

Project Jack – Google’s answer to the problem of flexible spaces

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When designing an office space, architects take a plethora of decisions: where to place solid walls and columns, where to use glass to provide visibility, where to create open spaces, where to provide enclosures. Those decisions have lasting effects: once a wall is placed, it typically stays where it is for years, if not decades. Stewart Brand in his seminal book *How Buildings Learn*¹ has argued that the very idea of architecture is permanence, however, different aspects of space have different time frames of longevity: site is eternal, structure (walls and load bearing elements) often last for 30 to 300 years, skins may change every 20 years, services (wiring, plumbing) may be replaced every 7-15 years, space plans can change frequently (depending on circumstances) whilst furniture (labelled ‘stuff’) is movable and flexible.

The dream of flexible spaces

Architects have long dreamed of countering the permanence of materiality with ideas to provide more flexibility and dynamic use. The open floor plans of modernity by Mies van der Rohe or Le Corbusier² clearly speak of a desire to free spaces from strictly pre-determining usage. Cedric Price’s *Fun Palace*² continues this wish for flexible and dynamic spaces by suggesting an open framework to accommodate varying patterns of usage and cultural events, yet it was never built – for very good reasons.

Flexibility of physical spaces is very hard to achieve, if not impossible, since, as soon as walls are built, they structure our behaviours, channel our movements and assume an atmosphere of the untouchable, immovable. Winston Churchill’s famous “*We shape our buildings, and thereafter they shape us*” speaks the same language.

This inflexibility of space has become particularly problematic in the 21st century business environment focussed on dynamics, constant change and speed. In their working paper *Managing Uncertainty*³ published in 2000, Franklin Becker and William Sims perfectly describe this dilemma:

“Facility managers and real estate professionals in organizations today find themselves struggling to match the sloth-like-speed of conventional workplace making with the time-warp rush of organizational change. It is like trying to run a hundred yard dash wearing concrete blocks for shoes.”

This has been the starting point for Google’s latest workplace project.

¹ Brand, Stewart (1994), *How buildings learn. What happens after they're built* (New York / London: Penguin Books).

² For more information see for example: <https://citymovement.wordpress.com/2012/03/24/cedric-price/>

³ Becker, Franklin and Sims, William (2000), *Managing Uncertainty. Integrated Portfolio Strategies for Dynamic Organizations*, The International Workplace Studies Program, College of Human Ecology, Cornell University (Ithaca/NY); available online: http://iwsp.human.cornell.edu/files/2013/10/uncertainty1_1238249865-o8v6f2.pdf

The 'Room of Requirements' and the birth of Jack

Ever changing business requirements at Google demand a solution to alter workplace configurations more quickly than is possible with traditionally fixed walls and partitions. For instance, when teams require more project rooms and more meeting spaces, those requests are not easily accommodated since changing an existing building's internal arrangement typically means delay, by which time the project may have moved on, if not finished, the team long re-juggled and working on something else.

As part of the project brief for 6 Pancras Square, the Google Real Estate team commissioned AHMM architects to develop a modular unit, called Jack, which would have the full functionality of a meeting room yet which could be built or taken down and reassembled elsewhere in a matter of hours or days. The idea was to have a meeting room that would be deliverable to a similar time frame to the constantly evolving and changing business processes and team structures.

The project brief – what does a flexible meeting room need?

Since Google's inception it has been experimenting with flexible solutions, for instance by providing tents, huts, igloos and caravans in their workspaces. Whilst these settings satisfied user requirements at a particular point in time, technological advances in workplace communication render previous solutions obsolete. Therefore a flexible unit should deliver to ever evolving working habits whilst also displaying all the characteristics of a traditional meeting room built from partitions:

- Creating enclosures through a modular system of elements;
- Achieving an acoustic level difference of 40 dB for solid walls and 35 dB for glazed walls and doors, the industry standard for meeting rooms;
- Full integration of videoconferencing technology and easy use of Google Hangouts;
- Assembly in a couple of hours or days by trained but non-expert in-house maintenance staff;
- Re-utilising all elements for reassembly in another location - just like furniture and 'stuff';
- Using natural and sustainable materials that are readily available locally

In essence, the modularity requirements remind of childrens building blocks which can be used and reused easily to create endless possibilities of different material objects. Allowing the assembly of the system by lay people evokes the spirit of flat pack furniture. Another metaphor AHMM architects have used is the concept of the theatre with a stage (the workplace) and props (furniture).



Furniture or room?

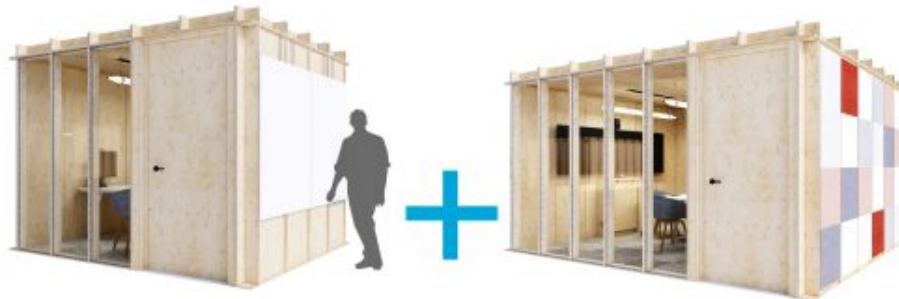
AHMM describe Jack as a 'bespoke, modular small room and spatial accessory system', built from wooden cassettes, that can be assembled, reassembled and reconfigured in a variety of ways to create differently sized, fully or partially enclosed spaces. Whether Jack is a piece of furniture or a room is an interesting question and one that continues to be a hotly debated.

