

Interview with Anthony Huszar, Account Leader for Global Health Security & Eszter Gulacsy, Technical Director in Sustainability, Mott MacDonald

Flexibility in Workplaces Enhances Office Amenity & Lowers Risk of Infection

By Japan SPOTLIGHT

Although many people are teleworking at home during this pandemic, they still sometimes need to go to a workplace for face-to-face meetings with colleagues or clients, even in limited numbers. For a human being, some minimal face-to-face contact is crucial for doing business. To reduce the risk of virus infections in such meetings in office spaces, we need a smart office or building that enables us to keep social distance and has good air quality. Mott MacDonald, a large UK engineering consulting company with subsidiary offices all over the world including Japan, provides proposals and advice for such offices and buildings based on its academic and professional expertise. Its science-based approach is helping buildings and cities in the United Kingdom to be remodeled to reduce infection risk. *Japan SPOTLIGHT* interviewed two senior consultants of the company, Anthony Huszar and Eszter Gulacsy.

(Interviewed on April 9, 2021)

Introduction

JS: Could you please briefly introduce yourselves and your company?

Huszar: My name is Anthony Huszar, I am a public health physician by background, and I lead the team on global health security in Mott MacDonald. Recently, we have been working on infection prevention and control and disease prevention programs, not only in the health sector but also for buildings, transport and other infrastructure. Mott MacDonald is a global engineering, management and development consultancy, with a focus on improving social outcomes and providing technical excellence. We have around 16,000 staff, with projects in more than 140 countries. We have an office in Japan and several offices in East and Southeast Asia.

Gulacsy: My name is Eszter Gulacsy, and I am a technical director in sustainability and Mott MacDonald's lead for healthy buildings. In terms of my academic background, I am a chemist and water and wastewater treatment engineer. I am based in the United Kingdom where Mott MacDonald is headquartered and where we have about 7,500 employees.



Anthony Huszar



Eszter Gulacsy

The Pandemic & the Workplace in the UK

JS: Could you tell us how Covid-19 has changed the building workplace in the UK?

Gulacsy: I work predominantly in the commercial office sector in the UK, Ireland and Western Europe. One thing initially was the many deserted city centers when Covid hit, as a result of many

people working from home.

In the early days of the pandemic, there was a lot of apprehension about the effectiveness of working from home, because it was something that had never been done on such a large scale before, and that was true for Mott MacDonald as well. In my team it was not such a change because we already worked in an agile way, but it was uncharted territory to do this on such a scale. It has now been going on for a year and has worked very effectively. Many of us are busier and more productive than ever before.

The downside is the mental health aspect and not being able to separate work and home life effectively. A lot of companies have started to rethink their commercial strategy going forward – as leases are coming to an end, they are rethinking their future strategy and that is true both for Mott MacDonald and for our clients as well.

Companies on short-term leases have been able to downsize their offices relatively quickly, while others are thinking about downsizing or reconfiguring their offices, so they become more of a space for meeting people. One of my clients, a tech company, said that whereas previously people would go to their offices to meet others from other parts of the business via teleconferences in single-person meeting rooms, now they are doing all their phone conferencing at home and then coming to the office to physically meet others. They now require meeting rooms with space for four to eight people, so that requires a sudden change in layout. Offices are getting reconfigured, not just to new layouts but to allow for more flexibility.

In the same way that we couldn't foresee Covid and its impacts, there might be something else around the corner that would require meeting rooms to be reconfigured again, so it's about allowing offices to be more flexible and dynamic and easier to change to your requirements, as your requirements change.

Huszar: To add to what Eszter has shared, from an infectious disease and epidemiological perspective, what we have seen is a greater focus on reducing infection risk. People are working remotely, but within the office space people are keeping more distance between themselves and between tables, sometimes there are plastic screens in between people. People are wearing masks, and access to handwash and sanitization products is more readily available. We are increasingly seeing more longer-term complex changes happening in the workplace; these involve people flows, so one-way systems or certain mechanisms to reduce crowding. People have to register in advance before coming into the office so there aren't too many people at any one time. Some places are using these, some are not.

In the future, we will be able to look at ventilation in a bit more detail as well, so there are things that are changing. Some are very quick to implement, and others may happen more in the future as we revisit the design of buildings and workplaces.

Mott MacDonald's Contribution to Building Smart Offices

JS: Specifically, what kind of contribution would your technology make to the formation of smart offices or smart buildings to reduce infections?

Gulacsy: I work a lot with building service design engineers, and one aspect is new development where you can incorporate smart building technologies into the design of the building itself. That includes things that were around before Covid but perhaps became more important, such as sensors related to fresh air.

