

People, performance and place: How using perceptive and cognitive data can create inspiring and collaborative workspaces that enable growth and innovation

Nicola Gillen*, **Hilary Jeffery****, **Charlotte Hermans†**, **Ramona Verhees††**, **Malcolm Louth‡**, **David Barrett‡‡** and **Robin Bott¶**

Received (in revised form): 4th September, 2018

*Tel: +44 (0)20 7645 2000; E-mail: nicola.gillen@aecom.com; **Tel: +44 (0)20 7645 2000; †Tel: +44 (0)20 7645 2000; ††Tel: +44 (0)20 7645 2000; ‡Tel: +44 (0)20 7645 2000; ‡‡Tel: +44 (0)20 7623 550; E-mail: david.barrett@cut-e.com; ¶Tel: +44 (0)20 7623 550

Nicola Gillen is a global practice lead for workplace strategy and workplace market sector lead in Europe, the Middle East, India and Africa (EMIA). She is an architect with a business degree. Nicola's team includes architects, designers, psychologists and sociologists focused on workplace strategy, design and change management. Nicola specialises in the relationship between behaviour and the built environment. Clients include Rolls-Royce, BMS, BP, Sky, the Estée Lauder Companies, Palace of Westminster and Museum of London. Now based in London, Nicola has worked across Europe, North America and Asia. She drives thought leadership around the future of work, regularly publishing and speaking at conferences.

Hilary Jeffery is an organisational strategy consultant and change director, with a BSc. in Psychology. Hilary has 12 years' experience of working with clients to drive culture change within their organisation, using the workplace as a catalyst. With a strong research and evidence-based approach to change, Hilary has led projects for a wide range of clients including National Grid and Rolls-Royce. Hilary is currently working in Human Resources, leading a team focused on leadership development, culture change and talent management.

Charlotte Hermans is an organisational psychologist with a background in workplace strategy and change management. Driven by a strong interest in the intersection between people and space, her primary professional ambition is to understand, promote and leverage the human element in the design of healthy workplaces that support wellbeing and facilitate positive organisational change. Charlotte is an advocate of evidence-based practice and seeks to underpin strategic workplace advice with a blend of real-time data, academic theory, and a human-centred, psychological perspective. Charlotte currently works as part of the Strategy Plus team in AECOM where she is engaged both externally in delivering change management projects across private and public sector client organisations, as well as driving a cultural change programme from the inside out.

Ramona Verhees is a workplace consultant with an MSc in Environmental Psychology and a background in Real Estate & Facility Management. Her role centres around facilitating and further developing an evidence based approach to workplace briefing. Using tested interview and observation techniques to truly understand how organisations function and occupy their workspace, Ramona is able to

lead a team to identify key areas for improving the workplace. Working across a wide range of national and international clientele, Ramona provides an in-depth workplace advice for both public and private sectors.

Malcolm Louth is a HR Leader with 20 years' experience in maximising the return on investment in people. An advocate for engaging and enabling employees to reach their full potential, Malcolm believes that organisations achieve great things when their people do. As practitioner of HR in the broadest sense, and with experience in blue-chip global clients through to owner managed SME's across the globe, Malcolm is currently responsible for AECOM's HR delivery across Europe, Middle East, India and Africa.

David Barrett is a business focused occupational psychologist working with clients across a spectrum of challenges from large scale international psychometric, assessment, development and performance management projects. Much of David's work focuses on how behavioural, values and cognitive attributes in humans predict work performance and assisting organisations use smart talent measurement system and data analytics to predict and advise on this. David is an honours Psychology graduate from Trinity College Dublin and holds a postgraduate MSc in Occupational Psychology from Queens University Belfast.

Robin Bott is a chartered occupational psychologist with over 10 years in the assessment field. He has delivered hundreds of assessments as well as having written thousands of psychometric questions. This has given him a deep understanding of the psychology of people in the workplace. Clients he has previously worked with include Hilton Hotels, Imperial Tobacco, Sanofi, Starbucks, Moody's Investors Services, Lidl, Primark, Ping Pong, Wolseley, Starcom MediaVest Group, Dixons Retail, Greene King and LGA.

ABSTRACT

AECOM is a leading global infrastructure services provider. A major acquisition in 2015 led to the company rationalising its real estate, bringing about the opportunity to transform its workplaces and drive cultural and behaviour change across its offices in and around London. This paper sets out AECOM's approach to the formation of its new Greater London Campus, the drivers underpinning the project, key features of the campus and measures used to identify changes in employee performance, collaboration and wellbeing. It primarily focuses on how return on investment (ROI) was achieved, with a spotlight on the campus headquarters in Aldgate Tower, East London, and the process used to capture the underlying metrics. A key objective was to go beyond spatial metrics and people's perception of changes in performance to direct business impact. AECOM partnered with professional services firm AON's talent assessment team to create a bespoke method of assessing performance, building off existing world-leading psychometric tests and including leading-edge wellbeing surveys. The post-occupancy evaluation (POE) results demonstrated a significant improvement, as evidenced by a three-fold value increase in cross-disciplinary working, a 10 per cent increase in creativity measures and a 26 per cent drop in attrition rates in the central London location. The paper concludes with key messages and learning points for future workplace transformation projects. It is important to note that this paper focuses on research in practice. The working hypothesis was to seek measurable connections between behaviour, space and business performance in a live working environment. Detailed descriptions of psychometric tests and opinion-based assessment are provided along with findings from a POE study.

