Building for collaboration

by Tim Kannegieter

he genesis of this article started with a staircase, an open staircase to be exact, climbing up the centre of a five-storey building. I immediately recognised the knowledge management (KM) story I had been looking for over the past few months - a counterpoint to the conventional information systems-centric approach to KM. I wanted a case study that illustrated the diversity of KM approaches now being employed. I found that story in the new Aurecon Centre in Melbourne.

I had lined up an interview with Peter Mathieson, technical director of buildings at the company and project leader on the Aurecon Centre, and Peter Greaves, technical director and competency leader for building services as well as being project director for the building. I expected some pretty good systems from one of our leading engineering companies designing one of its own offices. What I didn't expect was a holistic approach to collaboration that cuts to the heart of knowledge management - namely, the importance of face-to-face interactions.

In the KM literature, there is a phenomenon colloquially called "the water cooler effect", an American term referring to those serendipitous connections that occur as people bump into each other, often at the water cooler but it could be in the lift, the lobby cafe, lunch room or other such places.

It has long been recognised that one of the biggest barriers to effective knowledge sharing is physical distance. Having teams geographically separated in different cities is one obvious case but it has been found that having teams on the next floor up in a building can be almost as isolating.

I discovered that collaboration was a key goal of Aurecon's management as they approached the design of

their new office. From an engineering point of view, the challenge was addressed using both structural and building services solutions.

The first major decision the company made was to increase the size of the floor plate, moving their staff from a multi-storey building in which they had 10 floors to a five-storey building, effectively doubling the number of staff on any given floor.

What really caught my attention, though, was the decision to build a large open wooden staircase in the centre of the building. People near the stairwell are able to see others working on the floors above and below and as they walk up the stairs they can look across the floors around them.

As they exit the staircase, people immediately encounter breakout areas that are designed for informal meetings and collaboration. Beyond that there is a large lunch/tea area.

Mathieson said: "It's amazing how much business gets transacted in those places with short informal conversations. After bumping into the company secretary recently, we had an impromptu discussion about opening a new business in an overseas location - the work involved, the people we were interacting with, the impediments and timeframe. That is such important fundamental communication. Previously, the company secretary was two floors away tucked away in her own office and I may never have had that conversation."

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Greaves said: "Since moving into this building two months ago, I have met so many more people in a building of 700 people than I ever did in the previous building."

All of these structural decisions contribute to what is called "planned serendipity" in KM terms. For effective collaboration to occur outside of formalised meetings and projects, organisations need to increase the chance of people meeting and sharing anecdotes that may spark a creative interaction. The most significant innovations often occur across boundaries between dissimilar groups or between people who would not normally interact.

According to Greaves, there is still a cultural challenge.



Peter Mathieson



Peter Greaves

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He said: "I have observed that many people still seek out the closed meeting rooms for short meetings, when all they really need is one of our open breakout areas. This reduces the chance of others contributing to the conversation and this culture will take some time to change. Our management is leading the change by example and personally, I host many of my own design workshops in these breakout areas."

Apart from the above structural features, a key aspect of planning the new building was choosing how teams were co-located. Most organisations organise themselves around teams of people with similar expertise - because an organisation's effectiveness is based on the depth of its knowledge in any particular capability. However, this approach creates what are known as knowledge silos, where one functional team has limited understanding of other functions in the organisation. This is inevitable, no matter how the organisation is structured, and leads to one of the key KM challenges - how to collaborate and share knowledge across these boundaries.

Greaves said: "Working out the final stacking plan took six months with several iterations. Part of the controversy was our decision to split some teams that had previously been close in favour of placing teams



The central staircase of the new Aurecon Centre in Melbourne is designed to help facilitate collaboration.

together where we thought they could have greater synergy – the transport and energy teams for example.

"On the other hand, one of our core strengths is as a one-stop engineering shop. Previously, we had related teams on different floors but the new building has enabled us to change that. For example, we now have the structures, façades, acoustics and MEP (mechanical, electrical, plumbing) teams all on the same floor. They have only been together a few weeks but already the transformation has been enormous, with strong connections being made among people who didn't previously know each other well."

A final structural factor was the decision to go with an open floor plan. Open plan has become a dirty phrase in the vocabulary of many office workers in recent decades.

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Maitheson said: "Among engineers there is scepticism, even an avid hate, of open plan. But the purpose of open plan is not to save real estate. The intention is to get people to work together collaboratively. This is particularly effective when you mix more experienced staff with younger staff, who love the sense of support and community they get."

The biggest complaint about open plan settings is that the noise is greater, disrupting concentration. This leads to the second major engineering aspect of building for collaboration, namely building services. A key aspect of that is acoustics engineering.

Maitheson said: "We took away the standard office ceiling, partly to increase that sense of openness, but also so we could introduce a very good sound deadening material on the roof.

An open plan floor at the new Aurecon Centre.

"We placed the airconditioning under a raised floor. This is an inherently quiet system compared to overhead systems that have to push the air down to desktop. Everybody has a 200mm diameter vent in the floor at their chair that they can adjust to direct the air around them. This cool air gently mixes with the room air and naturally vents through the ceiling. Having people able to adjust their own vent also improves individual comfort levels and helps improve concentration levels."

Another building services component was the ICT. The entire building uses wireless connectivity meaning that staff can work at any location.

Greaves said: "Wireless offices were around 10 years ago, but even a recently as five years ago, you couldn't rely on the speed and reliability you have today, particularly with the large volume of data we are pushing between our various geographies, along with other ICT features like videoconferencing."

A follow-me printing system is used to make it easy for staff to work anywhere in the building. Staff simply swipe their card in whatever printer they want to collect their documents from.

While the acoustics, ventilation and ICT service contributed to the collaborative environment, the primary building service that enabled Aurecon's vision for the building was the fire engineering that enabled the inclusion of an open stairwell in the centre of the building that met safety requirements. Greaves said: "The normal fire engineering response to the stairwell would be to put in huge fans in the roof to take out any smoke and place glass screens around the stairwell to contain the smoke. However, glass screens would have reduced the collaborative effect we wanted to achieve and it would also have been an expensive variation on the basic building that the owner wanted.

"I therefore asked my team to refine the fire solution to eliminate that fan in the ceiling and use the agreed infrastructure that we already had planned for the basement. To their credit, the fire engineering design team, led by Ian Moor, found a solution which was firstly to provide sprinkler protection for rapid extinguishment of any fire, but to also adapt the airconditioning system to effectively exhaust the fire floor while supplying air on the adjacent floors to 'trap' any smoke on the fire affected floor while purging it for occupant tenability while they escape."

Greaves added: "The fire solution in this building shows that as engineers, it is often worth challenging yourself to see if a better outcome can be obtained for all parties.

"The goal in this project was not to build the Taj Mahal of office buildings but to meet the practical collaboration requirements we wanted. We also wanted to meet the budget requirements of the owner, while meeting sustainability targets – a triple bottom line if you like. The key to that is respecting the outcomes of every party in the project."