Fresh air has been shown to be one of the most important things for reducing risk of infection, but of course in buildings that is not always guaranteed, nor that the designed fresh air flows are actually

realized, so it is important to have those control mechanisms working properly.

There are also a number of IoT devices that can be installed. We look at internal air quality sensors, which don't look at pathogens specifically but rather give you a general idea of air quality in offices. These include sensors for carbon dioxide which gives you a proxy for fresh air, but also sensors for particulate matter and volatile organic substances as well.

You can also use technology to model airflows. One thing that we have seen from studies is that building systems have played a role in the spread of infection where the airflow itself transfers the pathogen from one person to the next. There have been a couple of articles in academia about restaurants where infected people sit near an air conditioning unit and the air gets blown around. You can actually model this process and use a computer simulation to avoid this happening, and can incorporate this into building design so with modelling you can reduce the chance of this kind of transfer.

You can also use UV lighting to reduce infection and incidence of pathogens; however, this is something you need to be careful with as UV-C light is harmful to humans and therefore extra precaution is necessary to make this technology practically useful in the context of a building. The market is still emerging, and lots of companies are offering technologies claiming to do something, but what we have done at Mott MacDonald is to evaluate these technologies for their scientific and engineering rigor, applicability and practicality.

When you look at new buildings, 98% in the market in the UK are existing buildings, so whereas in new buildings you have the exciting opportunity to install sensors and smart technology items, the main problem with existing buildings is that there is a limited opportunity to improve infection control. My colleagues have been advising specific buildings about what they can do. They only have a certain amount of space for ventilation equipment – sometimes you cannot increase air rates or install better filters, so advice needs to be given in the context of the building in question. With existing buildings, the most effective control technologies are quite well known, and they have to be low-tech in some cases because the opportunity to install high-tech solutions is quite limited.

JS: Your clients must also be very diversified – in which sector do you have the most clients?

Gulacsy: We are a multi-disciplinary company, with people of various backgrounds including doctors and architects, and in the field of epidemiology we have a lot of expertise.

In the UK, we work across all sectors including commercial offices, healthcare and education. Mott MacDonald as a whole is best known for infrastructure projects, including reducing infection in airports.

Huszar: We are a consultancy company rather than a technology company and so we can actually draw technologies from different places and use them as appropriate, as opposed to having one product that we use.

Our health team works in all sorts of areas from buildings for hospitals, clinics and primary care all the way through to public health and planning. We manage global health security projects which involve disease surveillance, infection prevention and control, laboratory strengthening etc., so we have expertise in infectious disease as a topic on its own, but in the last year have been applying that knowledge to other parts of Mott MacDonald. Eszter has already mentioned a few: buildings, transport, and we are doing some work with the water sector also. The main sectors are anything to do with physical and social infrastructure including health, education, and socio-economic development. Protecting people in buildings is a major area of interest at the moment, so our health team is doing a lot of work with our buildings people to look at how to reduce infection but also how to prepare better if another outbreak happens.

Technology Performance Assessment

JS: How do you approach, for example, assessing and verifying the relationship between your technology and reducing infection rates?

Huszar: On data analysis and epidemiology, there are lots of different outputs that can be measured for success. One of the tricky things with disease outbreaks, however, is that when you have success, there is no disease to measure. Instead, for our advisory work we rely on clinical trials and the literature in academic journals to determine that an intervention such as social distancing reduces the risk by a certain percent. If you start to layer different interventions, you can compound the risk reduction and do some modelling on the kinds of interventions, the cost to the business and the reduction in the risk. That is a general view of how we go about it.

Gulacsy: From an engineering point of view, we tend to comment on the practicality in real life and whether the technology works in a real building. Epidemiological studies are often looking at pure science rather than applied science, and so engineers look at how to translate these findings to the practical reality for these technologies. Is it realistic in a commercial or retail office building with a high churn of people? The academic community at the beginning of Covid-19 only had studies from many years ago, including the 1970s and the SARS pandemic regarding the effectiveness of airflow. Of course now there is a lot more, but the academic world takes a long time to get these studies done because of the scientific rigor that is required.

JS: In that regard, do you have close contact with universities in order to collaborate on research?

Huszar: We have some formal collaborations and some informal relationships with our own personal contacts as some of us had previous careers in academia. More recently, I have had people reach out to me from the academic community regarding the work that they are doing, and how they are applying academic findings in real-world settings. There is engagement and dialogue in both directions.

Transformation of the Real Estate Business

JS: How do you assess the implications of the pandemic for the real estate business, both in the UK and around the world?