Keywords: AECOM, infrastructure services, cultural change, behavioural change, Greater London Campus, AON, post-occupancy evaluation (POE), psychometric tests

INTRODUCTION

AECOM is a global integrated architecture, engineering and infrastructure company that designs, builds, finances and operates infrastructure assets in more than 150 countries. The company has grown over time to approximately 90,000 employees globally, bringing about the need to create a single integrated organisational culture across the business.

Following its most recent merger with US engineering and design firm, URS, employee numbers nearly doubled globally to 90,000, as did the company's real estate portfolio. Post-merger, AECOM had two central London headquarters, in Holborn and Victoria, and two greater London offices, in St. Albans and Croydon. With approaching lease expiries and projections of significant rent increases in central London, AECOM took the opportunity to rationalise its real estate, consolidating its central London offices into a single workplace across five floors in Aldgate Tower, East London — its Greater London Campus headquarters — while refreshing its two other sites: together, these formed AECOM's newly-defined Greater London Campus.

This paper tells the story of how the creation and transformation of the campus's workplaces became a catalyst for cultural and behavioural change, leading to demonstrable improved employee productivity, collaboration and wellbeing; ultimately, through defining and strengthening the relationship between people and place, it is possible to influence employee and organisational performance.

ALDGATE TOWER: A GLOBAL CLIENT SHOWCASE

AECOM's vision for its new Campus was to create a network of communities, where employees could come together to be inspired and to learn, and where the next generation of designers, engineers, architects

and project and cost managers can be nurtured. The campus now stands as a platform from which AECOM communicates its values while providing the space and technology to enable staff to do their best work.

The Aldgate Tower workplace functions as the company's 'global client showcase' in central London while its St. Albans and Croydon offices have been redefined as excellence hubs for technical expertise. Designed and delivered entirely in-house by a multi-disciplinary team working in partnership with Overbury, the main contractor.

Occupying 7,934sq. m. net internal area with 1,050 staff across five floors, the office's dynamic density is approximately 7.6sq. m. With 728 desks, the static density is 10.9sq. m. The formation of the office was an opportunity to demonstrate AECOM's brand promise of 'Built to deliver a better world' and showcase its expertise.

TAKING AN INTEGRATED APPROACH

To create its Aldgate Tower workplace, AECOM brought together an in-house multi-disciplinary project team including workplace strategists, interior designers, building and fire engineers, cost and project managers, lighting designers, acoustic designers, sustainability, communications and brand, Information Communication Technology (ICT), human resources (HR) real estate and facilities management and organisational development.

The overall project from briefing phase to move in date took approximately 10 months to complete. The fit-out construction period took 18 weeks, which is about 25 per cent faster than industry standards. Speed of delivery was enabled by:

- Good access to a steering committee of leaders from across the business who facilitated quick decision making;
- Fast flow of information between disciplines;

- Clear understanding of business requirements, allowing boundaries to be pushed further than typically possible in client-design team relationships.

CAPTURING THE VISION THROUGH WORKPLACE STRATEGY AND DESIGN

To understand the needs of its employees and define the campus vision and design components, AECOM conducted a comprehensive engagement programme up front, with the company's internal workplace strategy team engaging with staff across locations through:

- Leadership interviews (37 in total);
- AECOM workplace survey (886 responses across central London, Croydon and St. Albans);
- Three days of qualitative observation studies at each location;
- Time Utilisation Studies (TUS) at Croydon and St. Albans. These were complemented by a previous TUS conducted in the central London office;
- Workshops on all sites with participants from different grades and parts of the business;
- Regular review meetings with leadership.

Information gathered through this engagement was fed immediately into the designs, creating a continuous loop of feedback through which designs were validated and improved throughout the project.

BRINGING THE VISION TO LIFE

Various concepts and features were carefully introduced to help achieve AECOM's vision for Aldgate Tower and facilitate changes in culture and working practices:

- Agile working: All staff in the Greater London Campus transitioned to an agile way of working. Staff moved from mostly

allocated desking, high levels of storage and limited collaborative spaces, to a work environment with shared desking and a high variety of work settings to suit different workstyles. Each team has a dedicated team neighbourhood with desks allocated to the team. In Aldgate Tower, employees share desks at 69 per cent on average; so, for every 100 employees, there are 69 desks. The ratio of desks to collaborative spaces is about 50–50, meaning there are an equal number of desks as there are seats in alternative work settings. Agile working gives staff the autonomy to choose where they work at their best, whether within or outside the office;

- Technology transformation: For agile working to be successful, a major technology transformation was required. All staff transitioned to a unified communication platform including laptops, docking stations, Virtual Private Network connection (VPN) and Voice Over Internet Protocol (VOIP) or virtual desk phones. Desk phones were not provided.
- Connecting people across disciplines: The office has been designed to bring people from different disciplines together. Team neighbourhoods are connected by project tables, touch down areas and soft seating to encourage collaboration. A central, internal accommodation staircase surrounded by unique community spaces was constructed to connect the floors and draw people to the centre of the building;
- Sustainability: Aldgate Tower was carefully designed and constructed to achieve a SKA gold rating. Volatile Organic Compounds (VOCs) and CO₂ are carefully monitored, and materials were selected accordingly. In addition, all floors have planting around desk and collaboration areas;
- Wellbeing: Taking breaks and socialising at work are important to improve staff satisfaction and wellbeing, therefore, play

areas such as ping pong and table football are incorporated in the work environment. The office also includes an internal restaurant with healthy food, stimulating staff to take a break away from desks. Lastly, the design stimulates movement across floors and provides ergonomic diversity. This is done through centralising tea points around the connecting staircase, creating different settings, and by providing 25 per cent of desks as sit-stand desks. People are encouraged to move around during the day, to choose spaces to suit the activity they are doing from eating and quiet time to project work. Standing meetings are also encouraged;

