

PANMURE HOUSE PERSPECTIVES

Developing tomorrow's business leaders for tomorrow's markets

ISSUE 3 2018

[LEADERSHIP]

NEXT GENERATION LEADERSHIP DILEMMAS

- and How To Solve Them

FROM REFINERY TO FINERY

Why we need strong voices of reason in our volatile world.

THE FLIGHT STUFF

Catherine Baird, of Emirates Airline, on creating a world-class passenger service.

UNLOCKING THE MATRIX

How complex organisations thrive with multiple leaders.

TEMPERATURES RISING IN FROSTY CANADA

Dr Anna Dowbiggin finds out what energy leaders really believe about climate change.

[Welcome]

Adam Smith's home is ready to greet the world again.

AN INTRODUCTION FROM PROFESSOR HEATHER MCGREGOR

elcome to the third edition of *Panmure House Perspectives*, the international business journal of Edinburgh Business School, the graduate school of

business of Heriot-Watt University. As ever, our aim is to ensure you find something informative and original to read for both business and pleasure.

Since our previous edition, a great deal has been happening at Panmure House in Edinburgh, where we have been able to see for ourselves the finishing touches to the incredible transformation of Adam Smith's final home.

Before this year's Edinburgh Festival Fringe, I asked my *Financial Times* colleague Merryn Somerset Webb, the Editor-in-Chief of *MoneyWeek*, to 'test-drive' the venue with some lively political and economic discussions during the Festival. She certainly had the venerable house resonating with the kind of debate Adam Smith would have relished. We also enjoyed a dramatisation of Smith's life by playwright John Yule in his excellent production, *The Invisible Hand*. There is no doubt that these trial events helped set a tone that we hope will continue. Our Principal and Vice-Chancellor, Professor Richard Williams also hosted a gathering of principals and directors of other Scottish institutions to let them see and feel the ambience and spirit of Panmure House. All of this was to try out the home for its proper opening to the world.

At the time of writing, we are preparing for the official re-opening of Panmure House. We are

thrilled and delighted that the Right Honourable Gordon Brown, the former Prime Minister, and one of the longest-serving Chancellors of the Exchequer in British history, will be our special guest for the opening. And, in truth, I cannot think of anyone more appropriate.

Like Adam Smith, Gordon Brown is known for his lifelong connection with Kirkcaldy, where he attended Kirkcaldy High School, Adam Smith's alma mater. Gordon entered Parliament in 1983 as MP for Dunfermline East, and while his political thinking was informed by the writing of many others, he cherishes his connection with Smith not only through the work of *The Wealth of Nations* but also Smith's *Theory of Moral Sentiments*. I am sure he will tell us more about this and we will report on it in our next issue.

I am certain Panmure House's official re-opening will be a worthy occasion of which Adam Smith himself would have approved.

Meanwhile, in this edition we look at various aspects of modern leadership, particularly through the research of several of our excellent Doctors of Business Administration, at Edinburgh Business School, and through the inaugural lecture from Professor Benny Higgins at Heriot-Watt University Malaysia. We hope you enjoy this magazine. We have been heartened by the feedback and by your positive comments. Please do keep them coming.



PROFESSOR HEATHER MCGREGOR
Executive Dean

Alex Lumsden - Production Editor
Mary Jane Bennett - Production Editor
Ania Lewandowska - Editorial Advisor
Adrian Carberry - Editorial Advisor

If you would like to know more about forthcoming issues, please contact: Alex Lumsden, Production Editor, Panmure House Perspectives, Edinburgh Business School, Heriot-Watt University, Edinburgh, EH14 4AS, Scotland, UK. alex.lumsden@ebs.hw.ac.uk

contents issue 3 2018

HONOUR FOR LEADING BUSINESS THINKER

Professor David Teece offers his advice to graduates on the moral principles that have guided his career. **___ p4**

CAMPUS PERSPECTIVES News and events from around Heriot-Watt University. **___ p5**

THE PANMURE HOUSE PERSPECTIVES

INTERVIEW Africa's richest billionaire, Aliko Dangote, talks about how he attained massive success in Nigeria and his plans for a refinery built on reclaimed swampland. David Pilling reports. **___ p6**

THE RELEVANCE OF SCOTLAND'S ICONIC

THINKER Politician and biographer Jesse Norman explains why Adam Smith is so important to our complex and ambiguous modern world. **___ p10**

A PASSION FOR EDUCATION Kenny Kemp writes in praise of a pioneering chemistry graduate from Heriot-Watt who began her course 70 years ago. **___ p12**

CURIOSITY IS KEY TO INNOVATION Professor Benny Higgins, who undertook his inaugural lecture in Malaysia, expounds his thoughts on the importance of creativity. **___ p13**

EYE ON THE PRIZE Professor Oliver Lemon on why Heriot-Watt's Alana is the perfect partner for Amazon's Alexa. **___ p16**

WHAT'S ON MY READING LIST? Professor Máiréad Nic Craith identifies some of the literature and publications that are informing her cultural research. **___ p17**

THE FLIGHT STUFF Catherine Baird, a leader in the global airline industry, talks about why product development and people training are the core of Emirates' success. She speaks to Kenny Kemp. **___ p18**

YOU'RE NOT MY BOSS Dr Gordon Jack looks at leadership roles in professional environments where everyone is on the same level but not always the same wavelength. **___ p20**

TEMPERATURES RISING IN FROSTY CANADA

Dr Anna Dowbiggin has studied Canadian energy producers' perceptions of climate change. Kenny Kemp hears her results. **___ p24**

UNLOCKING THE MATRIX Dr Richard Sunderland has opened the lid on the British Council to see how its leadership structure is coping with so-called 'matrix leadership'. **___ p28**

INFOGRAPHIC A horizon scan that 'explores' how the world will look for educators in 2030 and beyond. **___ p31**



Panmure House Perspectives is a twice-yearly publication reflecting on modern global business and the continuing relevance of Adam Smith. Smith's former home – Panmure House, near Edinburgh's Royal Mile – is being restored by Edinburgh Business School as a place of learning, research, reflection and international fellowship. ISBN 978-1-5272-3064-4.

ISSUE 3 2018



Professor ROBERT MACINTOSH asks whether allowing undergraduates to pick and choose courses from a range of universities will be the shape of things to come.

Heriot-Watt University plays an important part in Scotland's proud history of education. In 1821, we were a pioneering new type of institution, offering training and skills to those in work through our night school model. As the world's first Institute of Mechanics, we reshaped the educational landscape and were, de facto, Scotland's first provider of graduate apprenticeships. Now, in 2018, we are the country's largest provider of graduate apprenticeships, welcoming back an important type of undergraduate study.

Universities are changing as a result of globalisation and technology. Our sector is more deregulated and is increasingly having to compete with growing private provision. As we develop Strategy 2025 to shape the next stage of our story,

it is worth asking: how might undergraduate provision change in the years to come?

Today's students are making major financial investment decisions regarding the costs associated with where to study. Yet most universities share four common assumptions about how they deliver undergraduate education: students generally attend on campus; if fees are paid, they are paid directly to the university; all the credits for a qualification usually come from the same provider; and the default setting remains full-time study. From insurance to bookselling, other industries have experienced radical change when someone rethinks the unwritten rules. What about universities?

In higher education, distance and online

learning have thrived in the postgraduate market, but most undergraduates aren't yet choosing to study remotely rather than pay the sticker price for the full campus experience. One look around our major cities shows universities and private firms building student accommodation on the basis that on-campus study will remain popular. A second assumption is that the transaction for a degree is between the student and the university, with the academic as a salaried employee. There are subtle differences if funding comes directly from the government, as is the case in Scotland, but even then the fees flow to the university, which in turn hires academic and professional service staff to deliver the educational experience. Star academics are indeed well paid, but imagine a parallel world in which the individual educator sells their content direct to the student and keeps most of the fee. Surely that would be unworkable?

This links to the third assumption: that students study for the totality of their degree with a single provider. Yes, it is true that most institutions will accredit prior learning to enable students to transfer in from another university, but this tends to occur as the exception not the norm. Health issues or the realisation that your first choice of degree wasn't for you are the kinds of one-off situation that universities consider sympathetically. Much more radical would be the opportunity to choose courses from a range of universities and modes of study. Yes, universities would want to approve the curriculum, as would most professional bodies (after all, engineers, medics, accountants and the like need particular skills). But students could, in theory, choose where and how to study according to budget, time pressures and life circumstances before asking one institution to accredit their portfolio. Blockchain technology might enable this, and there are already some examples of new entrants experimenting with this approach. You could even say that there is a rollercoaster ride ahead for our universities.

Finally, while postgraduates can study for qualifications on a flexible, part-time basis, the vast majority of undergraduates are full-time students. Sam Gyimah, the UK minister responsible for higher education, has already made clear that he doesn't see full-time study as the future norm. The Open University has long championed flexible, part-time study while, more recently, the University of Buckingham has introduced two-year degrees. However, no one is yet offering the flexibility to blend or to switch modes back and forth as circumstances change.

As the educational landscape shifts, it is worth asking whether our universities are evolving fast enough. As a pioneering, multi-campus, multicultural university, we are looking to develop a strategy that will position us as leaders in new ways of delivering the transformative power of education to future generations of students. It is an exciting time to be doing so. 🌟

A TRIBUTE TO EDINBURGH FOR 'SHARPENING MINDS, not swords'

Leading business thinker PROFESSOR DAVID TEECE, from the University of California's Haas School of Business at Berkeley, tells graduates that Adam Smith and David Hume are the guiding lights for his moral principles of wisdom.

Edinburgh's intellectual heritage must be saluted 'Not for providing swords or daggers, but by sharpening the mind and using reason,' students were told at their Heriot-Watt University graduation.

Professor David Teece, a leading thinker in the sphere of management consultancy and the recipient of an honorary doctorate, spoke at the ceremony about Scotland's influence on the world and how it has informed his institution's four moral principles of wisdom.

A New Zealander and also a wine industry entrepreneur, Professor Teece taught at Stanford Graduate School of Business from 1975 until 1982, and then joined the Haas School of Business at the University of California, Berkeley. He remains one of its most distinguished researchers and is director of the Tusher Initiative for the Management of Intellectual Capital at Haas.

In congratulating students on their accomplishments at the Edinburgh campus, he urged them to consider their privilege in gaining access to quality education. He implored all of them to put their learning to very good use.

'What you have accomplished is a stepping stone, and no more, to a better life for yourselves and for others. You must find true north for yourself, and to do so, in my view, one needs defining principles,' he said in his speech after being awarded a DLitt by Professor Richard Williams, Principal and Vice-Chancellor of Heriot-Watt University.

'They are four principles we have developed at Berkeley-Haas that we sometimes think are our own... though, of course, we are willing to share them. However, I believe that their roots lie right here in Edinburgh. The fountainhead is the Scottish Enlightenment of the eighteenth century, to which David Hume and Adam Smith were key contributors.'

Professor Teece stated his four principles and explained their meaning, showing the connections to Scotland, and to Edinburgh in particular.

1 FIRST PRINCIPLE: QUESTION THE STATUS QUO

He spoke about being the champion of bold ideas, taking sensible risks and embracing uncertainty rather than being cowed by it: 'When we fail, we endeavour to fail graciously. To be at the centre of entrepreneurship and innovation, one has to be bold, walk off the beaten path, know when we are off of it, and behave respectfully towards those that may be trapped and cannot easily get off of it.'

2 SECOND PRINCIPLE: BEYOND YOURSELF (OR 'NON-SIBI' IN LATIN)

'It's also a phrase inscribed on some war memorials. It's not just about charity. It doesn't deny self. Rather, it means "not for one's self alone". Moreover, it's not just for the moment. It's lifelong.'

3 THIRD PRINCIPLE: CONFIDENCE WITHOUT ATTITUDE

'One must be confident without projecting superiority. One must behave cooperatively but without arrogance. Arrogant people don't learn. This leads to the fourth principle.'

4 FOURTH PRINCIPLE: STUDENTS ALWAYS

Professor Teece spoke about the importance of curiosity: 'By "Students always" we mean that we must commit ourselves to a lifelong quest for personal and intellectual growth. There will never come a time when you have learned all you need to know; and you must, of course, put your learning to good purpose.'

