

## FRIENDS OF THE SCOTSMAN / Technology & Innovation

### Let's agree on a tram disputes board

Phase II can go smoothly if we create mechanism to deal with disagreements, says **Lindy Patterson**

The Edinburgh Tram development put the capital on the international stage for all the wrong reasons. Cost overruns and extended delays came partly from a major dispute with the key contractor. Although the traumas remain ingrained, Edinburgh Council believes proceeding with Phase II can boost the city economy and help transform its waterfront area.

While the ultimate decision has now been deferred until after the 2017 council elections, there will be major concerns about Edinburgh enduring another financial fiasco should the extension go ahead. To alleviate the risk of history repeating itself the city should consider how it wants to deal with any disputes which do arise.

Dispute boards offer a sensible option as they can mitigate risk, identify potential problems early and develop solutions while avoiding disagreements arising or escalating.

Dispute board members are usually appointed at the outset and stay in place throughout a project. Along with a legal representative, boards are typically comprised of engineers and people with other building-related expertise who can take a professional view in resolving a disagreement. They tend to meet three to four times a year during a project but can also be brought in when disputes arise. They are in place on a range of infrastructure projects from the Rio Olympics to the new Forth Road Crossing.

If the Edinburgh Tram extension does go ahead, the appointment of a dispute board could help put the city on the international stage for all the right reasons.

● **Lindy Patterson QC** is a partner at international law firm CMS

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# Feet first into latest bid to

What do feet, fitness and seaweed all have in common?

Starting with feet, StEPS podiatry, an award-winning private podiatrist clinic which works with professional footballers and athletes, wanted to provide a service to help prevent injury by using an in-depth study of feet.

Working with the University of Strathclyde StEPS podiatry owner Dr Vicki Cameron accessed highly specialised equipment including the Vicon Motion Analysis system, a 3D gait analysis machine which, in addition to video, uses micro cameras to create a highly detailed 3D image of the foot.

A range of information obtained from the scan, such as arch height and the alignment of the Achilles with the leg, provided StEPS with valuable data which could be used in the development of Dr Cameron's preventative screening equipment. Dr Cameron is one of the few independent podiatrists in Scotland trained in the use and interpretation of computerised three dimensional gait analysis and now offer the most cutting edge treatments, rarely available elsewhere, thanks to the collaboration with academia.

**Fitness next.** Scotlab Ltd, also worked with the University of Strathclyde and the University of the West of Scotland (UWS) to develop their demonstrator model of a portable breathing apparatus simulating altitude of up to 20,000 feet.

The first stage of the project used computer aided design and 3D printing to review their existing prototype and develop a portable version. The second stage of the project, partnering with academics from UWS, analysed the new prototype's capabilities. Field tests were run on club level triathletes to provide data that would allow the academic team to produce an independent report demonstrating the performance capability and



Three-dimensional gait analysis and helps offer the most cutting-edge treatments, writes **Siobhán Jordan**

functionality of the device. The resulting Altium-i10 is having a big impact on athletes, improving their performance in a timely and cost effective way.

*Have you guessed the link yet?*

Finally seaweed. Mara Seaweed, the UK's leading culinary seaweed provider enlisted the help of Food Innovation @ Abertay at Abertay University where they were able to conduct microbiological and nutritional analysis and consumer taste testing to support them in their aim to communicate seaweed as 'the superfood of the sea'. As a result, Mara have been able to promote their product's nutritional values and have reached new markets, gaining access to some of the most prestigious high-end retailers and catching the attention of top chefs.

The theme linking these three very different companies is their use of specialist facilities within Scotland's universities to create, develop, test and analyse performance and improve functionality. Another linking feature to these projects is Interface, which helped to connect each of the companies to the universities, their expertise and specialist facilities. For small companies where time, resource and budget may be limited, these specialist facilities can help to improve the performance, cost and quality of products or processes in a controlled safe and scientific

**Interface**  
The knowledge connection for business

environment. Interface have recently launched an online specialist facilities showcase to promote the types of facilities and equipment which are available throughout Scotland's Higher Education Institutions to support commercial research and development activities.