- A training ground: The building is used as a training ground for engineers. For example, parts of the ceilings have deliberately been left open to enable graduate engineers to trace services through the building ceilings and risers. Exposing services also showcases what AECOM does;
- Branding: This is addressed through design and behaviour. The interior design provides a subtle backdrop of materials and graphics for teams to display their personality and project work. Magnetic paint on the walls enables easy display of work in progress. Staff and project photography tell the story of AECOM's projects and values, helping to bring the staff together and allow them to better identify with their organisation. There is a staff 'Instagram' wall for more personalised expression.

CHANGE MANAGEMENT

The formation and transformation of the campus was a catalyst for workplace cultural change. Regardless of the level of engagement during the briefing and design stage, providing a great workspace alone will not automatically change behaviours and culture. AECOM introduced a change management programme to support staff through

the cultural transformation and prepare them for a new way of working. This change management process involved:

- Creating a project identity called 'Where We Work' with a dedicated intranet site;
- A change ambassador network;
- Line manager workshops;
- Workplace protocol workshops;
- Town halls aligned to quarterly UK business updates;
- Regular e-mail newsletters;
- A live frequently asked questions document drop-in Q&A sessions;
- Site tours;
- Leadership progress meetings;
- Welcome app with information such as moving dates, floor plans identifying allocated team neighbourhoods, work protocols, new equipment 'how to' guides and local amenities (see Figure 1).

MEASURING ROI: DEFINING SUCCESS

Capturing ROI was vital to both evaluate whether Aldgate Tower achieved what it set out to achieve and to also ensure that its vision and objectives had been delivered: defining clear measures of success was essential to demonstrate the returned value on investment. To this end, AECOM conducted a comprehensive POE to test the hypothesised relationship between behaviour, space and business performance, as a measure of enhanced productivity.

Productivity measurement remains the holy grail of the workplace industry. While numerous approaches and definitions have been suggested by both practitioners and academic contributions, arguably productivity will never be captured through a universal measure — what is important to one organisation may not be for another. Instead, productivity measurement is a social science, influenced by a variety of unpredictable and context-dependent variables such



Figure 1 Welcome app launched as part of 'Where We Work' project
Source: AECOM

as people aspects, management style and external factors.

In recognition of this, AECOM's POE study was set out as an exercise of research in practice, not a controlled experiment at the service of academic purposes. The key question was whether ROI for an extensive change project could be demonstrated in the live context of a fast-paced, client-facing organisation in which maintaining business continuity was a base requirement. The objective, therefore, was not to engineer the perfect test environment to produce irrefutable evidence, but instead to show how cultural change could be achieved successfully without impeding on day-to-day business deliverables.

In addition, years of experience show that while occupier clients intrinsically believe in the value of change management in improving business performance, convincing data derived from practice to underpin it remains sparse. AECOM's POE study demonstrates that even in the absence of ultimate control over the environment, significant results can be achieved and evidenced by the triangulation of both hard

metrics and opinion-based insights, to ultimately make the case for investment in change management.

METHODOLOGY

To create robust people-measurement tools and ensure objectivity, AECOM partnered with external consultancy AON UK's talent assessment team's occupational psychologist group.

Establishing a solid baseline is a crucial prerequisite for capturing change throughout a workplace transformation. Since vision and objectives were established early in the project, measurement methods were able to be identified at the outset too, allowing AECOM to identify baseline information to feed into pre-/post-move data comparison.

Besides pre-/post-move comparison, the POE also set out to capture differences between the campus sites, to identify whether different degrees of intervention, for example refresh in excellence hubs versus full transformation in headquarters, would impact on the level of success in achieving

demonstrable culture change. *Performance, collaboration, wellbeing* and *business performance* were specified as the key focus areas of the study against which change was tracked, which together formed AECOM's measure of productivity as defined in this study.

The following research questions guided the analysis of the findings:

- Performance: Does the campus transformation encourage behaviours that will help achieve AECOM's vision and business goals?;
- Collaboration: To what extent does the campus transformation help colleagues collaborate, socialise and build networks with each other and across disciplines?;
- Wellbeing: What is the impact of the campus transformation on overall levels of wellbeing? Are there aspects of the individual that mediate this impact?;
- Real estate: How does the campus transformation impact the real estate, in terms of rental costs, space utilisation, amount of space and cost per person?

While believed to be of central importance to productivity, measuring some of these attributes in a knowledge-based industry remains a challenge. Decades of experience conducting POEs have taught us that commonly used POE methods are known to have strengths and weaknesses. For example, an opinion survey is a great way to engage with a large population of people but the data collected is subjective. A TUS provides solid data on how space is used over time but does not reflect how people work. The opportunity of this POE was to push the boundaries of measurement methods to create a data set that was more holistic and robust and thus promised to provide stronger evidence for the connection between people, space and performance.

AECOM adopted several data gathering methods to realise the ambition of a holistic measurement approach:

- Perception-based data from online questionnaires;
- Cognitive data from psychometric performance tests;
- TUS;
- Change ambassador feedback;
- HR attrition data;
- Financial data;
- Real estate data.