He explained that these Berkeley-Haas principles were derived from Scotland.

'They have deep roots in spirituality, in moral behaviour and in practical wisdom. In fact, they are deeply rooted here in Edinburgh. Moral philosopher and economist Adam Smith was in the inner circle of great minds here in Edinburgh in 1750 until his death in 1790. David Hume and Adam Smith were ringleaders in the Scottish Enlightenment, which illuminated much of the world.'

'The Enlightenment was a movement of ideas and the disputation of ideas. It was a period of great intellectual and scientific discovery. The leaders of this movement asserted the importance of reason combined with the rejection of any authority that could not be justified by reason. And there was no good reason to outsource thought to the church and the state!

'With Adam Smith, there was an emphasis on observation and empiricism and practicality. The key values he advanced were improvement, virtue and practical benefit for the individual and society. There were and there remain great universities here in Scotland that enabled and encouraged this tremendous burst of scientific and philosophical inquiry.'

EMPATHETIC OBSERVER

Professor Teece said Adam Smith clearly did not favour seeking wealth for wealth's sake. 'He was a stoic and loved heroes and patriots. He wanted to foster "improvement in Scotland" and, in *The Theory of the Moral Sentiments*, wanted to see the "best hearts" balanced with the "best heads".'

'Smith also suggested that, to find our moral compass, we need to stand outside ourselves and see our own actions as objectively as we can. In this regard, his advocacy of high self-awareness was consistent with mystical and meditative practices. If you can recognise your own anger, you have a chance to deal with it. He was not making a case for being sympathetic, although sympathy is virtuous. He believed that there is an inner voice in all of us, and that we need to listen to it. So life is not just about managing utility, as Jeremy Bentham proclaimed, but about contributing to the common good.

'Learn to be an empathetic observer of oneself. It's hard but necessary and it is the practical moral compass Smith has offered us.'

Professor Teece said thank you to Edinburgh for contributing so much to the world and to the freedom of people everywhere. He urged the graduates to go forth not just with the knowledge they have acquired but with the principles they have inherited: 'Create, build, manage and renew for society and for yourselves. Join the battalion of well-educated young people from around the world forging new pathways, overturning the old; but don't forget to replace it with something better.'

CAMPUS PERSPECTIVES

Adam Smith: The Invisible Hand. Panmure House, Edinburgh

The gentle, brooding character of Adam Smith was brilliantly brought back to life in August as Panmure House buzzed with activity during the Edinburgh Festival Fringe.

In a series of pre-opening events to allow the curious to sample Smith's revived Edinburgh home, playwright and actor John K. Yule offered us a powerful portrayal of the lauded economist.

The performance of *Adam Smith: The Invisible Hand* by In Company Theatre Productions, in conjunction with Edinburgh Business School, was an inspired and appropriate way to bring Panmure House back into the fold of public life.

Yule, who interchanged the role with Paul Samson, was excellent in the character he created, showing

Smith's empathy and shimmering intellectual brilliance, at times dimmed by his Scottish diffidence. Of course, the story is fictional; it involves some secret papers found in recent times that may reveal something of Smith's sympathies for the French revolutionary cause. It is very much a theatrical device, but it works well in building an interesting dramatic dimension.

'It was tough going at first because so little is known about Adam Smith and I struggled to find an interesting story for my purpose. I was living in France during the hot summer of 2015 when the idea, prompted by Professor Ian Ross's book *The Life of Adam Smith*, came to involve Adam Smith in the politics of the French Revolution and their consequences,' explained Yule in his programme note.

The tale helps brings to life the turmoil of the times. Martin Docherty is an excellent foil as Rousseau, Voltaire and Robert Burns, all played with some alacrity and deft moments of amusement. Susan Coyle, as Smith's obsessive mother Margaret, doubles as modern-day Helen McKenzie, who brings the discovery of the secret papers to the attention of a professor, played by Simon Macallum, also the story's narrator.

The four actors managed to build a compelling drama, giving those new to Smith, and those more familiar with his genius, a glimpse of a good and honest human being wrestling with the difficulties he faced as a philosopher and writer in a politically fevered time. 🎭

Converge Challenge

TWO SPIN-OUT COMPANIES FROM HERIOT-WATT UNIVERSITY HAVE COME OUT ON TOP AT THIS YEAR'S CONVERGE CHALLENGE.

Low-carbon brick developer Kenoteq won the Design and Creativity Award at the annual competition held in Edinburgh. The company, formed in 2015 by Dr Samuel Chapman and Dr Gabriela M. Medero, produces environmentally friendly bricks made from 90% recycled materials from construction waste.

HiRes Solutions received a Kickstart Award after being named joint-best early-stage spin-out company. HiRes Solutions, established by Vassiliki Voulgaridou, is developing software for ultrasound image processing that provides highly detailed maps of the circulation of tumours, allowing for faster and better cancer diagnostics.

A total of four Heriot-Watt projects were nominated for this year's Converge Challenge, which recognises innovation and entrepreneurship from Scottish academia.

WE'RE VERY PROUD OF OUR REPUTATION AS A CHAMPION OF INNOVATION AND INDUSTRY, AND REMAIN COMMITTED TO NURTURING TOMORROW'S ENTREPRENEURS, WHO ARE VITALLY IMPORTANT TO BUILDING INCLUSIVE GROWTH IN OUR ECONOMY.

Dr Gill Murray, Deputy Principal (Enterprise and Business), said, 'We have had an exceptional representation at this year's Converge Challenge. We're very proud of our reputation as a champion of innovation and industry, and remain committed to nurturing tomorrow's entrepreneurs, who are vitally important to building inclusive growth in our economy.'

'I congratulate all of our finalists and winners, who will, I'm sure, continue to go from strength to strength in the years to come.'

Converge Challenge is Scotland's leading company creation competition and entrepreneurial development programme for staff, students and recent graduates of Scottish universities and research institutes.

More than £160,000 worth of prizes was awarded to 10 entrepreneurs from universities and research institutes from across Scotland at the gala awards, attended by over 200 representatives from higher education, the investment community and the Scottish entrepreneurial sector. 🎉

The Big Interview

FROM REFINERY TO FINERY:

A NIGERIAN LEGEND WITH HIS EYE ON ARSENAL

ALIKO DANGOTE, one of Africa's richest billionaires, made his fortune by supplying cement in Nigeria which opened the floodgate to an extraordinary entrepreneurial life. DAVID PILLING meets him on his 108ft yacht, *Mariya*, berthed in Lagos' s bustling harbour.



As a rule, I don't get worked up over oil refineries. But the one gradually taking form on 2,500 hectares of swampland outside Lagos, Nigeria's Mad Max commercial capital, is so big, so audacious and so potentially transformative that it is like Africa's Moon landing and its Panama Canal — a Pyramids of Giza for the industrial age.

BUILDING ON A SWAMP

If Aliko Dangote, the billionaire businessman behind what even he calls his 'crazy' \$12 billion project, can pull it off, he will go down as the continent's John D. Rockefeller, Andrew Carnegie and Andrew Mellon combined. And once he's built it, he intends to treat himself to a small indulgence: he'll buy Arsenal, his favourite football club.

'When we finish this project, for the first time in history Nigeria will be the largest exporter of petroleum products in Africa,' he tells me, summoning the drabest of platitudes for a project of pharaonic ambition.

I am sitting with Africa's richest man discussing his life of superlatives over Thai food on his 108ft yacht, moored in Lagos Lagoon. Yet the image he projects is more like a modestly successful encyclopaedia salesman.

When I arrive at the dock, Dangote, a Muslim, is praying in his quarters. He soon comes out to greet me and turns out to be the most solicitous of hosts as we enjoy lunch together.

A few numbers on the refinery will help illuminate the scale of his 'craziness'. When it is up and running — if it gets up and running — it will process 650,000 barrels of oil a day, a third of every drop Nigeria produces and approaching 1% of planetary production. That will make it the biggest oil refinery of its type in the world. As a sort of side concern, it will pump out all the plastic Nigeria's 190m people need (or imagine they need), plus 3 million tonnes of fertiliser a year, more than all its farmers currently sprinkle on their fields.

To make things more interesting, Dangote is building the whole thing on a swamp. (It's a tax-friendly swamp, at least.) That requires sinking 120,000 piles, on average 25 metres in length. No port in Nigeria is big enough to take delivery of the massive equipment, which includes a distillation tower the height of a 30-storey building, and no road is strong enough to bear its weight. Dangote has had to build both, including a jetty for which he has dredged the seabed for 65m cubic metres of sand.

There is not enough industrial gas in the whole country to weld everything together, so Dangote will build his own industrial gas plant. There aren't enough trucks, so he's producing those in a joint venture with a Chinese company. The plant will need 480 megawatts of power, about one-tenth of the total that electricity-starved Nigeria can muster. You guessed it. Dangote is building his own power plant too. For years — and absurdly — Nigeria has exported all its oil as crude and then reimported refined petroleum, such as petrol and benzene. That has been a lucrative racket for the middlemen who scheme over import contracts and who concoct ways to scam a system distorted by subsidies.

'I'm sure you know about this game,' Dangote says. Because of its reputation for skulduggery, he says, he has shunned the oil trade. 'It is very simple to destroy a name,' he adds, referring to a family business that stretches back to his great-grandfather on his mother's side, Alhassan Dantata, a prodigiously wealthy merchant who imported kola nuts from Ghana and exported groundnuts from Nigeria. 'But it's very difficult to build it.' He tries to fast at least once a week, he says, looking guiltily at our feast. 'It helps to clean your system. More peanut sauce?'

AMBITION TO MAKE THINGS

Many of today's billionaires spin their fortunes from intangibles: the internet, the media, banking or hedge funds. Dangote has made his money from more prosaic things: salt, sugar, flour and, above all, cement. An awful lot of cement.

He was born in Kano, an ancient trading town in northern Nigeria, where he was brought up by his grandparents after his father died when Dangote was eight. After studying business at Al-Azhar University in Cairo, he moved to Lagos to strike out on his own. He too became a trader, but unlike the other businessmen whose fortunes were built on import licences available to the friends of politicians, Dangote had a hankering to make things. ▶

DANGOTE'S 'CRAZINESS' IN NUMBERS

650,000

BARRELS OF OIL A DAY

APPROACHING

1%

OF PLANETARY PRODUCTION

THAT WILL MAKE IT THE BIGGEST OIL REFINERY OF ITS TYPE IN THE WORLD

3 million tonnes

of fertiliser a year, more than all its farmers currently sprinkle on their fields

A distillation tower the height of a

30-STOREY BUILDING

The plant will need

480 megawatts

of power, about one-tenth of the total that electricity-starved Nigeria can muster

► ‘You can’t just come and remove food from their table and think they’re just going to watch you doing it,’ he says. ‘They will try all sorts of tricks. This is a very, very tough society. Only the toughest of the tough survive here.’

Most Nigerians assume that Dangote is tougher than the next guy. While to many he is a hero who builds factories, employs thousands and reinvests his money at home, to others he is a villain: a ruthless monopolist who squeezes favours from the government of the day and crushes competition like limestone in a cement mixer. Some accuse him of avoiding taxes by invoking an investment incentive known as ‘pioneer status’.

Others say he is more of a rentier than an entrepreneur, gouging the country with high prices and raking in ludicrous profits. ‘People throw a lot of mud at you and you have to see how you can clean it up,’ he says of his detractors.

A NETWORKER EXTRAORDINAIRE

In person, he is charm itself, a soft-spoken man with a pleasantly round face, close-cropped hair and a greying moustache so delicately trimmed that it is almost not there. He projects integrity and humility, even piety. I’ve met mere millionaires with more swagger than him. Yet Dangote is a billionaire 14 times over and the 100th richest person in the world, according to Forbes.

He is a networker extraordinaire. To watch him work a room is to witness a kind of genius. He irradiates a Dickensian bonhomie as he glides from table to table, picking up goodwill — and intelligence — with each pressing of the flesh. If there are competing obligations — the wedding reception of the daughter of a Big Man, a dinner for the vice-president, a foreign investors’ post-conference gala — he manages to be at all three events at once, an apparition moving unhurriedly through the room as though he has all the time in the world. Like Bill Clinton, he remembers your name; like Al Capone, he’s got your number.