Making it work

Through a series of prototypes and real life mock-ups, the project Jack team including AHMM, Google, ISG, Cundall, Sandy Brown Associates, Green Unit and Brown Carroll collaborated in producing a finished product.

Key challenges lay in achieving high-level acoustic performance (developed through a series of tests and prototypes in the exact way of building panels in the cassettes), ease of assembly, integration of services and technology (creating a 'plug and play' meeting room) and accuracy in production (so that the elements could in fact be assembled on site by trained staff)

The team see Jack as a continuously evolving and adaptable solution with motivations in developing Jack further in line with future business needs.




Innovation through perfecting the everyday

The workplace community has long associated Google with primary colours, bean bags, games rooms, free food, and the infamous office slide. This certainly created a profound impact on the way workplaces were designed over the last years, with occupiers ranging from the Silicon Valley technology industry to public service broadcasters following suit. A recent Guardian article⁴ has highlighted how tech giants have been upping the game in providing ever more fancy workplaces including internal spaces for retreats and the quest for the best ice cream and on site chef. Talent attraction and retention have played a major role in pushing workplace designs that are seen as part of a jobs' perks. Beyond the world of perks and wacky designs, it could be argued that Google is now making a move towards a more profound

⁴ An recent article in the Guardian has highlighted the new workplace trends in Silicon Valley:

<https://www.theguardian.com/artanddesign/2016/may/22/nap-pods-and-rooftop-parks-how-silicon-valley-is-reinventing-the-office>



workplace innovation with Jack – one where design that is perfectly engineered and particularly fit for purpose takes centre stage.

Asking all involved parties in the project team what they thought was the real contribution of Jack revealed stunning as well as humbling responses. Optimising performance, making it work, the simplicity of the unit, providing adaptability, allowing for speed, and using sustainable principles were some of the most common answers.

It seems that innovation here lies in providing for the everyday, in making sure that work processes are supported by spatial solutions.

Configurational opportunities – It is all about the layout!

Research in architecture has highlighted how the configuration of spaces, i.e. the way that spatial elements (such as corridors or rooms) are put together (through stairways and doors), is meaningful insofar as it creates a connected network of spaces. This spatial network matters since it shapes and distributes behaviours of the people using a building: places with shorter overall distances and a strategic location in the network (called integrated) can be shown to generally attract higher levels of movement flows and activities. Layout is an important driver and enabler⁵ of relationships between people: who talks to whom how often is a function of proximity, while attractors such as coffee bars are also centres of gravity diverting movement flows.

This is where another opportunity of Jack lies hidden: in using Jack components as natural partitions by closing off certain areas privacy and team cohesion may be afforded, while used differently, the placement of Jacks in the workplace can also highlight lines of sight and visibility, and foster bringing people together.

Monitoring Jack's performance

A total of 160 Jacks will be installed in 6 Pancras Square, which will house one part of Google's Kings Cross workplaces from June 2016. Prototypes have already made their way to other international Google offices including Dublin, Munich and Tel Aviv.

Anecdotal evidence tells that Googlers liked using the first Jack prototypes due to its acoustic privacy, the easy integration of video conferencing and the use of natural materials.

Further research will highlight how users will adopt Jack, which patterns of usage emerge, and ultimately, how easy it will be in fact to move them and thus change the workplace in line with changing business needs. Where best to place Jacks, and which impact certain configurations and locational choices will have on satisfaction, Jack usage, and team performance will also be of interest to assess and monitor.

It seems that after introducing the world to the office slide, the playful office and the fully catered office, the Jack workplace revolution by Google is a much quieter one, but possibly one with more and longer term impact on the way we work. Time will tell.


⁵ For a more extended argument, see this blog on the role of workplace layout: <https://wearespacelab.wordpress.com/2015/05/08/its-the-layout-stupid/>



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⁶ For more of Kerstin's publications, see her UCL profile:
<http://www.bartlett.ucl.ac.uk/people/?upi=KSAIL15&school=space-syntax>

Project partners

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|---|------------------------|---|--|
|  | Google | Occupier | Joe Borrett, Andrew Martin, Tim Sparks, Nick Barr, Sam Vasili-Hadjitoffi |
|  | AHMM | Architects | Simon Allford, Ceri Davies, Peter Smith, Steve Smith |
|  | ISG | Contractor | Mark Jarvis |
|  | Cundall | Mechanical and Electrical Engineering | Peter Mardle, Conrad Stone |
|  <small>Consultants in Acoustics, Noise & Vibration</small> | Sandy Brown Associates | Acoustics | Andrew Long, Edward Farrer |
|  | Green Unit | Design, Manufacturing, Delivery, Installation | Jonathan Finnerty, Philip Clayden |
|  | Brown Carroll | Joinery | Gordon Emm |