PERCEPTION-BASED SURVEYS AND PSYCHOMETRIC TESTING

Sample groups

The POE was carried out across four pre-move locations — Victoria, Holborn, Croydon and St. Albans — which post-move became Aldgate Tower, Croydon and St. Albans. While Aldgate Tower was a completely new office, both St. Albans and Croydon were existing offices with light refurbishment. St. Albans and Croydon were brought up to a better standard by implementing agile working, technology upgrades and a refresh of the office environment. Fundamental facilities such as kitchens, vending points and toilets were not changed. Due to the different levels of intervention making a difference to the end results, this paper focuses mainly on the success of Aldgate Tower. There were approximately 105 respondents at Aldgate Tower while St. Albans and Croydon's sample sizes were smaller.

Study design

The POE included data gathered from the same departments before and after, so job types were the same. As data were anonymised, individual responses before and after were not tracked.

POE timeline

The pre-move study was conducted in 2015, six months prior to staff moving out of Holborn and Victoria. The post-move

study was conducted in 2017, one year after the move to Aldgate Tower. This timeframe allowed staff to settle in to their new workplace, and provided a more valid point in time for representative post-measurement for two reasons: first, it ensured that measures were not impacted by early frustrations around initial teething issues, and second, it prevented responses being disproportionately reflective of initial excitement. In addition, research into sustainable behaviour change points to the need for a substantial timeframe to elapse until behavioural changes have manifested and can be reliably measured.

Measures

An online study comprising:

- Psychometric assessment:
 - Four web-based tests designed to measure performance in different areas: concentration, logical reasoning, multi-tasking and creativity;
 - Two attitudes-based questionnaires measuring individual differences with regard to work style, motivation and personality;
- A custom-built perception-based online survey designed to measure collaboration and aspects of wellbeing.

Each of the measures was completed at the participants' computers. Participants' office location was also captured, as well as how noise was perceived at their location.

The psychometric assessments are detailed in more depth below:

SCALES E3+ – CONCENTRATION

This measures a participant's ability to concentrate, remain focused and make accurate decisions. Staff were provided with a series of figures and had to quickly determine whether they meet a set of clear, pre-defined criteria. *scales e3+* is a powerful measure of

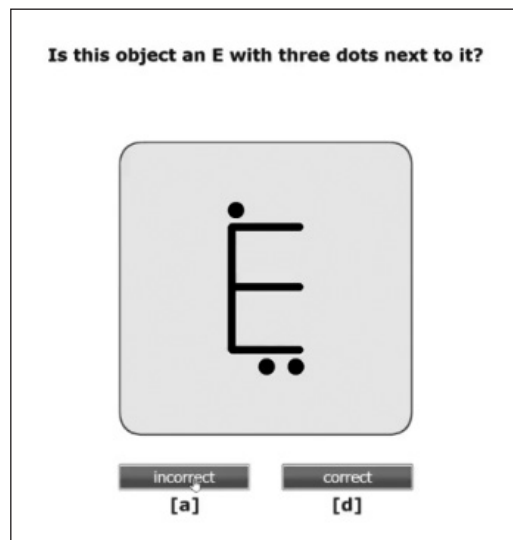


Figure 2 Example question scales e3+ measure
Source: AON

attention, as quick and reliable processing of similar icons requires attentive and concentrated processing (see Figure 2).

SCALES LST – LOGICAL REASONING

In this logical reasoning test, participants must follow a set of rules to determine which shapes appear in a specific space in a grid (see Figure 3).

The level of the complexity adjusts depending on participant success. According to Relational Complexity Theory; the level of difficulty of the items is defined by the complexity of the relationships between its single elements. As such, the difficulty of the items is determined by the size of the grid (rows and columns), the number of rows and columns that need considering when figuring out the answer, as well as the number of steps required to reach the solution. *scales lst* is thus designed to adapt its difficulty around these factors, based on how successfully a participant performs on previous questions.

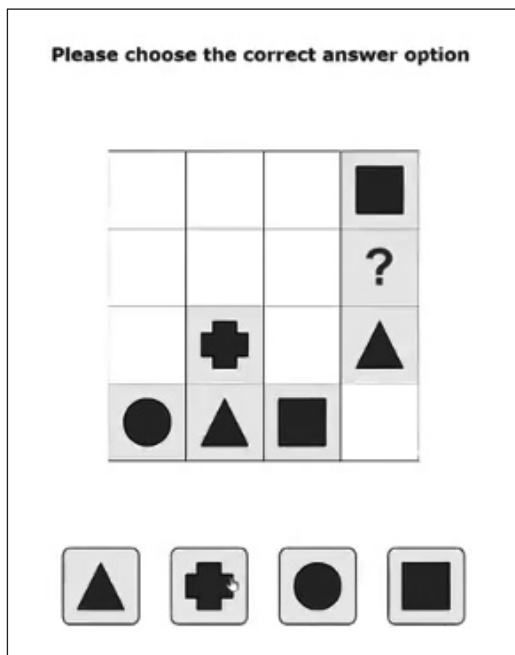


Figure 3 Example question scales 1st measure
Source: AON

SCALES MT (DRV) – MULTI-TASKING

The multi-tasking test measures the ability to perform several different tasks simultaneously. Staff were asked to look at the following tasks:

- (1) Quickly identify which direction a triangle is pointing in a series of symbols, against a short time limit.
- (2) Check whether a basic arithmetic sum is correct or wrong.
- (3) Check series of figures to determine whether any figure is repeated (see Figure 4).