Even Dangote’s yacht — named *Mariya*, after his mother — manages to be understated, if such a thing is possible in a 108ft vessel with a price tag, according to Lagos’s gossipy tabloids, of \$43 million. It was styled after a boat owned by fellow Nigerian billionaire, Femi Otedola, though intriguingly Dangote had his built a few feet shorter.

He makes no secret of how he got his big break, one that transformed him from a wealthy man — and by all accounts a bit of a dilettante — into a business colossus whose interests straddle the continent. It happened one day not long after the election in 1999 of Olusegun Obasanjo, the former military leader who had embraced the country’s lurch to democracy by running for the presidency. Dangote contributed both to that campaign and to his subsequent re-election in 2003.

‘Obasanjo called me very early in the morning and said, “Can we meet today?”’ says Dangote, recalling the presidential summons. He wanted to know why Nigeria couldn’t produce cement, instead importing it by the boatload. Dangote told him it was more profitable to trade than to produce. Only if imports were restricted would it be worthwhile. Obasanjo agreed. Dangote has never looked back.



Nigeria still imports 4.9 million tonnes of wheat, which does not make sense. Nigeria still imports 97 or 98% of the milk that we consume.

The government needs to bring out a draconian policy to stop people importing milk, just like they did with cement.

Now Africa’s undisputed King of Cement, he produces in 14 countries. I hear that the business makes 60% margins, I say. He waves the number away.

‘We have a margin of 47%,’ he says, as if that were a mere bagatelle.

No one else can compete on efficiency, he says. Critics say Nigeria pays more for cement than it ought to, slowing investment in construction and housing. When I put that to him, he immediately reaches for his phone, checking out today’s prices in Ghana, Benin and Ivory Coast. His own price is competitive, he says, adding that people often forget the high transport costs of importation. Muhammadu Buhari, the current president, despairs of a manufacturing base that has shrivelled as a consequence of oil addiction, bemoaning that Nigeria even imports toothpicks.

‘What Nigeria needs is to produce locally what we can produce locally,’ Dangote says, nibbling at a skewered satay, and defending the thinking that has made him rich. ‘Nigeria still imports vegetable oil, which makes no sense. Nigeria still imports 4.9 million tonnes of wheat, which does not make sense. Nigeria still imports 97 or 98% of the milk that we consume.’

DRACONIAN POLICY

Of the latter (astonishing, considering the country’s roughly 20 million cows), he says, ‘The government needs to bring out a draconian policy to stop people importing milk, just like they did with cement.’

His phone is still vibrating. This time he takes it. He’s flying to India the following morning on his private jet and is making final arrangements.

‘It has been very, very, very hectic,’ he says of his recent schedule. Only that morning, his doctor warned him to slow down and get more sleep. He reckons he rarely gets five hours a night. ‘The heart, it keeps pushing and pushing and pushing, but there must be a limit.’



David Pilling is the FT’s Africa editor. This article appears with the kind permission of the *Financial Times*.

Often he’s firefighting. Problems erupt in one country or another and he is constantly criss-crossing the continent by jet. In Tanzania, where he’s built a \$650 million cement plant, he’s battled with the president over a threat to seize assets. Not long after I met Dangote, his country manager in Ethiopia was murdered.

When he’s not dealing with crises, he’s fending off friends and relatives, who are often seeking help of a pecuniary nature.

‘People call me in the middle of the night to tell me about their problems,’ he smiles wryly. Tony Blair, the former British prime minister and a friend of Dangote’s, told him he needed to screen his calls. ‘Tony said he only makes three phone calls a day,’ Dangote says incredulously, helping himself to noodles.

Each day scores of emails come rat-tat-tatting in. ‘You try to be polite and reply but they come back to you with a longer email, not minding that here is a very, very busy person,’ he says mournfully.

He reckons that he takes more than 100 calls a day. ‘Look Aliko,’ he says Blair told him, ‘the world is not going to fall apart if you don’t answer your phone.’

Dangote’s schedule is also inhibiting romance. Twice divorced and with three grown-up daughters, he’s on the lookout for a new bride.

‘I’m not getting younger. Sixty years is no joke,’ he says, ‘but it doesn’t make sense to go out and get somebody if you don’t have the time. Right now, things are really, really very busy, because we have the refinery, we have the petrochemicals, we have the fertiliser, we have the gas pipeline.’

With sweet talk like that, I think to myself, it can’t be long before he wins some lucky woman’s heart. ‘I need to calm down a bit.’ His ambitions are changing. He is talking about pulling back from the business, concentrating on strategy and letting others run things day-to-day.

‘I’m trying to step back from some of the boards.’ He will float the cement business in London, perhaps by the end of this year, and has already appointed independent directors — including Blair’s wife Cherie — to help satisfy London’s pesky governance requirements.



A FOOTBALL FANATIC

He remains Nigeria’s strongest advocate, though he consistently denies political ambition. If he ran for president, you wouldn’t bet against him. ‘Nigeria has always had a lack of visionary leadership,’ is the closest he’ll come to declaring political intent. ‘There’s no country in Africa that has the energy of here. Nowhere, I’m telling you.’ He is less coy about another ambition: his designs on Arsenal, a Premier League football team he has long supported.

‘I love Arsenal and I will definitely go for it,’ he says matter-of-factly, as though discussing the latest model of iPhone. He reckons it’s worth about \$2 billion. Long frustrated with the club’s decline under Arsène Wenger, the recently replaced manager, he says that as owner, he would involve himself in rebuilding the team — ‘chipping in my own advice’, as he puts it. ‘When I buy it, I have to bring it up to the expectations of our supporters.’

But first he has a refinery to build. ‘When you visit, you’ll see what a headache I am talking about,’ he says of a project into which he has sunk more than \$6 billion of his own money. ‘Once I have finished with that headache, I will take on football.’

THE ASTONISHING RELEVANCE OF Scotland's iconic thinker

JESSE NORMAN explains why he decided to tackle the complex matter of Adam Smith's life and times as the subject of his latest acclaimed book.

Today, mention of Adam Smith often elicits sharply contrasting reactions. Especially since the 1980s, he has been at the centre of the ideological battleground for competing views of economics, markets and societies. For many on the right of politics, he is a founding figure of the modern era: the greatest of all economists, an eloquent advocate of the freedom of the individual and the staunch enemy of state intervention, in a world released from the utopian delusions of communism and socialism.

For many on the left, he is something very different: the true source and origin of so-called 'market fundamentalism'; author of 'the textbook on contemporary capitalism' (according to the activist and writer Naomi Klein); the prime mover of a materialist ideology that is sweeping the world and corrupting real sources of human value; an apologist for wealth, inequality and human selfishness; and a misogynist to boot.

One thing is certain, however: in an era in which economists and economics have become ever more influential, Adam Smith is regarded as by far the most influential economist ever to have lived. In a random 2011 survey of 299 academic economists, Smith came first by a huge margin, with 221 citations vs 134 for Keynes, the rest all following after. Nor is Smith's academic reputation confined to economists: a detailed study of references on JSTOR, a comprehensive database of largely English-language journals, between 1930 and 2005 showed Smith to be by far the most heavily cited of the economic 'greats'. His latest recorded total was higher than that of Marx, Marshall and Keynes combined, and more than three times as high as that of any modern economist.

Smith's influence has been magnified by the sheer range of his ideas; even outside economics, many of the deepest thinkers of the past 200 years, in a range of fields spanning philosophy, politics and sociology, bear his stamp to some degree, including Burke, Kant, Hegel, Marx, Weber, Hayek, Parsons, Rawls, Habermas and, more recently, Amartya Sen. Smith's four maxims of good taxation form the basis of tax systems the world over.

Smith's ideas still have the capacity to take our breath away, through their ambition and brilliance, their simplicity and scope.

They are essential to any attempt to address these challenges, and they need to be widely and fully understood.

His famous phrase 'the invisible hand' is ubiquitous in lecture halls and media comment pages alike. He has an institute, a peer-reviewed journal and numerous societies around the world named after him; according to Pushkin, the fictional Eugene Onegin studied him; his face stares impassively across the face of the Bank of England £20 note. And, of course, his former home at Panmure House in Edinburgh has been fastidiously regenerated for contemporary use by Edinburgh Business School.

My new biography of Smith falls into two halves. In the first half, a fairly rattling narrative takes us through his life, setting it against the backdrop of the tumultuous events of the eighteenth century, from the Act of Union between Scotland and England through the Jacobite rebellions to the American and French Revolutions. The second half then steps back to explore his ideas – from economics to ethics and social psychology – in more detail, and show how relevant they remain to the major problems of capitalism and commercial society today. En route, it punctures a host of myths and establishes connections across the whole body of Smith's thought, including its influence on economic thinkers as diverse as Hayek, Keynes and Marx.

But, even from beyond the grave, Smith does not make it easy for the biographer: his life was the very pattern of academic uneventfulness; just before his death he instructed his highly reluctant executors to burn almost all his manuscripts, about whose contents we can only speculate. His Lectures on Jurisprudence, an oft-neglected but vital element in his thought, survive only thanks to some astonishing luck.

Many of the deepest ideas in Smith's thought tie back to those of his closest friend, David Hume. In many ways they were an unusual pair. Hume, the older man by 12 years, was worldly, open, witty, full of small talk, banter and piercing aperçus, a lover of whist, a gourmand and a flirt. Smith, by contrast, was reserved, private, considered and often rather austere in his public manner, though he could unwind in private.



The refurbished Panmure House has been given a message of welcome from one of its staunchest supporters.

Professor Sir Anton Muscatelli, Principal and Vice-Chancellor of the University of Glasgow, said, 'I was delighted when I was Principal of Heriot-Watt University that a decision was taken to purchase Panmure House. It is one of the few remaining physical connections to Adam Smith, and provides an opportunity to Heriot-Watt and Scotland to feel that connection with one of the towering figures of the Scottish Enlightenment. I wish the University well as it continues to develop Panmure House.'

His comments came after a gathering of leading academics hosted by Professor Richard Williams, the Principal and Vice-Chancellor of Heriot-Watt University.

'Heriot-Watt are to be commended for such a thoughtful and attractive restoration of Adam Smith's home, Panmure House. I am sure it will prove to be an important venue for many tourists, visitors and scholars, from Scotland and beyond,' said Susan Stewart, Director of the Open University in Scotland.

The gathering was a preview of the house before the official opening by the Right Honourable Gordon Brown, the former Prime Minister and Chancellor of the Exchequer.

But, far more than any other thinker, Hume is Smith's imagined interlocutor; and, though no real philosophical correspondence between them survives, there are few pages of Smith in which one does not sense the shadow, if not the influence, of Hume. For all the duo's numerous points of difference, it would not be too much to call Smith a disciple of Hume.

By the standards of the time Smith was broadly Whiggish in outlook, a term implying a belief in the virtues of constitutional monarchy, religious toleration and personal freedom. But he remained remarkably close-lipped about his personal political views throughout his life. He never married, and he had no children. As far as we know, there were no secret loves, no hidden vices, no undergraduate pranks, no adult peccadilloes: when it comes to juicy personal detail, Smith's life is a featureless Sahara. In the words of his first biographer, Dugald Stewart, Smith 'seems to have wished that no materials should remain for his biographers, but what were furnished by the lasting monuments of his genius, and the exemplary worth of his private life'.

Despite these unpromising circumstances, Smith has not lacked for biographers. He has been greatly favoured in recent years by works that have painstakingly assembled the details of his life, set it vividly against the intellectual backdrop of Edinburgh and the ideas of the Scottish Enlightenment, presented him anew for a popular audience, and explored the span of his intellectual interests; in addition to an ever-expanding academic literature. I have drawn freely and with great gratitude from this body of work.

My book inevitably covers much of the same ground. It is, of course, not immune to its own preconceptions, and although as balanced and fair-minded as I can make it, it is hardly free from the usual defects of partial knowledge and limited perspective; defects on which I welcome corrections and ideas from readers. But it has three specific points of difference from its predecessors. The first is that it is written not by a professional Smith scholar but by a working politician, albeit one with an academic background in philosophy; that is, by someone both dealing with and trying to understand and explain the nature of political economy in its modern aspects, practical as well as theoretical. The second is that the book makes a deliberate effort to give the reader not merely a taste of Smith's ideas but a feeling for how those ideas work and fit together, across their whole, very wide-ranging span. Finally, it makes a specific and, I hope, trenchant argument for the importance and continuing relevance of Smith's ideas.

