginning to scratch the surface of an important area that needs to be better understood. It sees this as a starting point for ongoing and further research and exploration and hopes it will act as a catalyst for a call to action in a number of key areas:

- For UK PLC to actively and clearly recognise the value of projects and project management to the economy and society. The UK's senior leaders and decision makers, government and academic audiences need to support APM in the promotion and resourcing of the profession going forward.
- For APM, with the support of its members, to consider undertaking a follow-up analysis at sector level to explore the growth opportunities and challenges faced by organisations, large and small, in key sectors.
- For universities, colleges, training providers and large corporates to work closely with APM to map and close the skills and talent gap and to develop appropriate mechanisms to create an effective talent pipeline to fulfil this growing capability requirement.

AUTHORS

APM TEAM



**David Thomson**  
Head of External Affairs, APM



**Daniel Nicholls**  
Research Manager, APM

PwC TEAM



**Dr Andrew Schuster**  
Director, PwC Canada



**Ciara Campbell**  
Insight Consultant, PwC Research



**Julie McClean**  
Senior Manager, PwC Research

ACADEMIC ADVISORY PANEL MEMBERS



**Professor Andrew Edkins**  
The Bartlett School of Construction and Project Management, University College London (UCL)



**Dr Peter Hill**  
St Mary's University



**Dr Simon Addyman**  
The Bartlett School of Construction and Project Management, University College London (UCL)

APM attained chartered status in 2017 and announced its first chartered project professionals (ChPPs) in 2018. APM has over 28,000 individual members and more than 500 organisations participating in the Corporate Partnership Programme, making it the largest professional body of its kind in Europe.

For more information on APM visit: [apm.org.uk](http://apm.org.uk)

**APM research**

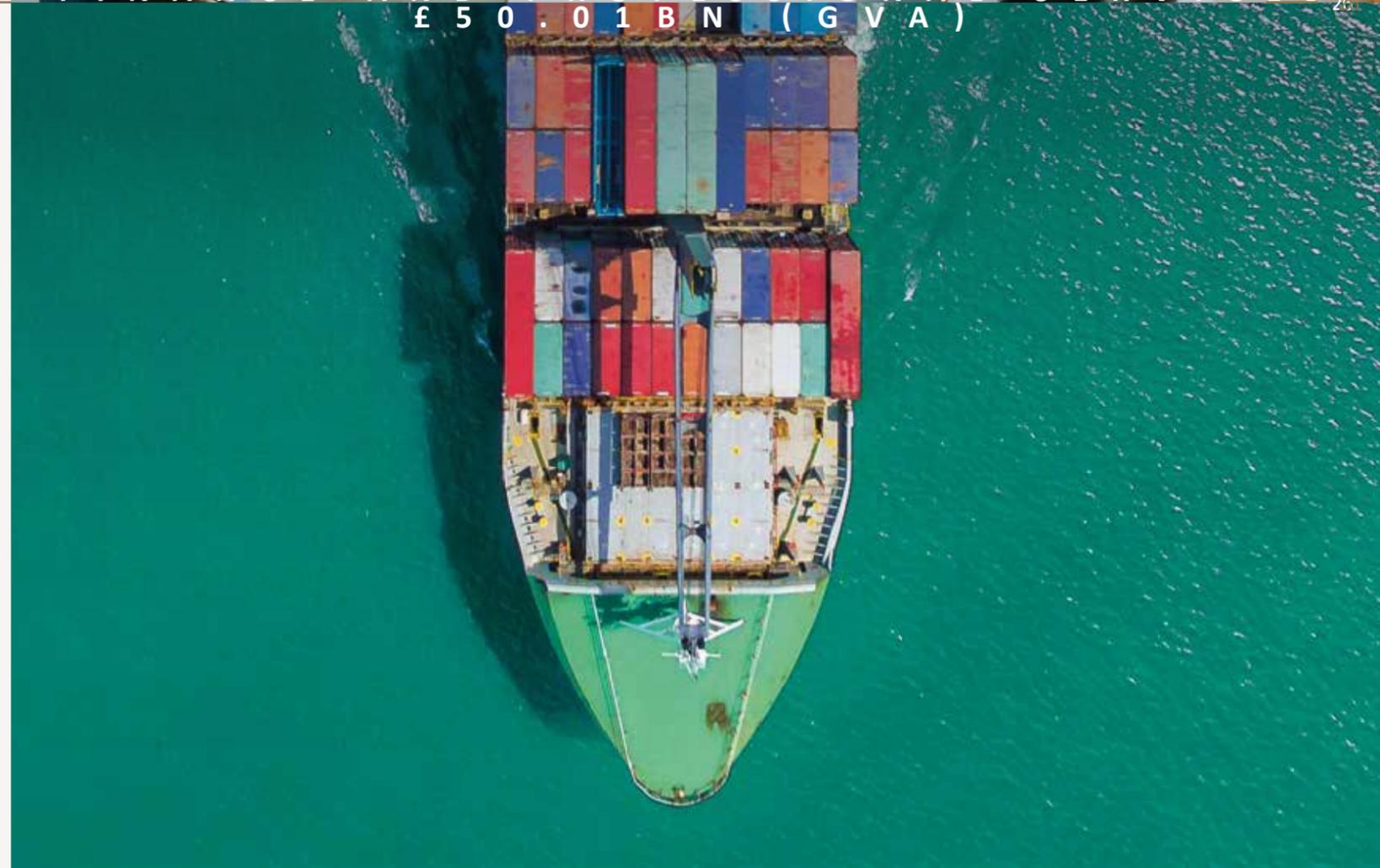
APM's research programme aims to develop innovative research whilst sharing its results and findings to help develop and promote a profession built around learning and collaboration. In this way, research helps to fulfil APM's chartered and charitable objective of advancing the science, theory and practice of project and programme management for the public benefit. APM research engages all