The overall result is determined by performance across the three tasks. As such, participants need to balance the demands of all three tasks within the time limit.

SPARKS – CREATIVITY

Generating ideas is an important step in the innovation process, alongside identifying

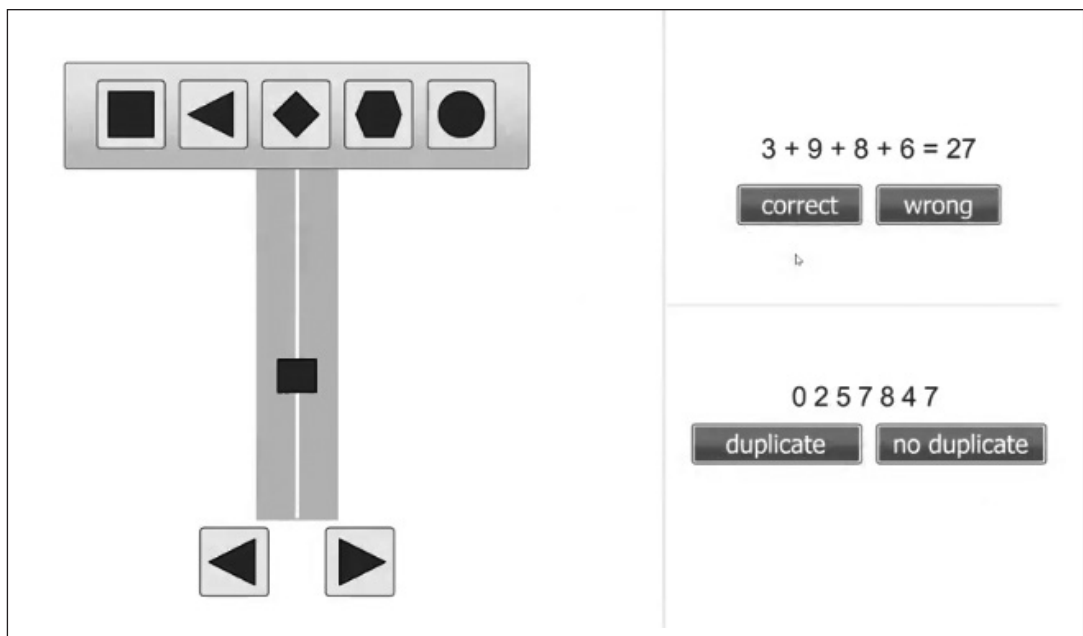


Figure 4 Example question scales mt (drv) measure
Source: AON

problems, implementing ideas, and communicating ideas. Neuroscientific studies also show that for generating ideas, a different cognitive approach is needed than for abstract logical reasoning.

sparks measures similar psychological constructs to the Torrance Tests of Creative Thinking, a paper-based creativity measure where participants generate ideas from specific shapes. *sparks* automates this process to provide insight into creativity along three dimensions: *fluency*, which addresses issues with determination and the ability to develop many ideas and alternative solutions to a problem; *flexibility*, which looks at ability to adapt to new challenges and find alternative solutions to problems; and *originality*, which assesses ability to develop fresh ideas and not let instructions and prerequisites restrict their own thinking (see Figure 5).

Attitudes-based psychometric testing

Individual differences in behaviour and values were measured using two further psychometric questionnaires: *shapes* and *views*. These focused on aspects of people's natural work style (for example, sociable, analytical

or open to change), differences in drivers of motivation such as financial reward, security, integrity or hierarchy and aspects of personality (for example energetic, agreeable, persuasive or imaginative). Staff were asked to allocate points to different statements to indicate level of agreement. Responses were then compared with thousands of others in similar roles, to provide insight into typical workplace behaviour and values (see Figure 6).

The *shapes* psychometric questionnaire focuses specifically on personality and workplace behaviour. The competency model underlying is based on the analysis of a multitude of competency models applied in HR management and is aimed at competencies that have significant impact on success of a company. It has shown empirical links with the 'Big Five' dimensions of personality as well as other modern psychometric personality measures.

The *views* psychometric questionnaire focuses on individual values, motives and interests in the workplace. The underlying model of views was constructed on the basis of several empirical studies of corporate cultures and job satisfaction. Overall, it was