It is an accident of history that Adam Smith and the great Irish philosopher-statesman Edmund Burke – the subject of my last book, *Edmund Burke: Philosopher, Politician, Prophet* (2013) – were good friends. They much admired each other, and there are numerous overlaps in their thinking, as well as points of difference; Smith once reportedly said that 'Burke is the only man I ever knew who thinks on economic subjects exactly as I do, without any previous communications having passed between us'. Together, the two men mark an extraordinary moment in the world's history, a moment at which the political and economic outlines of the present age first become visible, are analysed in depth and given public explanation. Burke is the first great theorist of modern political parties and representative government. Smith is the first thinker to put markets at the centre of political economy, and so of economics, and to place norms at the centre of what we now think of as sociology. As Burke is the hinge of our political modernity, so is Smith the hinge of our economic, and in many ways our social, modernity. These are momentous achievements.

But Adam Smith, like Burke, is not merely a historical figure, and my book is not merely a biography. On the contrary, Smith lives and breathes today through his ideas and his impact. Our present world, developed and developing alike, faces huge challenges, including – but by no means limited to – how to generate and sustain economic growth, how to deal with problems of globalisation and escalating inequality, and how to create moral understanding across different communities of history, interest and belief. Smith's ideas still have the capacity to take our breath away, through their ambition and brilliance, their simplicity and scope. They are essential to any attempt to address these challenges, and they need to be widely and fully understood. We need to know not merely what Adam Smith thought but why it matters; and then to apply his insights again for a new generation. ☺



JESSE NORMAN is the Member of Parliament for Hereford and South Herefordshire, and the author of an acclaimed biography of Edmund Burke. His new book, *Adam Smith: What He Thought and Why It Matters*, is published by Penguin Books.

Jesse Norman read classics at Oxford and completed a masters and a doctorate in philosophy at University College London (UCL). Before entering politics, he ran an educational project working in Communist Eastern Europe, and was a director at Barclays. He has been an Honorary Fellow at UCL, a Governor of the National Institute for Economic and Social Research, and a Visiting Fellow at All Souls, Oxford.

Heriot-Watt University, approaching its 200th anniversary in 2021, was the first college in Scotland to admit women into a place of scientific learning. We pay tribute to one of the University's alumnae.

Why chemistry really matters



composer and a printer, before his call-up to the RAF. Eleanor was the baby of the clan, but her brother, who was nearly a decade older, and her other brother, Norman, persuaded Eleanor, adept at science and maths, that she must, must go to the college. They understood Heriot-Watt's reputation as a pioneering institute which welcomed and encouraged women. 'I was delighted to get the opportunity to do something like this. I

studied chemistry at the Watt and I found it very inspirational,' she told me when we spoke recently in her Aberdeen home.

She met her husband Robert 'Bob' Weddell on the course. He had won a certificate of merit for mathematics and physics at George Heriot's School in 1947-8, and he was a clever, kindly man with a gentle sense of humour. Love was in the air at the Watt. Call it 'chemistry' of another type. They were married in October 1955 at the Old Parish Church in Corstorphine. Bob, who passed away three years ago, went on to have a distinguished career with Shell Expro. He worked in Indonesia, setting up some of the major infrastructure projects for the fledgling oil industry, and came back to work with Shell in Ellesmere Port. The family lived in Chester. In the latter part of his career he worked in Aberdeen, where he and Eleanor retired, moving to Cults, on the outskirts of the city.

FORTH BRIDGE PAINT

Eleanor was awarded her diploma in applied chemistry and admitted as an Associate of the College in November 1954, when the College Principal was Hugh Nisbet. Armed with her diploma, she secured a job as an industrial chemist with Craig & Rose, the paint makers

who made the famous coatings for the iconic Forth Bridge. This was a time when acrylic paint was taking over from distemper, and she was responsible for its development. However, as a woman, she was barred from going onto the bridge to test her new concoctions. Instead she experimented by painting panels outside the Leith Walk factory. She was made an Associate of the Royal Institute of Chemistry in March 1955.

 I recall the classes and the labs we had were practical and placed us in good stead for working in post-war industries.

.....
ELEANOR WEDDELL (NÉE KEMP)

WOMEN IN SCIENCE

While Eleanor's career as an industrial chemist was a short one, she ensured that all four of her children were inspired by science. It was hard for women like Eleanor to have careers and families in the 1960s. Thankfully, life has changed for the better. However, she has no regrets; she is proud of her family, of her children Eric, Evelyn, Neil and Patricia, all with science in their blood. When Heriot-Watt was granted its full university status, her applied chemistry diploma was converted to a Bachelor of Science in February 1968.

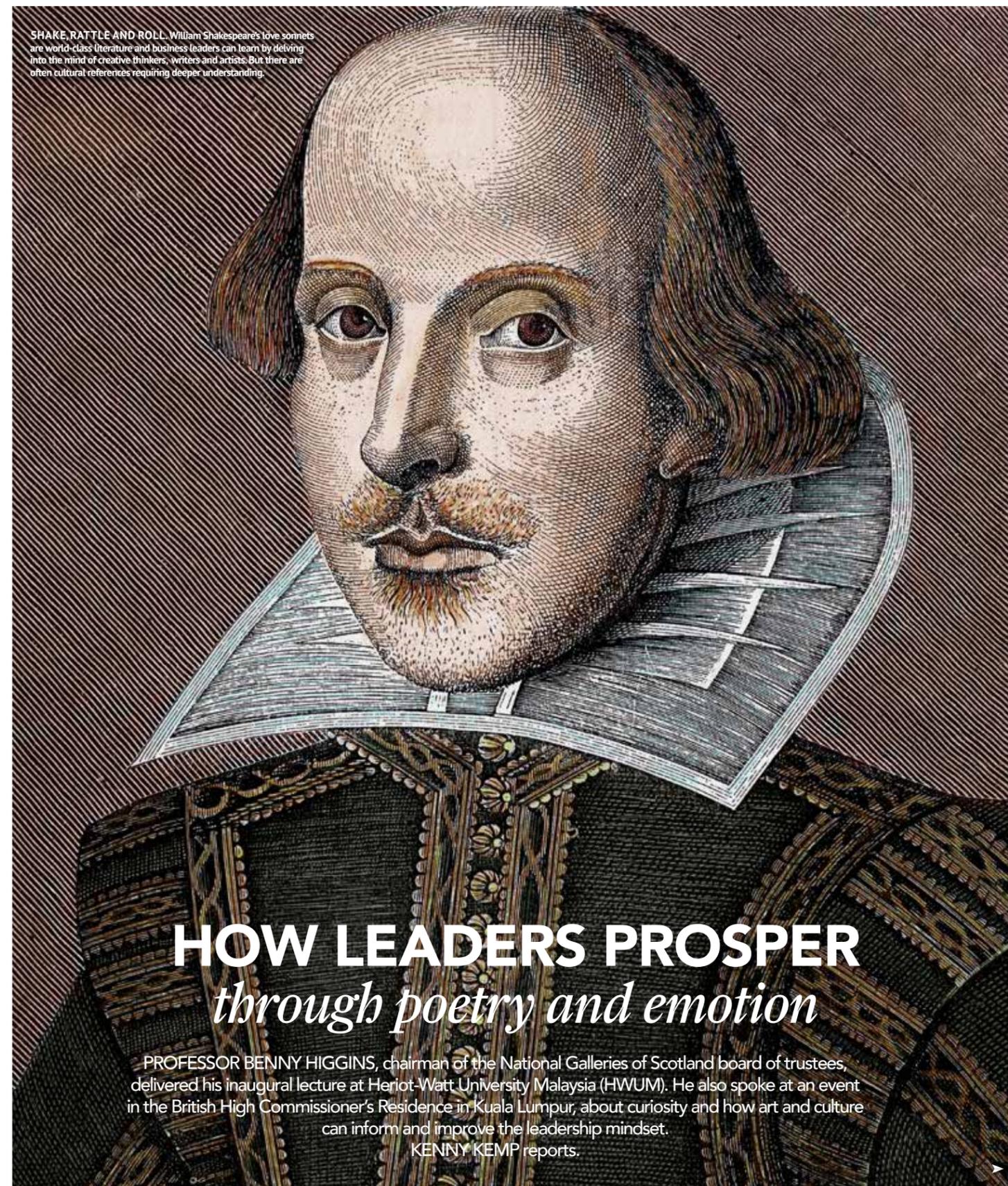
'I'm very proud to have studied at Heriot-Watt. I recall the classes and the labs we had were practical and placed us in good stead for working in post-war industries. The world was changing very quickly and our developing world needed good chemists,' she told me.

Eleanor lives quietly in Aberdeen, but her memories of her Heriot-Watt days of chemistry are deeply cherished ones. ☺



KENNY KEMP is an award-winning business writer. He is currently working with a Stockholm technology entrepreneur who has devised a 'magic' interactive mirror with AI capabilities that is exciting the retail sector. Eleanor Weddell is his aunt.

SHAKE, RATTLE AND ROLL. William Shakespeare's love sonnets are world-class literature and business leaders can learn by delving into the mind of creative thinkers, writers and artists. But there are often cultural references requiring deeper understanding.



HOW LEADERS PROSPER through poetry and emotion

PROFESSOR BENNY HIGGINS, chairman of the National Galleries of Scotland board of trustees, delivered his inaugural lecture at Heriot-Watt University Malaysia (HWUM). He also spoke at an event in the British High Commissioner's Residence in Kuala Lumpur, about curiosity and how art and culture can inform and improve the leadership mindset.

KENNY KEMP reports.



profound appreciation and a deep interest in the arts and culture helps create better and more-rounded business leaders, an audience invited by Edinburgh Business School heard in Malaysia.

Many years ago, Professor Benny Higgins read about Edna Healey, the wife of Labour politician Denis Healey, talking about politicians and their wider interests.

She spoke about the benefit of having an intellectual hinterland which Denis, who was a lover of G.K. Chesterton, James Joyce, Tolstoy, Turgenev, Wagner and played Mozart on the piano, said 'represented an inexhaustible store of insights into every aspect of life'.

Professor Higgins agrees with this. 'It is about a passion for subjects that are not just about their source of employment, in their case it was politics. And this extends very naturally to the business world. For me, it is a very healthy situation for people who have got leadership roles to have a depth of interests that go way beyond the discipline in which they are involved.'

Benny Higgins, chairman of the National Galleries of Scotland board of trustees, and former chief executive officer of Tesco Bank, delivered his inaugural Heriot-Watt University lecture on the imperatives of culture to business leaders, academics and diplomats at the British High Commissioner's Residence in Kuala Lumpur, at an event sponsored by Edinburgh Business School.

He told the gathering that curiosity lies at the core of inspiring leadership and that there is profound truth in art in both its creation and how it is appreciated and recognised. However, a love of art is not purely about 'getting on in business', but a genuine and active pleasure in the enjoyment of art, music, theatre and literature.

'The people I've observed, from the likes of Sir Angus Grossart [one of Scotland's leading financial figures] who thinks through business issues brilliantly, and I think this is in part because his interests are very wide, are those who are better business leaders,' he said.

'In the same way that you can get your body physically fit through exercises, you can get your mind intellectually fit by thinking about lots of things, including an interest in the arts, whether that be looking at visual arts, listening to music, or reading literature or poetry. They are all things that add to the breadth of your intellectual capacity.'

'My interest in all of these things is for pleasure but I do think you gain the advantage in that it broadens the way that you think.'

Professor Higgins said he does not read many business books, which he finds often have a catchy title or a single idea which is spread out over 200 to 300 pages. He prefers reading biography, literature and poetry.

'If I read things in mainstream literature, I do come across expressions, explanations or metaphors that are very readily applied in the business world.'

PENETRATING NEW MARKETS

Professor Higgins referenced how artists over centuries, faced with changing landscapes, had to adapt their approach to their creative work.