This platform highlights many examples of the wide range of specialist facilities housed throughout Scotland from 3D printers to create products and prototypes to microscopy providing comprehensive analysis of materials, nutrition labs to support research into diet and ingredients, sensory suites to gain consumer feedback from evaluating products on taste, texture, colour and appearance, virtual reality for gaming, medicine and training, wave tanks to mimic aquatic conditions for product testing and strength testers to test whether products will withstand any forces they may be subjected to.

These are just examples of what is available - there is a huge amount of equipment and Interface can help to match businesses to the right facilities and supporting expertise. And worry not, hiring these specialist facilities comes with a package of support including in-house experts who will provide training and the knowledge needed to get the best out of the facilities. Check out the new website <http://www.interface-online.org.uk/how-we-can-help/specialist-facilities> to see the range of specialist facilities available throughout Scotland.

● **Dr Siobhán Jordan** is director of Interface which she has led since it was set up in 2005



↑ The right pair of shoes is vital if feet

# prevent injuries

are to be protected from damage and therefore pain

The average person now spends more time using technology than sleeping, survey reveals

How does this apply to our understanding of reality, asks **Emily Murtagh**

According to a 2014 survey, the average person now spends more time using technology than sleeping. From the everyday experience of being fully absorbed in a computer task, to newer developments in which our brains can be directly linked to computers, it is difficult to predict where this will eventually lead us and what the implications may be.

As society takes part in this transformation into more immersive virtual reality experiences, how do we define these experiences in terms of our understanding of reality? Are our new technologies just tools for our reality, or are they an extension of our reality, a replacement of reality or a fantasy dimension into which we can enter and leave at will? And does it matter?

From flicking through photos on your phone on a crowded bus on bleak mornings, to scrolling through holidays you know you will never book and clothes you will never buy, we all know the moments of escapism that technology can provide. But escapism is not necessarily a negative pursuit. In fact, it may be one we need to indulge in a little more in its most beneficial expressions.

The danger arises when a virtual world becomes more attractive to a person than their own reality and in some ways begins to take over. It is possible to get caught up in an existence that is in some ways occurring in parallel to real life but rendered free from the trickier and less pleasant aspects. This may leave a person more reluctant to act meaningfully in his or her own real life. From an

ethical perspective, if an individual's coping mechanisms are weakened rather than strengthened by escaping reality through technological use then it would seem an unhelpful way to spend his or her time. In other words, there is an ethical angle to escaping reality, with its corresponding advantages and risks.

A useful comparison when thinking about this is the experience of escaping with a book versus escaping with Facebook, which is an online social networking service between users, as a means of "being outside of ourselves", for a little while. Unlike in the experience of films and books, there is no marked beginning and end point with such a social media. It is visually stimulating and visceral enough to maintain interest for long periods of time, but it does not

usually give that dopamine high of a goal reached... Unless you have very definite notions of how much positive affirmation you are hoping to receive from your latest profile photo. This would account for the addictive nature of social media such as Facebook. There is a constant potential for surprise, and a constant flow that a person can lose themselves in for as long as they want.

On the other hand, the potentially more positive escapist pursuit of a good book or a film, takes us through a beginning, middle and end of some description. Our brain recognises the patterns of stories, the separation from one place, a journey, an incorporation of lessons learnt into the worldview of the main characters. Through journeying with characters we will usually identify with

certain aspects of their struggles and victories and in some way assimilate them into our own understanding of our own gains and losses, which can have quite a beneficial potential. This is something J.R.R. Tolkien, author of The Lord of the Rings trilogy, wrote about quite extensively.

The important distinction seems to be whether we are looking for resources that help us towards the fulfilment that comes with confronting real reality head on, versus substituting that for the pleasure of temporary release from our everyday lives in virtual reality. There is responsibility, courage and beauty in real reality which enables individuals to become real persons confronting the real joys and hardships of life; the unfiltered, unedited edition.

As with many great works of fan-

tasy literature, Lord of the Rings ends with a homecoming, the hobbits return to the Shire, with a new arsenal of resources with which to tackle the world where real suffering and joy exists. A good understanding of technology's influence on our perception of virtual and real reality allows us to recognise its potential power and utilise new applications in a way that enriches our every day realities, liberating us from their more negative consequences.

● **Emily Murtagh**, Research Associate, Scottish Council on Human Bioethics

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