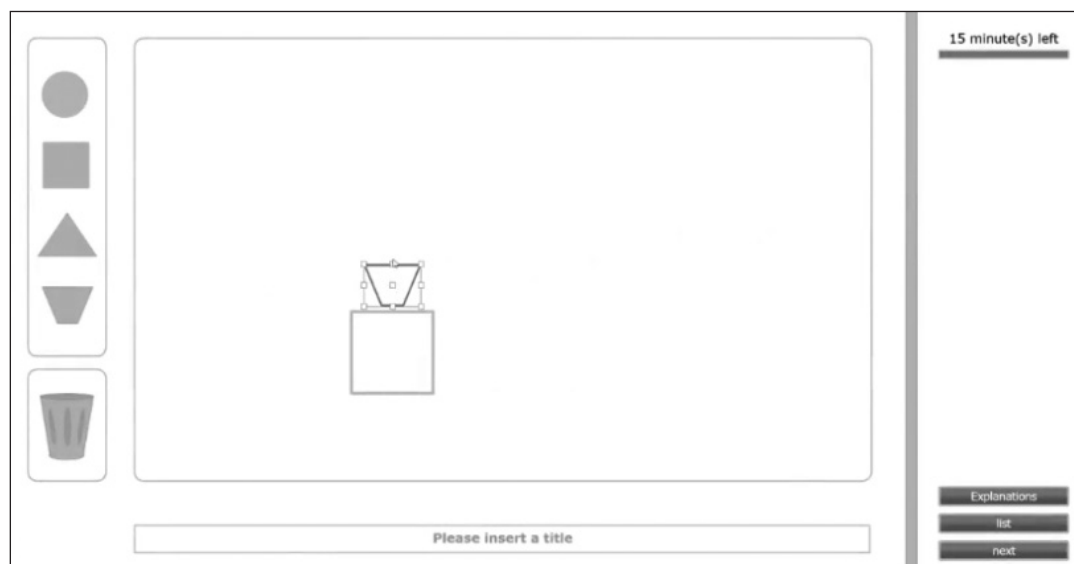


Figure 5 Screenshot of example question sparks creativity measure
Source: AON

How accurately do these statements describe your behavior?
Please allocate points by using the + and - buttons.

I cooperate well with others

I analyze information thoroughly

I enjoy taking the lead

Max. 3 points to distribute:

Figure 6 Example question shapes measure
Source: AON

designed to assess ‘cultural fit’ of a person with a company, department or team.

Perception-based survey

To complement objective performance assessments with subjective data, an online survey was used to capture people’s perception with regard to levels of wellbeing, fatigue, cross-departmental collaboration and noise comfort. The perception-based survey consisted of a series of 16 questions capturing employee perceptions of the above concepts in their office environment, for example, ‘our department works a lot with other departments’. Staff were asked to rate each statement on a five-point scale ranging from ‘strongly disagree’ to ‘strongly agree’.

Wellbeing was approached from a multifaceted view, spanning across physical, emotional, mental, social, intellectual, spiritual and material aspects of wellbeing. Emotional, mental and physical fatigue were also measured.

Procedure

For both the pre- and post-move psychometric testing and perception-based survey

studies, staff received an email with an invitation link to take part in the online study. The study was designed to take approximately one hour in total. Typically, staff completed the study while sitting at a desk in their open-plan workspace. To encourage a higher response rate, the project team provided a raffle prize for three Fitbits upon completion of surveys.

DATA ANALYSIS

Results analysis was hypothesis-driven, meaning that specific hypotheses were developed prior to analysis to prevent over-emphasis on spurious results in the complexity of obtained data. Therefore, analysis focused on pre-defined hypotheses rather than attempting to identify all potential relations between the study variables. Given the large amount of data collected, a broad range of hypotheses could be formed in relation to the psychometric surveys, perception surveys and cognitive tests.

Analysis took place at two points in time — T1 (prior to the move) and T2 (after the move) — to identify key differences and conducted in both Excel and Statistical Package

for the Social Sciences (SPSS) software. Due to the wide range of hypotheses several statistical techniques were used. However, the main analyses focused on correlations and t-testing, as these allowed quick analysis of both statistical links between concepts, as well as statistical differences between groups.

It should be noted that due to unmatched datasets, trends across the group were the focus of analysis, rather than specific changes within individuals. It is also recognised that other external factors could have led to changes in scores, which is another reason a hypothesis-driven approach was used.

FINDINGS

The POE findings revealed some powerful insights and overall, demonstrated the success of the AECOM Greater London Campus transformation in creating a workplace that inspires collaboration, enhances performance and supports wellbeing. The following summarises the key findings of these three focus areas of the workplace transformation.

Collaboration

Collaboration increased significantly post-move, with the biggest improvement seen in the Aldgate Tower headquarters. Salesforce metrics before and after the move showed more than a threefold increase in the value of cross-business line proposals, evidencing an impressive increase in cross-disciplinary working.

The perception-based survey revealed insights into the causes underpinning this achievement and strongly point to the interplay of space, culture and personality in enabling people to collaborate more effectively.

Firstly, space was found to be a clear driver for cross-collaborative working. Specifically, it was found that staff perceived the office layout in Aldgate Tower as almost twice as effective in supporting cross-departmental

collaboration, and were 25 per cent more likely to agree that departments work well together. Similarly, compared to St. Albans and Croydon, staff in Aldgate Tower agreed most strongly that the office layout created opportunities for collaboration with people from other departments after the move.

Secondly, beyond spatial drivers, the findings also demonstrated the need for a tangible culture shift in fuelling improved collaboration across the business. Specifically, post-move, people considered the organisational culture in Aldgate Tower to be 50 per cent more supportive of interdisciplinary working. This indicates that benefits from a collaborative spatial layout are leveraged to the fullest potential when supported by a culture that empowers people to collaborate.

Finally, space and culture only went so far in explaining the results on increased collaboration. Interestingly, the picture was further nuanced by the influence of personality aspects such as personal preferences and values, which were found to moderate the value people attached to collaborating. In particular, the POE revealed that people who rated collaboration at AECOM higher intrinsically enjoyed supporting others, preferred collaborating to competing, were conflict-avoidant and attached high value to harmony and team cooperation.

These findings indicate that space in itself can drive collaboration, but does not guarantee a more collaborative workplace — both organisational culture and individual differences need to be considered too to fully understand and, where possible, enhance levels of cross-departmental collaboration and knowledge exchange in the workplace.