Gulacsy: Flexibility will be the key to offices in the future in both the UK and the rest of Europe. Before Covid we used to have millions of people descending on the city center to go to work but that is not the case anymore. There are implications from this on how quickly the office market turns over. There is an opportunity for city planners to revitalize some parts of the cities that are used less due to a decrease in commuters to make them more mixed in terms of use and communities.

Even before Covid, the idea of short lease rental offices was coming up but that will take off even more than before, and rather than going into city center offices as routine, people will be more purposeful about going in, rather than just going there because that is where you work. The presence of senior people is important to help less experienced people in the workplace, so younger people get the mentoring and in-person tutoring to make them into more experienced professionals. In engineering particularly, this is very important.

JS: Cities will look different after the pandemic. Do you also provide advice to city planners?

Gulacsy: In Australia we have projects where we are looking at entire neighborhoods and plan them out when you have the opportunity. In Europe with the historic city centers that is a lot more difficult, but in some parts of the world there is a more blank slate to do that and so it is a very exciting opportunity to see how people can reduce time to travel to places and how they can make use of local amenities and have these available.

Huszar: Increasingly there is more interest in health in general in cities, so our team are being asked to support more not just on the pandemic and infectious disease side, but also on healthy living, such as active transport to combat obesity, interventions to improve

air quality, nutrition, well-being and mental health within a city environment.

For most of the world, the highest cause of death is actually non-communicable diseases rather than infectious diseases, so it is not only about infections but we must think also about the whole package – climate change, and all social outcomes too. When we work on the bigger city projects there are many disciplines including the social side.

Market Potential for Business in Asia

JS: You mentioned the growing demand for your business all over the world. As you have an office in Japan, how do you see the market in Asia in terms of public health?

Huszar: In all markets we are seeing increased demand and interest for health advisory services, including for us to support infrastructure and transport, etc.

In Asia there are many opportunities: Asia has in the past been hit by more infectious diseases such as SARS, Avian Flu and so on, and it is clear that when we have big outbreaks, designs for hospitals and ventilation in buildings and public transport start to change.

There will be big opportunities to respond to the pandemic which has been bigger in impact than others in recent decades by improving prevention and preparedness. So companies will not only want to reduce the risk of infection but also ensure that they are better prepared in case it happens again. Companies will want to think ahead about the scenarios they need to plan for. If it is something in the air, the water or something that is spread through touch, we need to ensure that the right plans are there in place so they can respond quickly.

Future Business Strategy

JS: After the pandemic, how do you see your future business strategy?

Huszar: On our company website there are a number of priorities as to what the company wants to focus on. One of the main ones is essentially about people and social outcomes. I don't think that changes because of the pandemic – the priority is the same but how you achieve it might differ. We want to make sure people are safe, that the projects we advise on give them the most opportunity to do well in life. From the infectious disease perspective, how do we reduce the risk of infection and how do we better prepare their workplaces if there are other disease threats. From a wider health perspective, in the non-communicable disease sense, trying to address things like mental health, obesity and all issues that are impacting on people's

lives, and this will continue over the coming decades as they become higher and higher priorities throughout the world.

Gulacsy: Covid and the associated reduction in economic activity has resulted in some surprising changes to the environment, which highlighted the need to address climate change as a matter of urgency. During the first wave of the pandemic, some rivers suddenly became cleaner because economic activity has stopped and the air become cleaner, according to the news. So a lot of these problems that were caused by people can also be solved by people. There is an element to the Covid pandemic of the impact of climate change as well as on infectious diseases so we will continue to address climate change. Mott MacDonald as a company has made a number of commitments including becoming the first engineering consultancy of our kind in the UK to be carbon neutral as an organization.

Fundamentally, this is about making the world a little bit better. From social outcomes, to environmental perspectives – yes, we are an engineering company working in construction, but we want to ensure that our projects deliver value and long-term consideration of future generations.

JS: In your view, what are the qualifications most needed by top management during a crisis such as the current pandemic?

Gulacsy: A long-term view is essential. Lots of companies have reacted in a very haphazard way and you can see the issues arising because of that. On a country level, we need to look at the evidence about what has happened, what can be done, and having a measured way of addressing it rather than looking at it in a panicked and haphazard manner. If you treat people badly because of a situation like this it is difficult to get their trust, commitment and loyalty back and that is something companies and managers ought to be conscious of.

Huszar: Having a clear head is very important, and one thing we are working on is pandemic resilience. Having plans in place and being structured is very important, and we are currently doing some work with some clients and investors where they actually want to include some new criteria when considering new investments, and are already thinking about the next pandemic. So being prepared in advance is very useful.

JS

Written with the cooperation of Joel Challender who is a translator, interpreter, researcher and writer specializing in Japanese disaster preparedness.