'The most obvious and recent example is Damien Hirst, the English artist, who on the very day that Lehman Brothers collapsed in September 2008 auctioned off his complete show over two days at Sotheby's, which raised £111 million. This shocked the art world because this was the first time someone had taken new work that was less than two years old and put it up for auction. In business parlance, he was changing the way he was distributing his work.'



DIAMOND GEEZER: Damien Hirst's encrusted skull, *For the Love of God*, with over 8,000 tiny flawless jewels, cost £14 million to produce and was up for auction at £50 million. It changed the way the art world looked at sales.

For the Love of God,
Damien Hirst:

8000+
JEWELS

£14m
COST

£50m
PRICE

Hirst's diamond encrusted skull, *For the Love of God*, with over 8,000 tiny flawless jewels, cost £14 million to produce and was up for auction at £50 million. 'I choose this as an extreme example to show the changing nature of the art world and how it responded to change.'

Professor Higgins' lecture then touched on other artists and how they adapted to their changing environment with lessons for business people to consider. He spoke about how Tintoretto, the 16th century painter of the Venetian school, managed to 'penetrate the market' dominated by Titian, who was the most prominent and well-known painter of that era. 'He did this by adopting painting techniques which produced smaller artworks more quickly aiming for a different market, which was the less wealthy. This was therefore more economic,' he said.

With the widescale emergence of photography in the mid-19th century, and the ease of travel which brought the influence of other cultures into Europe, visual representational art had to change once again towards more abstract ideas. Impressionist painter Vincent Van Gogh gained inspiration from Japanese woodcuts and adopted Japanese art into his work, which at that time, which at that time was unheard of in Europe. He mentioned how Paul Gauguin, the Post-Impressionist, travelled to Tahiti in French Polynesia, and developed a more primitive style. This inflected his paintings with a very different style and influenced the likes of Pablo Picasso, who was prepared to take on all kinds of artistic influences.

'Artists have to make the same kind of choices as those in the business world. So, for me, it is interesting to see how this changes and how they adopt different thinking, developing creatively.'

*Shall I compare thee to a summer's day?
Thou art more lovely and more temperate.
Rough winds do shake the darling buds of May.*

WILLIAM SHAKESPEARE

UNDERSTANDING AMBIGUITY

Professor Higgins then turned his attention to the key competencies he felt are important for people in leadership positions.

'One of these competencies is curiosity and the world of art is a source of enhancing natural curiosity, while another is communication. There are very few people who write well, who don't read,' he said.

He believes reading literature, and in this he includes poetry, enables people to express themselves more clearly. He spoke about Don Paterson, the Scottish poet, and how his observations at the Edinburgh International Book Festival spoke of how poetic rhyme, onomatopoeia and elegiac pentameter helped leading politicians communicate more effectively. Research has shown that those with a deeper interest and understanding of poetry, which is often ambiguous, also have a better understanding of ambiguity in life.

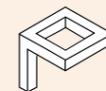
'Reading poetry over time sharpens your mind and your ability to cope with ambiguity, which is a very important thing in business life,' said Professor Higgins.

A particular favourite is the American poet Robert Frost. He referred to his poems, such as 'Stopping by Woods on a Snowy Evening' and 'A Road Not Taken'. Here, the reader makes assumptions about whether the writer is leaving or arriving. But it is deliberately ambiguous, so the reader can conjure up their own narrative and draw their own conclusion. He also felt that lyrics by great songwriters such as Bob Dylan can perfectly encapsulate a thought or an image in a poetic way.

In his lecture, he recited several pieces of verse including William Shakespeare's Sonnet 18: 'Shall I compare thee to a summer's day? Thou art more lovely and more temperate. Rough winds do shake the darling buds of May'. This talks about summer as being a time of beauty and tranquillity.

'What we think of as common metaphor in English might well turn out to be culturally offensive to other people,' he said.

The use of the word 'summer' to express warmth, delight and wellbeing might well be culturally dissonant to someone from Indonesia, where summer is not a very pleasant time of year.



A TRIBUTE TO DAVE COHEN

The work of an internationally renowned ceramic artist has been relocated to Heriot-Watt University Malaysia (HWUM). Six ceramic masterpieces by the late David (Dave) Cohen, who passed away earlier this year, were unveiled. The pieces, gifted by Edinburgh Business School, are entitled *Golden Triangle*, 1993, which is now exhibited in the Putrajaya university library, *Geometric Composition*, 1994, in the executive office meeting room, *Deep Pool*, 1995, in the lecture theatre lobby, *Black Forest*, 1997, in reception, *Reflection*, 1998, and *Winter Tree*, 1998, both in the study room.

Dave Cohen's acclaimed work has been familiar to many in Edinburgh Business School in Edinburgh for over 20 years.

His work evolved around three themes: primary geometric shapes, the human figure and nature.

Professor Benny Higgins, chairman of the National Galleries of Scotland, unveiled the ceramics and congratulated Professor Heather McGregor, Executive Dean of Edinburgh Business School, for her progressive effort in ensuring the installation of the art pieces at the campus. 'I hope this will inspire others about art, as the substance and images are unique. All the materials are from Scotland,' he said.

'It was a huge logistical task to transport this valuable collection to Malaysia, and we are delighted to have the art pieces on display at this campus,' said Professor McGregor. HWUM chief executive Professor Mushtak Al-Atabi said he was very proud to have the pieces on the campus.

'They illustrate the Scottish innovative and entrepreneurial spirit. A piece of art is about how the artist lends his eye to the

CERAMIC CEREMONY: Professor Benny Higgins snips the ribbon accompanied by Professor Heather McGregor, Executive Dean of Edinburgh Business School, at the unveiling of David Cohen's artwork at Heriot-Watt University Malaysia.



world to look through his view.'

Dave Cohen, born in Milwaukee in 1932, arrived in Scotland in 1958 having served with the US Navy. He was a welder and apprentice carpenter, skills that served him well later in life as an artist. He was skilled in the use of materials, whether metal, wood or ceramics.

It was his work with clay and pottery which built his reputation as one of Scotland's greatest ceramic artists. He attended Edinburgh College of Art from 1958 until 1961, studying sculpture under Eric Schilsky and ceramics under Katie Horsman. He returned to the US for a post-diploma at Scripps College in California, with his wife Frances, and studied with Paul Soldner. He decided to return to Scotland, establishing a studio

'I wanted to make a point about the difficulty of translating things. Poetry is all about metaphor and translating poetry is very difficult to do. This makes you think about different cultural references where that might be the summer in Indonesia or the summer in England. For example, it is almost impossible to translate Dante Alighieri's *Commedia* into English, although it has been attempted many times. It requires so much rhyming which is straightforward in Italian but not in translation to English. The full sense is lost.'

He said that poetry makes the reader aware of the different metaphors and language.

In all, he said that business people should embrace their culture and use it to help them define their own lives and society. His inaugural speech was warmly received by the guests.

During his trip, Professor Higgins also delivered a lecture at the Malaysian campus on 'Building a Bank for a Dedicated Customer Base - the story of Tesco Bank. How RBS and Tesco created one of the biggest online UK banking successes'.

in Juniper Green, near the Heriot-Watt Campus, and taught ceramics at Edinburgh College of Art.

In 1986, he became Head of Ceramics at the Glasgow School of Art before his retirement in 1991. He was a passionate, generous and dedicated teacher with a deep creative spirit.

Professor McGregor met Dave Cohen when he came to Edinburgh Business School to personally oversee the packing of the artworks being sent to Malaysia. Sadly, he died in North Berwick in East Lothian in July 2018 before seeing their final installation.

'These art pieces are on a long-term loan at the Malaysia campus. They will be placed back at Edinburgh Business School in Scotland later,' she explained.

EYE ON THE PRIZE

Why Alana is the perfect partner for Alexa



PROFESSOR OLIVER LEMON and his team of Heriot-Watt PhD students are the only contenders from a UK university left bidding for the Amazon Alexa Prize – down to the final three for the second year running. The Edinburgh team's work is delighting Echo customers and pushing the frontiers of AI science.

It's an exciting time for our Alexa Challenge team in Edinburgh as we enter the final stages of the competition for the second year running. This is a fantastic achievement for our team, which is the only UK university in the last three. Heriot-Watt was one of only eight universities selected for the 2018 semi-finals, out of nearly 200 international entrants, then whittled down to three.

The winner will be announced in Las Vegas on 27 November. Our team of eight is Amanda, Alessandro, Igor, Ioannis, Xinnuo, Shubham, Verena and me, as faculty advisor.

COHERENT CONVERSATIONS

The target set by Amazon was to create an entertaining and engaging conversational AI system for its Echo device that can talk about any topic the user desires. This is a huge challenge that pushes the state of the art in AI, and in understanding and generating human language.

Our conversational AI system, called 'Alana', has been available to all US Amazon customers for the past 18 months or so, and has engaged in hundreds of thousands of conversations with people on all sorts of topics. For example, people can talk about music, movies, the news and politics, as well as general chit-chat. At the end of each conversation, the users give us a rating out of five stars, and the three teams with the best average rating are those selected for the final. Our system reads the news every night and also accesses the whole of Wikipedia – so it has a lot it can talk about!

You may have seen a version of Alana on the recent BBC TV show *The Joy of AI*, speaking with physicist and broadcaster Jim Al-Khalili, who is also a professor at the University of Surrey. Our team of PhD students has worked incredibly hard on Alana, and it is a daily job to update the system and analyse new data coming in.

Our team meets to discuss incoming data, design new system features and develop methods for generating coherent conversation. We often have day-long 'hackathons', involving plenty of pizza, where we develop the system together before we release an updated version of Alana to the US market.

WISH US LUCK FOR THE FINAL

In doing so, we have developed many different

skills in the areas of natural language processing, machine learning and data science generally. Our student team members have also become experts in developing large-scale real-world conversational systems that are used every day by members of the public.

We also use the Alana system in teaching our very popular hands-on course on conversational AI at Heriot-Watt, which is equipping a new generation of students with development skills in AI and human language technology.

A \$500,000 prize will be awarded to the team selected for creating the best socialbot. The second- and third-place teams will receive prizes of \$100,000 and \$50,000, respectively. Additionally, a \$1 million research grant will be awarded to the winning team's university if their socialbot achieves the grand challenge of conversing coherently and engagingly with humans for 20 minutes with a 4.0 or higher rating.

The remaining teams and their bots in the final are Alquist, from the Czech Technical University in Prague, and Gunrock, from the University of California Davis.

Wish us luck in the final, and follow us on @alanathebot!



PROFESSOR OLIVER LEMON is Director of the Interaction Lab, School of Mathematical and Computer Sciences (MACS), Heriot-Watt University.

// OUR SYSTEM READS THE NEWS EVERY NIGHT, AND ALSO ACCESSES THE WHOLE OF WIKIPEDIA – SO IT HAS A LOT THAT IT CAN TALK ABOUT!

What's on my reading list?

MÁIRÉAD NIC CRAITH

What books are on your bedside table at the moment? I read a broad spectrum, which includes academic-related material but also delves into philosophy, spirituality, fiction and poetry. One book on my table is *Milkman* by Anna Burns [which has since won the 2018 Man Booker Prize]. I worked for nine years at the University of Ulster and have many happy memories, but the conflict was always there in the background. *Milkman* explores the conflict in Northern Ireland from the perspective of an 18-year-old girl. As a novel, it doesn't focus on paramilitary or state violence; instead it explores tribalism, conformism, religion and the constant presence of anxiety and fear, which can be much more insidious to live with.

I look forward to reading *The Seventh Function of Language*. (Given that I am based in the department of Languages and Intercultural Studies, this is hardly surprising!) This novel by Laurent Binet begins with an accident in which Roland Barthes is knocked down in a Paris street by a laundry van. I studied philosophy as an undergraduate and was particularly impressed by Barthes.

The Order of Time by Carlo Rovelli looks like an amazing read. It seems we already live in the past and when we stargaze we are looking at stars that may be millions of years old. Having constantly to explain that heritage is what we carry into the future rather than the past, I feel like my world will be turned upside down when I read this book, which seems to suggest that time varies according to where we are.