Performance

With regard to performance, the POE results showed that the move to an agile working environment sparked creativity, while not impeding people's ability to concentrate,

multi-task or think logically. Refuting commonly voiced concerns about vibrant, shared office environments being detrimental to concentration levels or the ability to multi-task, the findings showed that these important aspects of performance were able to be maintained in the post-move environment, preventing a drop in performance despite invasive workplace changes.

Regarding the creativity aspect of performance, the findings support the pay-off of investment in an inspiring workspace, over and above a light-touch refresh initiative. Specifically, the post-move measurement of creativity showed a 10 per cent increase in performance on the *originality* element of the creativity test in the Aldgate Tower sample. That is, staff showed an increased ability to develop fresh, complex and original ideas in the headquarters site which had undergone a full transformation and offers its residents an attractive workplace. This finding may be indicative of a link between a visually stimulating and inspiring environment and people's ability to think creatively. In businesses where creativity equals performance and competitive advantage, this finding provides a strong argument for investing into the creation of a 'great feel' in the office to support people in reaching their highest creative performance.

Finally, the role of individual differences surfaced again and added to the picture a focus on the person in defining predictors to performance. Specifically, the POE findings highlighted the effect of environmental perception on performance: while task performance on most parameters was largely maintained rather than increased, a significant difference was obtained concerning the level of perceived noise comfort. The results showed that the more comfortable people were with workplace noise levels, the better their performance tasks results. More specifically, people who rated the noise levels of their surroundings as comfortable or very comfortable performed 12 per cent higher

on the creativity task, 13 per cent higher on the concentration task and 11 per cent higher on the multi-tasking task.

As such, an environment which affords staff the opportunity to control noise levels, whether culturally through embedding choice and control in people's autonomy at work, or spatially by providing spaces to withdraw, is likely to see an increase in cognitive skills — and with this, overall performance.

Wellbeing

The third attribute of AECOM's productivity measure was staff wellbeing. The POE examined different types of wellbeing, for example, social, intellectual and material, as well as physical, mental and emotional fatigue, and how these parameters were impacted by the workplace change (see Figure 7).

The findings in regards to social wellbeing, were particularly interesting. Social relations at work are known to be essential for people's ability to identify and feel connected to their organisation — numerous research findings point to the impact of having meaningful relationships, or even a 'best friend at work', on people's commitment to their companies. In simple terms, people seem to stay in their organisations if they have a social network surrounding them that makes it worth it.

Supporting this, AECOM's POE results demonstrated a 26 per cent improvement in retention rates in the central London locations, opposed to no changes in retention rates in other locations. Exploring this finding further, it was found that overall wellbeing levels were maintained and were not negatively impacted by the workplace changes, with social and intellectual wellbeing being the highest among those assessed. The role of space was reinforced again: the survey findings showed that people who agreed that the office layout created opportunities for interaction tended to report greater

Colleagues who reported higher levels of wellbeing, and lower levels of mental fatigue...



Figure 7 Personality factors influencing wellbeing and mental fatigue
Source: AECOM

wellbeing overall. This demonstrates how an office environment that is purposefully designed to bring people closer together satisfies people's need for connectivity, which likely increases the commitment to their organisation.

The findings also indicated that wellbeing is not only supported by a 'social layout' of space, but also by the environmental qualities it entails. Specifically, data around the impact of perceived office noise showed that the more comfortable people were with noise levels in the office, the less they felt physically exhausted at the end of the day. The impact of subjective perception was further highlighted by the importance of control. As such, feelings of control over interactions with others contributed positively to levels of wellbeing, as well as decreased feelings of fatigue at the end of the day. Interestingly, combined with the findings on positive social spaces, this suggests a fine nuance to the picture: while providing spaces to socialise is shown to foster wellbeing, it is likely to only do so if matched with people's personal preference for the right balance between having access to social stimulation, and being able to withdraw if desired.

Finally, individual differences and core motivations were also associated with

wellbeing, which in fact had a stronger impact than environmental factors. Specifically, people who reported higher levels of wellbeing and lower levels of mental fatigue were those who were motivated by financial rewards, enjoyed fast-paced environments, described themselves as optimistic in their approach to work and were motivated by opportunities to cooperate.

As such, environmental factors, for example, noise levels and office layout, and personal attributes, such as preferences and core motivations, were shown to work in concert to determine levels of wellbeing, making it a complex system with influencing factors both inside and outside the realm of the workplace design. The POE findings emphasised that when promoting wellbeing, the workplace can only impact so much; a large part of enhancing people's wellness in the workplace is determined by the personality of its residents, and how this influences the perception and evaluation of their environment.

Real estate

Real estate costs were another metric tracked before and after the transformation. Firstly, overall rental costs decreased by £500,000 per annum due to acquiring less space while

providing an improved work environment. Secondly, AECOM's time utilisation data showed that Aldgate Tower was on average utilised 85 per cent of the time during the core working day — the highest of all AECOM UK offices and considered 'full' by market standards. The third metric revealed that post-move cost per person remained the same despite a transformed physical workplace, food and service offer. While cost per square metre increased post-move due to the higher standard of workplace and IT, this cost is mitigated by the fact that less space was occupied overall and people share desks.

ON-GOING CHALLENGES

Preparing the business case for change can often be a challenge on workplace projects. Strong post-occupancy metrics can help with this. However, funding for post occupancy measurement is not usually included in capital budgets, making the on-going capture of metrics difficult.