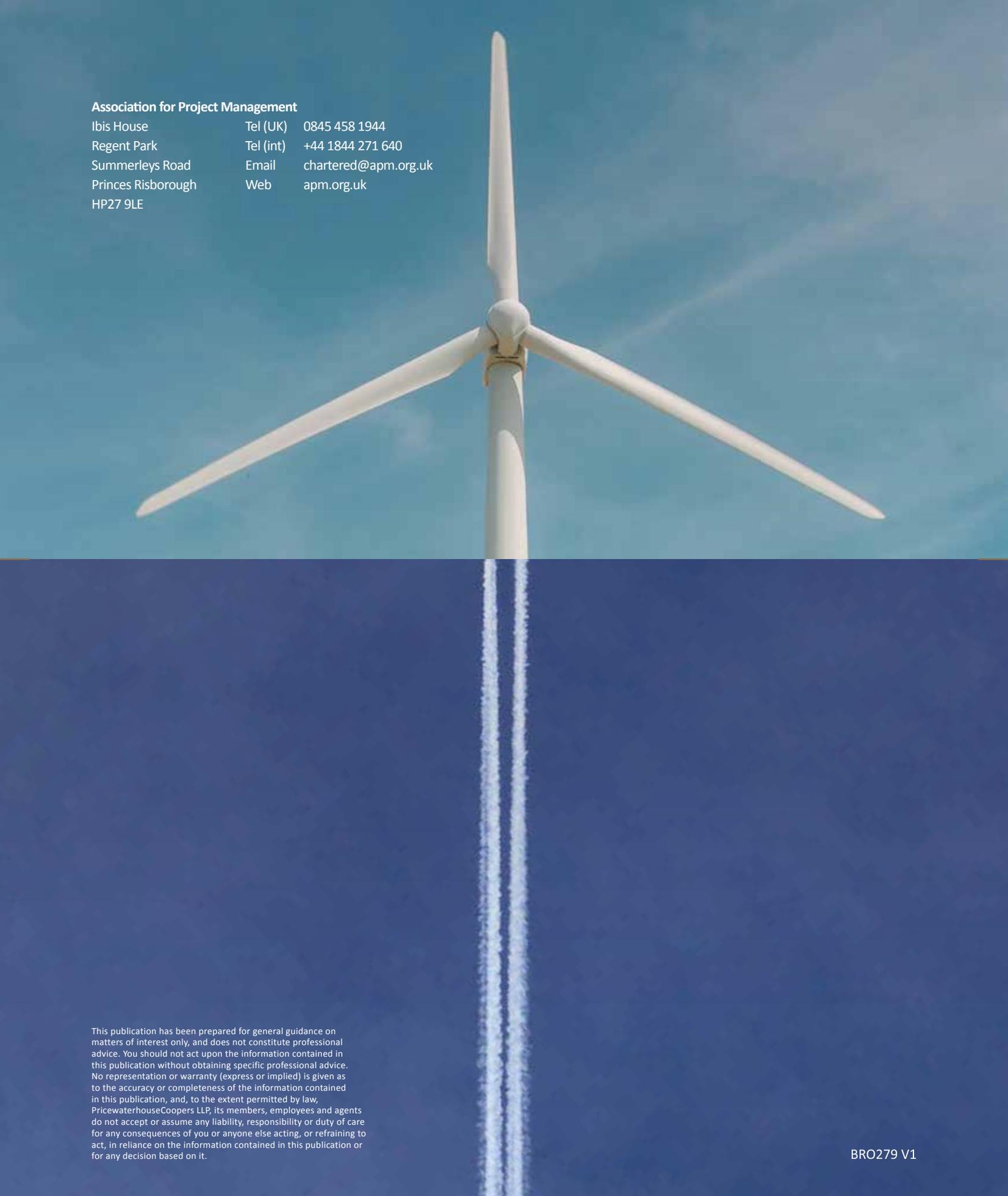
stakeholder groups, including academics, students, practitioners, professional bodies and like-minded individuals and organisations, whilst also helping to promote APM and the project profession to non-traditional audiences such as the c-suite and policy makers.

For more information on APM research please visit: [apm.org.uk/research](http://apm.org.uk/research)



FINANCE AND PROFESSIONAL SERVICES  
£50.01BN (GVA)





**Association for Project Management**

Ibis House	Tel (UK)	0845 458 1944
Regent Park	Tel (int)	+44 1844 271 640
Summerleys Road	Email	chartered@apm.org.uk
Princes Risborough	Web	apm.org.uk
HP27 9LE		

This publication has been prepared for general guidance on matters of interest only, and does not constitute professional advice. You should not act upon the information contained in this publication without obtaining specific professional advice. No representation or warranty (express or implied) is given as to the accuracy or completeness of the information contained in this publication, and, to the extent permitted by law, PricewaterhouseCoopers LLP, its members, employees and agents do not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it.