Gary Shteyngart is a favourite author. A Russian émigré whose family moved to the US in 1979, his recent novel *Lake Success* looks intriguing. It is a satire about a hedge-fund manager who has a nervous breakdown at the same time as Trump's campaign is sweeping across the US. As a child, Shteyngart was ambitious to make money but now finds meaning elsewhere. Shteyngart's ambition with this book is to make wealth acquisition less attractive and to show that having a Rolex does not necessarily guarantee happiness.

What's your favourite book?

I have no particular favourite book, but memoir is my favourite genre. Edward Said's memoir *Out of Place* is a particular favourite of mine. As an interdisciplinary academic, I have always felt a little 'out of place', having neither the support nor the constraint of a disciplinary framework. Sometimes this can be an uncomfortable place to live, but I am also conscious that the most amazing insights can occur on the frontier rather than in the mainstream.

What is the best cultural publication of recent times in your view?

There are many, but one that comes to mind is *The Great Derangement: Climate Change and the Unthinkable* by Amitav Ghosh. I mention this one because it is written by a novelist rather than a scientist, a literary academic whose previous work has been shortlisted for the Man Booker Prize. Ghosh argues that climate change is a cultural as much as a scientific issue. *The Great Derangement* is actually a work of non-fiction but much of this writer's fiction features climate change, which might have more impact on the general public than a scientific report.

Who are the writers/poets that you most admire and return to for inspiration?

The Irish philosopher John O'Donohue wrote some amazing books. His *Anam Cara: Spiritual Wisdom from the Celtic World* was hugely popular. He had the unusual gift of being able to write very simply about complicated matters. His *Divine Beauty: The Invisible Embrace* is imbued with the spirituality of Meister Eckhart and yet it's a very easy read. He died far too young.

Which academic publication/report has given you the most pleasure and/or satisfaction?

A report by James Wilsdon (of the University of Sheffield) on the responsible use of metrics has been particularly significant from my perspective. Having investigated the use of metrics as a measure of quality, his team found a strong co-relationship between metrics and quality in most of the STEM subjects and some of the social sciences. However, in other fields, such as European/area studies or languages, there is little or no co-relation, and the use of metrics in these areas is simply bad judgement.

Who has inspired you in your academic career?

I'm lucky to be married (for 25 years now) to an amazing academic (Ulrich Kockel). Ulli started life as a manager in the oil industry but now focuses on the relationship between culture and economy, particularly on the cultural conditioning of economic perspectives. It's a theme that is much neglected in an economic world which seems dominated by statistics. I'm also a great admirer of Regina Bendix, an anthropologist at the University of Göttingen in Germany. She has published so much in the field of heritage, and especially on the theme of heritage as cultural property.

What is the one website/blog you can't live without?

My favourite blog is one written by our own students in Heriot-Watt. Have a look at www.thinkglobalheritage.wordpress.com. This is a blog written by undergraduate and postgraduate cultural studies students. Cristina Clopot, one of our research associates in the Intercultural Research Centre, is the brain behind this blog, and it has been a real pleasure to see it grow.



PROFESSOR MÁIRÉAD NIC CRAITH is Director of Research in the School of Social Sciences, Heriot-Watt University. Earlier this year she spent time as a Visiting Scholar at Harvard University. She is a sub-panel member in the forthcoming Research Excellence Framework exercise.



The flight stuff:

CELEBRATING A CABIN CREW SUPREMO

CATHERINE BAIRD is an accomplished woman in today's global airline industry. As a Senior Vice President with Emirates in Dubai, she is recognised as a leader in people development at the pinnacle of her chosen profession. To commemorate Catherine's achievements, she will be receiving an honorary doctorate from Heriot-Watt University in Dubai at the forthcoming graduation ceremony. We caught up on the move in Australia.

Q. Panmure House Perspectives:
Hello, Catherine. Tell us something about your position and your main responsibilities.

A. CB: I have been in the aviation industry for 30+ years. My career has focused on people, particularly the frontline in the air. I've had responsibility for cabin crew recruitment, training, career development and management across a number of airlines. My current role at Emirates encompasses cabin crew training and development – from induction, safety and emergency procedures (SEP), image and uniform (I&U), medical, security, service and hospitality across all cabins. And, career development for inflight leadership roles. We also provide services to our Pilots for SEP and I&U for all Emirates uniform wearers across the group.

PHP: How did you get into the airline business and what attracts you about it?

CB: I spent many years in Education, teaching in Australia. Like all good Aussies I put on a backpack and never looked back! Whilst in London I joined British Airways (BA) as long-haul cabin crew on the Boeing 747. In BA I moved into crew training and recruitment as a dual role with flying around the world and the rest is history.

It's all about the people – the people I get the privilege to work with and people, as customers, who all have amazing narratives to share – you grow and learn so much in this industry.

PHP: Emirates is recognised as one of the world's leading airlines for customer service, why is this?

CB: I believe our success and reputation comes down to two key elements:

- An unwavering commitment to product and service innovation, with our customers at the very centre of everything we do, and
- Our people. We have over 160 nationalities who speak over 60+ languages in the Emirates Group. I am constantly humbled by the amazing people who work with us, people with exceptional qualifications, experience and inspiring stories to tell.

PHP: Who have been the people you admire and

It is imperative that you're very clear about where you've come from and where you're going, bringing the best of before with you as an enabler for future transformation.

CATHERINE BAIRD

have encouraged you in your career?

CB: I have been inspired and encouraged by the myriad of talented people I've had the great fortune to work with across the globe. The people I admire lead with clarity, authenticity, compassion, courage and integrity. I've also discovered that the greatest learning often comes from the most unexpected places! And, I am constantly inspired by the bold and courageous leadership of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai. I'm an avid reader of his writing – books and poetry.

PHP: What advice do you give to people who join the airline?

CB: Aviation is a dynamic, challenging, ever-changing and demanding industry. The industry has people at its heart. So you'll need a passion for people, for going out of your way for others and, resilience and grit sets you apart.

PHP: How does an organisation retain its culture as it expands? What have you put in place to ensure that the culture is carried on?

CB: It is imperative that you're very clear about where you've come from and where you're going... bringing the best of before with you as an enabler for future transformation. At Emirates we're very lucky to have the warmth, generosity and kindness inherent in the tradition of Arabic hospitality to inform our foundation of service. And, we celebrate the richness of our cosmopolitan make-up to bring to life a unique global culture. We have intentionally created programmes and processes to nurture and sustain these unique aspects of our amazing Emirates cabin crew community.

PHP: What are the benefits of working and living in Dubai?

CB: Living in a city that has defied the impossible to redefine the possible is exhilarating. When you reflect on the pictures of 50 years ago and look at the city today, it's hard not to be in awe of the pioneering spirit. Living here pushes you to challenge your own personal boundaries of what's possible.

PHP: The airline industry is a people business. What should any leader understand about working in a people business?

CB: I believe, as a leader you are only as successful as the team around you. Your role is to nurture and develop each and every one of your team to be the best possible version of themselves. At the core, it doesn't matter where we come from, our age, gender, background or experiences – we are all human. And, for humans to thrive and trust we need to feel valued, recognised, encouraged, developed and, the key ingredient, kindness.

PHP: What's your favourite leisure time activity and where would this be undertaken – and with whom?

CB: No surprise, to travel. I love to explore new destinations with my husband and, equally, I love to visit well-trodden paths to be with our family and the amazing friends we have all over the globe. 🌍



CATHERINE BAIRD:
A Soaring Flight Path



Education: Bachelor of Education, working as a teacher in Melbourne, Australia. Promoted to lead teacher. Nine years.

1987–94: British Airways, based in London

Cabin crew (long-haul worldwide fleet), crew training, recruitment, crew career advisor. Facilitator on internal brand engagement and service programmes such as Mission Atlantic and Winning for Customers.

1994–2001: Ansett Australia, based in Melbourne

Part of the start-up team for the launch of Ansett International. Head of Recruitment and Training operating across eight Asian gateways. Working closely with all departments across the airline for the AOC, service definition and design. Promoted to GM Operations and Inflight Training with accountability for both international and domestic crew, operational and regulatory training (including flight simulators).

2001–05: Star Alliance, based in Frankfurt

Director of Training and Development. Consulted across 17 member airlines with a combined employee base of over 400,000 globally. Facilitation and lead of Alliance airlines 'heads of training' for design and implementation of all Alliance-related products and services across all functions from operations, sales, customer and commercial. Responsible for induction of new airlines into the Alliance. Part of HR team with leadership and employee development accountability for Star Alliance full-time employees.

2003–05: Gulf Air, based in Bahrain

Head of Training and Development across all airline functions, including leadership and talent management, Command Upgrade (Pilots) and Bahraini national development.

2005–Present: Emirates, based in Dubai

Senior Vice President Cabin Crew Training. Cabin crew base of over 23,000 from 140 nationalities and speaking over 60 languages. Responsible for training and development of all cabin crew across their career journey from induction to on-board leadership roles. Includes all aspects of the role from SEP, service, I&U, and leadership and internal brand engagement of our crew community. This function also provides training for other employee groups in specific aspects – pilot SEP, pilot induction (on-boarding), I&U across the broader Emirates Group and airport frontline internal brand engagement. 🌍

Don't you tell me what to do – **YOU'RE NOT MY BOSS!**

WHO TAKES ON THE LEADERSHIP ROLES IN PROFESSIONAL ENVIRONMENTS WHERE ALL ARE EQUAL? GORDON JACK'S STUDY INTO 'DISTRIBUTED LEADERSHIP' AMONG DOCTORS, ACADEMICS AND LOCAL POLITICIANS SHOWS THERE IS A GREAT DEAL STILL TO UNDERSTAND. KENNY KEMP REPORTS.

Consider an eminent heart surgeon operating in a busy city hospital who clashes openly with a senior clinician who is also a respected cardiologist. The fall-out in the department is toxic and impacts on the healthcare of patients.

Or imagine a long-serving council chief bristling when an obstreperous elected leader rebukes him for funding cuts that impact thousands. And think of a big-ticket professor asked to represent his university instead of promoting his individual research. He refuses point-blank, saying it's not his job. Such areas of potential conflict are legion, and they are common in almost every professional walk of life.

Although some environments involve workers 'doing what they are told' by their bosses, or following orders like unquestioning soldiers, today's workplace is increasingly nuanced and sophisticated, and demands collaborative and consensual leadership.

Gordon Jack, who holds a PhD in management from Heriot-Watt University, has been exploring leadership in 'low-authority environments'. His research backs up anecdotal stories about feuding doctors, irascible academics and intransigent politicians. He points out that many people from these groups are 'massively underprepared' for leadership, which can lead to negative perceptions of elevated responsibility and general levels of dissatisfaction. In turn, this discourages many from stepping forward to become leaders and can sometimes result in the widespread disparagement of those who are prepared to take on such positions.

Dr Jack sees a solution in understanding the multiple motivations of those working at equal levels in an organisation. It is about finding the common ground in which two equals both gain something from a leadership situation. This, he concludes, is an under-researched area requiring further study.

This is in contrast to leadership, management and organisational structures across disciplines, which have been researched and contextualised for many years; the bases of these concepts can be traced back thousands of years to their crudest forms.

'Vast amounts of literature on leadership and management revolve around the assumption that people do as they are told without confrontation, with threats of sanctions being one key driver. Historically, in large militaristic and religious organisations, this may have been an accurate account of what happened. Soldiers, for example, joined the army and were commanded by senior officers to carry out orders and missions, which they did without dispute,' says Dr Jack.

However, in modern practice, this is no longer the case even in the military.

As every organisation seeks to deal with constant change, one of the roadblocks to achieving successful transition is the reluctance of the people expected to do things differently. Change is often contentious and difficult to instigate, and this leads to people questioning whether leadership or management is even possible within such environments. ➤

 Today's workplace is increasingly more nuanced, sophisticated and demands collaborative and consensual leadership.

► LOW-AUTHORITY SETTINGS

'Human capital is one of the most likely hindrances an organisation will come up against in contemplating a change initiative,' Dr Jack says.