The level of intervention required to gather strong data can also be variable. Employees are often time short and focused on the job at hand. People do not always have time to respond to a survey or participate in a focus group. Typical workplace performance surveys take approximately 15 minutes to respond to; the psychometric survey used on this study took about one hour to complete, and many of the tasks required concentration levels far beyond those required for an opinion survey. The response rate may have been higher if the survey was shorter but the data captured would not have been so robust.

Improving staff wellbeing levels is a work in progress. While this project changed a lot of aspects of the workplace it did not impact overall staff workloads. Working from home has anecdotally helped with stress levels and staff wear and tear. AECOM continues to measure and address wellbeing at work through various staff welfare programmes.

LEARNING POINTS, IMPLICATIONS AND TOP TIPS

AECOM's Greater London vision was to bring the right people together to make connections, share expertise, innovate and collaborate to deliver great cross-disciplinary projects. As demonstrated by the POE findings, Aldgate Tower as the headquarters site showed great success in terms of staff retention, performance and multi-disciplinary collaboration. Also, under its roof, a workplace was created that impresses clients and allows staff to be proud of their workspace, while setting the baseline for future transformation projects and championing the way forward for cultural change implementation. Aldgate Tower is now a template for AECOM's future real estate ambitions of its UK and Ireland and global workplace portfolio.

With every major project, great successes do not come without lessons learned. As part of the project evaluation, the project team came together again and captured key implications of the campus transformation and following learning points for future projects:

- Projects need to be treated as 'live' and not be expected to be completed on the day of moving in; in fact, the move-in date represents 'Day 1' or start of the journey for the occupier. The cultural transformation is still in progress, and continuous measures need to be put in place to ensure the 'grass doesn't grow back'. For example, staff need to be reminded of protocols, managers need to keep role-modelling positive workplace behaviours and new-starter inductions should include an introduction to the workspace and agreed ways of working;
- Transformation projects require strong leadership and a project sponsor with enough reach to socialise its vision. With this, it needs to be ensured that the entire team understand and supports the vision,

including middle management. If the leadership members change, ensure new members buy into the vision too;

- When investment levels differ per site, differences in results can be expected as well. Aldgate Tower was a new build which gave the opportunity to create from new. The other locations had limitations due to lease conditions, business continuity and budget. Higher investment levels also allowed a completely new fit-out which was a stronger cultural signal of change;
- While measuring post occupancy results is valuable, it can be time consuming if in-depth data collection is required. A clear thought process needs to go into what the company wants to measure (its productivity attributes) and how to measure it. This needs to happen with enough time before the move to ensure pre-data can be collected. Many organisations seek strong post occupancy metrics; metrics that go beyond people's perception of performance. In this case, a holistic approach was taken which included an investment in cognitive testing. Cognitive testing takes more time than a standard opinion survey and the organisation needs to be prepared to invest in this process both in terms of time and money. For AECOM, gathering sufficient data from comparable samples before and after the move has proven to be challenging;
- While the outcomes have shown that running such a project in a short time-frame is possible, it is not considered ideal. Speed was achieved through quick access to decision makers and continuous flow of information between disciplines;
- In any project, it is the small things that need attention as they can have a big impact on staff engagement and buy-in of the change. Examples encountered on this project include the quality of coffee, provision of real cups and cutlery rather than disposable and the standard of

shower facilities, all of which were positively received by staff;

- Big transformation projects have a big impact on staff. It needs to be ensured that staff are part of the story and co-create part of its script instead of being passive recipients of the change. Equally, change fatigue can be a high-risk factor to staff engagement; the impact, intensity and timing of multiple changes need to be monitored to avoid staff being overwhelmed and to maintain positive excitement with every new change that comes online.

CONCLUSION

AECOM's Aldgate Tower workplace has not only set a new standard for AECOM's future workplaces, but also demonstrates the value of a holistic POE study in measuring the success of workplace transformation projects. Used as catalyst for a cultural transformation, the campus has led to the creation of a workplace culture where people come together to connect, share expertise, innovate and collaborate to deliver the best cross-disciplinary projects.

The combination of results from different sources including staff perception, HR attrition data and psychometric testing, provides a powerful insight into the relationship between people's performance and the physical environment. The results show that performance in terms of concentration levels and the ability to multi-task have been maintained in a highly occupied agile environment. More significantly, the testing showed a 10 per cent increase in creativity scores post occupancy. Attrition dropped by 26 per cent in central London. A key objective was to increase cross disciplinary collaboration and Salesforce data post move showed a trebling in the value of cross disciplinary proposals compared to pre-move data. The willingness and the engagement of AECOM's employees and their connection

with the overall ambition of the office consolidation and transformation was invaluable to its success.

The project has shown that pre-defined measures of success should be set up front to deliver transformational workplace projects, 'prove' that they are worth the investment and ensure day-to-day business deliverables continue to be met. Also, for workplace cultural change to be truly successful, it needs to be supported by strong leadership engagement and an effective change management plan that supports employees on their journey.

The results generated across the project's data and research sets showed that the physical workplace cannot be considered in isolation, and it will often be influenced by external, more personal attributes such as individual preferences which in their very nature cannot be assigned to a spreadsheet. At the heart of a successful workplace lies choice — both delivered spatially, by providing a work environment with a rich variety of settings to both socialise and seek privacy, and culturally, by granting people the autonomy and genuine trust to choose how and where they work.

Certainly, selecting the right tools and applying them at the right time was integral to the process and to improve the company's ability to connect place to people and influence performance.

© AECOM Ltd, 2018