For his research, he chose 'low-authority' settings. 'Low-authority' is a hybrid term used to describe professional settings where lower levels of formal power are bestowed upon the nominal person in charge, with subordinates often acting independently and, sometimes, in contravention of direct instructions. These environments are commonplace in institutions and organisations with high levels of professional autonomy and skill. Dr Jack's research was undertaken in three fields: academia, healthcare and local government. He interviewed staff in 23 universities worldwide (including nine vice-chancellors and two vice-principals), seven health boards (including 14 lead clinicians and 13 clinical directors), and 14 local councils (including nine leaders and six deputy leaders).

Professionals in academia and healthcare undertake extensive amounts of training to attain professional status, with continuing development required to progress upwards in an organisation.

The political environment is different in that there are no formal entry requirements, despite the fact that politicians with professional qualifications are elected to local government. Politicians are elected to positions of leadership as a result of their popularity with the public and colleagues.

Professionals also differ from business or tradespeople in that they belong to disciplines governed by codes of ethics and to professional organisations whose commitments are rooted in the expected behaviour of their members. Doctors, for example, often feel more loyalty to the General Medical Council than to their local NHS Trust, which may be their direct employer.

Low-authority leadership is also described as 'distributed leadership' in that 'leadership is probably best conceived as a group quality, as a set of functions which must be carried out by the group'. Members of a surgical team take turns in operations depending on the situation and skills demanded at that stage of the procedure.

'Despite movement toward collegiality, more recognised leadership styles still tend to see the responsible person as a heroic figure, acting to apportion success and blame to one individual rather than a team,' says Dr Jack.

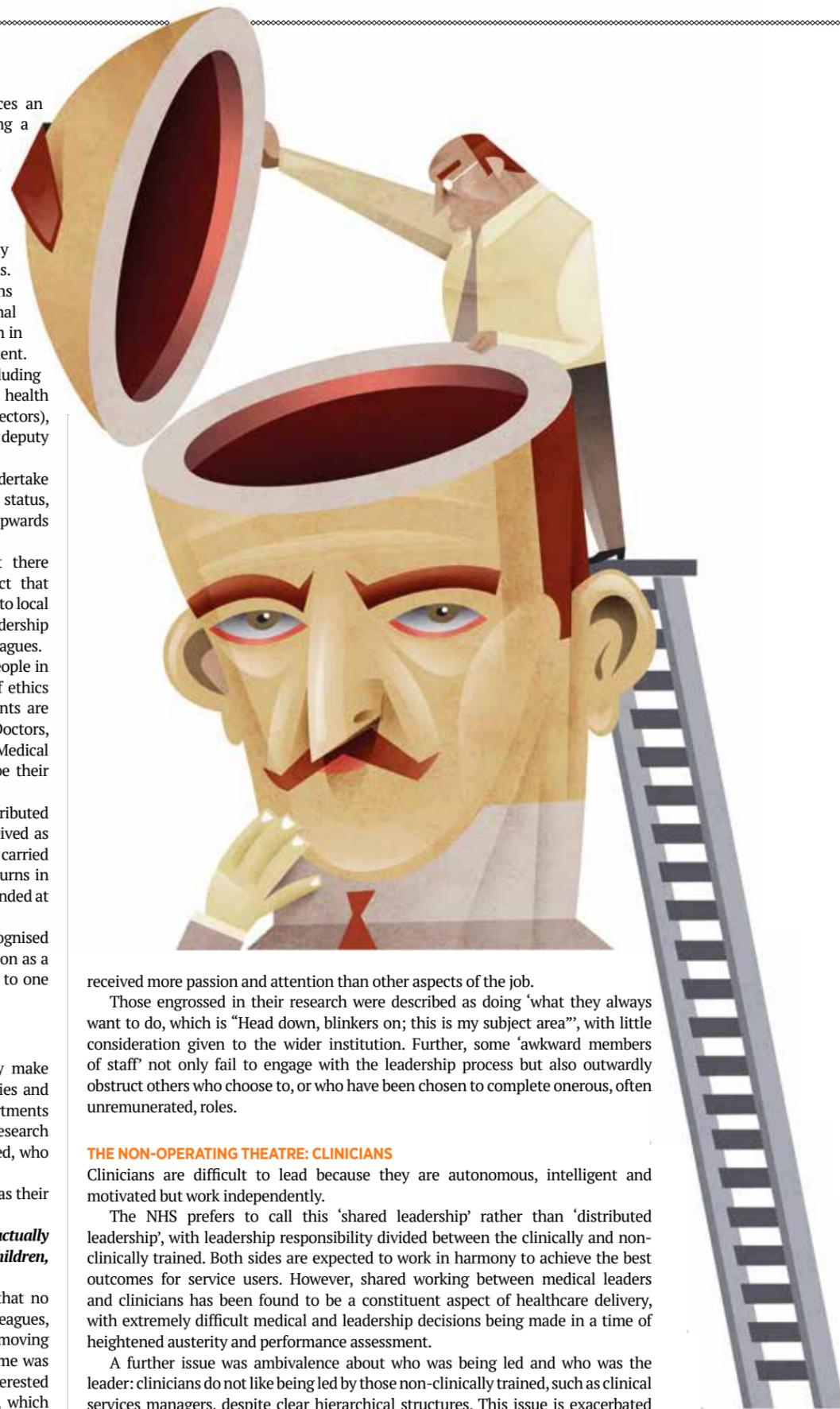
THE IVORY TOWER POWER: ACADEMICS

A first-rate research academic does not necessarily make a good manager. This is a serious issue for universities and places of higher education where professors in departments must interact with the wider organisation. Dr Jack's research questions expose an ambiguity about who is managed, who manages academics and whom they see as their boss.

Most interviewees failed to define whom they see as their boss. Among the responses was:

Managing academics in a university [it] would actually be easier to manage a class of primary school children, because you could tell them to sit down and be quiet.

A consensus shared among the academics was that no particular method could be employed to manage colleagues, and that the process was somewhat fluid and 'a moving target'. Academic leaders felt the majority of their time was spent attempting to manage those who were uninterested and whose focus was instead on personal research, which



received more passion and attention than other aspects of the job.

Those engrossed in their research were described as doing 'what they always want to do, which is "Head down, blinkers on; this is my subject area"', with little consideration given to the wider institution. Further, some 'awkward members of staff' not only fail to engage with the leadership process but also outwardly obstruct others who choose to, or who have been chosen to complete onerous, often unremunerated, roles.

THE NON-OPERATING THEATRE: CLINICIANS

Clinicians are difficult to lead because they are autonomous, intelligent and motivated but work independently.

The NHS prefers to call this 'shared leadership' rather than 'distributed leadership', with leadership responsibility divided between the clinically and non-clinically trained. Both sides are expected to work in harmony to achieve the best outcomes for service users. However, shared working between medical leaders and clinicians has been found to be a constituent aspect of healthcare delivery, with extremely difficult medical and leadership decisions being made in a time of heightened austerity and performance assessment.

A further issue was ambivalence about who was being led and who was the leader: clinicians do not like being led by those non-clinically trained, such as clinical services managers, despite clear hierarchical structures. This issue is exacerbated

by confusion as to the identity of the employing authority for clinicians, perhaps indicating an inclination toward a multiple, rather than singular, view of the organisation.

The difficulty with consultants is that we are employed by the health board to deliver certain aspects of a service, but actually my line management structure goes to the GMC [General Medical Council].

Another stated:

The management structure here has really not got an awful lot to do with me. If I behave as a reasonable doctor, and I treat my patients, it doesn't matter what the management structure here thinks. So it's a strange process.

Clinicians suggested that it was difficult to lead consultant colleagues, and even more so if colleagues were not as intellectually stimulated as them. Leadership colleagues may fall into the category of not being the best doctor. As a result, some leaders are labelled as 'failed surgeons' who take on management mantras and suffer from a lack of respect and credibility from colleagues.

'There appears to be an engrained culture within the NHS where general, medical management and clinicians cannot work in harmony, consequently having a detrimental effect on the service delivered. This leads to staff members not engaging with leaders, seeing them as a necessary evil and with different objectives and outcomes from colleagues,' says Dr Jack.

Another medical respondent said:

The structure in the NHS is very much that you're a manager and you're one of them – a bad guy, who is carrying out government targets and forcing policies.

One manager was obviously frustrated by such a response:

Poacher turned gamekeeper, or gamekeeper turned poacher, depending on which way you want to look at it. I've had all the jokes... We would have key-in numbers, and he gave me 007. I went back to the practice... One of my colleagues said, 'What is it? 666?' So I thought there's a view of clinicians versus management. There is a view that you are going over to the dark side.

Dark side or not, there is an obvious need to bridge the leadership gulf to ensure better outcomes for more patients.

THE DEBATING CHAMBER: LOCAL GOVERNMENT LEADERS

Local councillors are elected by citizens in a community. Respondents indicated that the people who voted them into office are their ultimate boss:

The electorate, probably, because ultimately they are the ones who will make a decision about how well I have done in the role.

The people in the street. My public, actually, because ultimately it will be them who decide whether I stay in the job or not.

There is disagreement as to whom political leaders are accountable to, resulting in questions about whether there is any authority within local government. Some viewed the entire body of councillors as their boss:

Ultimately, power in the council lies with the council.

Others shared the opinion that they are their own boss and do not answer to anyone else: a sentiment shared with academics and clinicians.

I don't actually have a boss because I don't report to anyone officially. There is no one responsible for my development other than myself. I don't have an appraisal.

Similar to academics and clinicians, their reporting lines depend on the situation.

I thought there's a view of clinicians versus management. There is a view that you are going over to the dark side.

I suppose what I am really saying is that you've got various bosses, depending on which hat you're seen to be wearing.

Yet, bearing in mind that councillors are affiliated to different political parties, those in leadership positions are often accountable to their nearest followers and to those who take on particular roles within council administration.

'It would be remiss not to mention that respondents work with colleagues in opposition parties. Even those in political administration are not perceived by counterparts as the people in charge of the council, and, further, the responses harnessed doubt from the language used, including *technically*, *clearly* and *theoretically*.'

Theoretically the Leader of the Council is my boss but that doesn't work because of the political nature. He cannot tell me what to do. He can't even ask me to do something. If I felt like it, I would say no.

The [political party] group. They technically are because you could get all political and say the electorate, so they're technically your boss.

This issue in local government is exacerbated again by a dualistic relationship, as seen in academia and clinical settings. Politicians work with the officers of the council yet are in post for the community they serve.

I have a clear understanding between me and the senior officers of the council that this is where the buck stops and I think that is the only way to be when you're a leader.

Despite these views, there seems to be confusion as to who is being led and who is doing the leading. One striking feature across the range of responses was a unanimous lack of consistency about who reports to whom, and about who the leaders perceive to be their own leader.

This raises the serious question that, if no one knows who their leader is, or who they are indeed leading, is there any leadership taking place? This, observes Dr Jack, is a field that now requires more extensive study.

CONCLUSION

Leadership theory has been dominated by the 'heroic' leader who leads from the front. Yet the sphere of distributed leadership remains under-examined, to the detriment of organisations seeking to embrace change and improve productivity.

The processes by which leadership is distributed and, in particular, the challenges encountered when reciprocity in organisational relationships is absent, partial or problematic, deserve further study.

Dr Jack concluded that, to effect change in low-authority organisations, leaders need to understand peer motivation, as this will likely not be commensurate with the overall aims of the organisation in which they operate. It may mean that a big-name academic is given more access to research funding as a quid pro quo for helping their wider institution, or that a senior consultant is given time to undertake research for conference presentations.

The dual- or triple-layered organisational membership of individuals makes this challenging. Leaders must recognise the loyalties of others and understand the motivations of those they work alongside. The driving factors will not be the same for everyone, adding to the dynamic, changeable nature of leading any organisation.

In academic and clinical settings, peers are highly trained; leaders must appeal to this shared commonality and education to gain compliance within the system. Professionals leading professionals can be fractious: each individual considers him or herself to be the most qualified in their area. Dr Jack concludes that an individual may well be correct in their specialist field; however, when it comes to perceiving someone else's opinion, they can find it difficult to set aside their niche expertise in pursuit of the greater good or for an organisational objective. Such findings are also relevant in a local government setting, and highlight their applicability in all low-authority settings. ☺



DR GORDON JACK is continuing his academic research at Heriot-Watt University in Edinburgh. He worked recently on a three-month secondment in the Scottish Sentencing Council, part of the Scottish court system, where research is being applied in a policy-driven environment.

Energy producers and the utility companies that supply electricity in Ontario have differing views on how they must tackle climate change. Kenny Kemp reports on research undertaken by DR ANNA DOWBIGGIN, who has recently completed her DBA at Edinburgh Business School. She suggests the industry should work more closely on its future narrative.

[TEMPERATURES RISING] in frosty Canada



CLIMATE CHANGE IS ONE OF OUR MODERN WORLD'S MOST IMMEDIATE CHALLENGES

Long-range weather forecasters predict a dramatic increase in the incidence of extreme weather that will have a destructive impact on electrical power supply around the globe. But do those who work to keep the lights on, and our homes cool in summer and warm in winter, fully understand the multiple dangers of this potential disruption to our energy supply – and how does this impact on the work they are doing now?

Anna Dowbiggin, a native of Canada, undertook her Doctor of Business Administration with Edinburgh Business School, Heriot-Watt University, to find out more about the electricity sector's perception of the risks involved, drawing some important conclusions that can be shared across the world.

She chose to focus on Ontario, Canada, a highly populated region in a country of extreme hot and cold weather. Her research was supported by David Butters, the president and chief executive officer of the Association of Power Producers of Ontario (APPRO), who says that the study of the accumulated views of producers and suppliers will help 'to inform policy and practice and assist in the process of advancing corporate adaptation measures for future climate change in Canada'.

Dr Anna Dowbiggin knows her work has immediate relevance: 'Climate change has already affected Ontario electricity suppliers through heat waves, severe flooding and ice storms. Risk effects of the physical manifestations of climate change have left businesses and households without power, heating or air conditioning on many occasions. Yet little work has been done on examining the additional risk effects associated with secondary and indirect impacts of climate change on industry.'

VULNERABLE TO EXTREMES

Canadians are the third-highest consumers of electricity per person among the OECD countries, surpassed only by Norway and Iceland, and the seventh-highest consumers of electricity in the world. She selected Ontario precisely because it has the highest per capita usage of electricity in the country, and the largest infrastructure network of electrical utilities. Population intensification in the southwest continues to increase electricity demand, so future outages will have severe impacts on lives and quality of living.

In her research, she raised the question of how the electricity sector will be able to cope with such unpredictable increases in extreme weather.

She was keen to learn the extent to which power producers and utility companies manage climate risks depending upon their current management beliefs and interpretations.

'Climate risk management is particularly salient for the electricity sector in Ontario. District utilities and their upstream generation partners are noted time and again for being vulnerable to potential extreme and sudden weather impacts,' she said.

She explained that the pressures are intensified because of the ageing infrastructure of the power producers and network grid operators, with key assets, such as transformers, conductors, wires, poles and cables, reaching the end of their life cycle.

'Extreme weather forecasting done in 2001 suggested Ontario was at high risk for flooding and freezing temperatures. Fifteen years later, the Canadian Electricity Association (CEA) reiterated the same claim, asserting the sector is increasingly more vulnerable to climate risk due to ageing transmission equipment, lack of capital investment for infrastructure renewal and lack of planning for climate change impacts. CEA documents state that recent Canadian government infrastructure planning did not include considerations for "climate hardening" or the technical and structural modifications to protect electrical power plants and equipment from specific physical impacts of flooding and extreme hot and cold temperatures.'

 Climate change has already affected Ontario electricity suppliers through heat waves, severe flooding and ice storms.

Risk effects of the physical manifestations of climate change have left businesses and households without power, heating or air conditioning on many occasions.



DR ANNA DOWBIGGIN has worked in corporate governance and sustainability assessment for a number of Canadian and international firms, and is currently a management consultant living in Toronto. She founded and launched two companies in the 1990s, and is an avid hiker and skier.

► Through her research, Dr Dowbiggin was keen to identify the precise perceptions of the leadership groups. Using an inductive research approach, she conducted 20 in-depth case studies to examine how electricity executives/senior managers perceive the risks. She used personal construct theory (PCT) and its related repertory grid technique (RGT) to explore individual perceptions and risk beliefs. Participants were senior decision makers from the natural gas-fired power producers that generate electricity from a fossil fuel base, and municipally owned utilities that transmit electrical power to end-users. The individuals were selected on the basis of their willingness to participate in the study, their corporate commitment to managing and analysing climate risks, and their active involvement in climate risk working groups with industry associations, such as APPrO and the Canadian Electricity Association.

Due to the complex and often controversial nature of climate risk perceptions, decision makers are dependent on scientists and professional experts to define what evidence is seen to be relevant. Dr Dowbiggin's interviews involved reviewing eight elements – instances of 'exogenous' and 'endogenous' climate risk – to confirm the saliency of each for the interviewee. The exogenous risk effects comprised climate change itself, climate predictive data, ageing infrastructure, government policy and greenhouse gas emissions regulations, while the endogenous risk effects were technical knowledge, organisational resources and organisational capacity. The eight elements used in the study were:

- 1: Sudden, direct climate events. This encompasses the weather-based risk assessment set out in the CEA report, which noted general unpreparedness in the electricity sector.
- 2: Climate data, relating to not only access but the interpretation of relevant climate modelling data, for better preparedness.
- 3: Climate policies impacting the electricity sector.
- 4: Greenhouse gases abatement and the impact of government regulations pertaining to emissions directly affecting the natural gas (fossil fuel) generator participants.
- 5: Technical knowledge. This relates to new and evolving requirements for technical expertise to better manage climate risk.
- 6: Ageing infrastructure, which was noted as a risk to the electricity sector in Ontario.
- 7: Organisational capacity and its ability to respond to climate impacts in the short and long term are of ongoing concern to the sector.
- 8: Organisational resources to better manage climate risk.

AGEING INFRASTRUCTURE PROBLEMS

It was clear from the interviews that there was a difference between proactive management, which looked at preventive strategies to strengthen the network, and reactive management, with the reactive response being 'fixing and restarting' supply after an outage. The early conclusion from the pilot study was that power producers considered issues relating to business continuity to be of highest priority in their climate risk management. In contrast, the utilities/transmission companies viewed dynamic change as having the greatest influence on their management of climate risks.

Each interviewee was asked to consider the 'greatest influence versus weakest influence on risk management'. One narrative participant said: 'Ageing utilities infrastructure continues to be a challenge for many utilities today. Like most utilities in Ontario, the company must replace ageing infrastructure at a steady pace in order to meet this challenge. Therefore, the company strategically plans to meet the renewal and growth of the utilities system in a cost-effective manner.'

The most frequently mentioned response related to risk assessment. This suggests that both groups of participants were appreciably concerned with the assessment of climate risks; their business focus was on evaluating their company's exposure to climate risk and the potential consequences for the company.

There were several differences however between the producers and the utility companies.

- Utilities expressed proportionally more concern about the effects of extreme weather events than did power producers.
- Utilities expressed proportionally more concern about the manageability of risk than did power producers.
- Utilities had proportionally more concern about how their company would manage climate risks collaboratively with other market actors.
- Power producers expressed proportionally more concern for the direct consequences of climate change impacts on their firm.
- Power producers had more concern about how their company, on its own, would manage climate risk.

Dr Dowbiggin then used a second data source to triangulate her findings, using more formal and public expressions of climate risk management derived from company reports. Electrical power companies in Ontario release annual environmental and sustainability reports either as a standalone document or as a designated section in their corporate annual report. Report content conveys that the corporations' management of environmental issues, including climate change, impacts on their operations. It was determined that the environmental report, and not the annual report, would offer richer narratives about how the corporation is managing climate risks.

A triangulation scheme was established to show how each climate driver was referred to in the corporate literature, and this was captured in grid data reflected in corporate narrative statements. For example, a statement such as 'The Corporation has identified climate change adaptation and extreme weather as a strategic risk for the company' was made by Participant #1.1 and pertains to risk effect (construct category) where 'sudden direct climate events' is noted as the element (climate driver) and is expressed and seen by the company as an issue for corporate strategy. (See box right.)

RISKS OF SUDDEN WEATHER EVENTS

These statements were then cross-referenced with the interviews.

Of the participant reports, 90% referenced sudden direct weather events as a source of climate risk. Only 50% of the total group of participant reports referenced the additional seven climate drivers (elements) as risks, and none expressed all climate drivers used in the grid data as risks. Overall, most participant reports included narrative statements pertaining to the direct risk consequences of climate change on their organisation. This suggests a strong triangulation effect of assessment constructs between narrative and grid data.

Out of 20 participant reports, 14 (nine out of 10 producers; five out of 10 utilities) raised the issue of what action their corporation is taking or intends to take in response to managing climate risks. Most of the power producers reported individual, going-it-alone responses, while half of the utilities described corporate response measures they are taking and would take on their own and, equally, what measures they would undertake with groups outside the company.

Dr Dowbiggin was able to conclude from this work that:

- Power producers, as compared to utilities, tended to rate corporate response as personally more important, suggesting a relative difference in the way power producers view the importance of responding to climate risks.
- Power producers also rated 'shared corporate response' – the sharing of corporate responses with other market actors – as more important, suggesting that power producers have a broader view of market and stakeholder alliances as being part of an overall climate risk response in the electricity sector.
- Power producers and utilities both deemed government policy (as a climate driver) as having the greatest influence on their views of how they would expect to manage climate risks in the future.
- Producers and utilities differed in their views regarding the relative importance of the physical manifestation of climate change and of climate data. Producers deemed climate data the second-highest influence of future climate action, while utilities rated sudden direct climate events as being equally important as government policy.



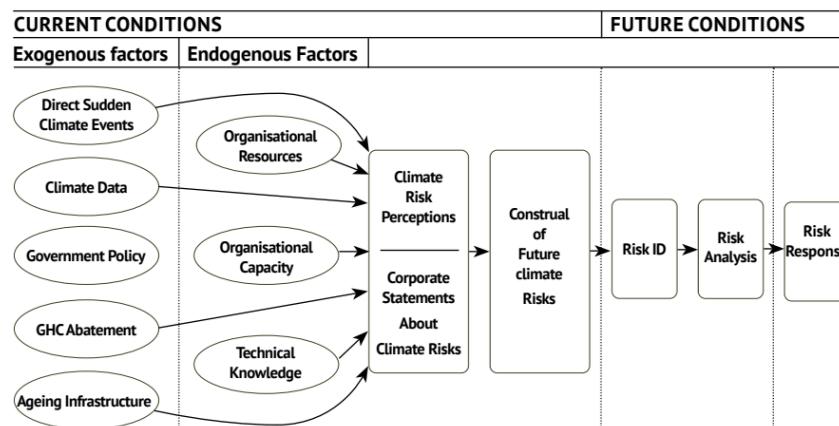
It was clear from the interviews that there was a difference between proactive management, which looked at preventive strategies to strengthen the network, and reactive management,

with a reactive response being, for example, 'fixing and restarting' supply after an outage.

Dr Dowbiggin agreed that, while there were limitations to her study, this difference in management perception is helping to inform decision makers: 'Using case studies has its limitations. Limiting the case studies to companies operating in Ontario decreases the generalisation to other provinces. The use of Yin's (2014) concept of replication logic, however, provides support for the findings to be generalised to other power producers and utilities in Ontario having similar characteristics.'

Dr Dowbiggin's recommendations:

- Consideration should be given to developing a coherent framework for climate risk disclosure for the sector. There is no obligation under existing law to disclose material information of the risk impacts of climate change for Ontario corporations. Voluntary disclosures may offer coherence to a risk-reporting framework and yield benefits for the studied groups. The two areas of disclosure should include the organisation's governance of climate risks, and management's approach to managing those risks.
- Disclosures related to governance should describe the board's intended oversight of risks as well as its prospective view of management's role in assessing and managing climate risks.
- Consideration should be given to strengthening information-sharing practices of climate risk management among and between sector participants. This could be done as a joint initiative by the Electricity Distributors' Association and the Association of Power Producers of Ontario, for instance.
- Consideration should be given to economic impact analysis of the opportunities (e.g. innovations, technology, funding programmes) that climate risk presents. The suggestion is that economic decision making may be enhanced by considering the impact of risk opportunities.
- Consideration should be given to improving risk communication frequency and volume, and with larger audiences. Message framing can be initially controlled by the firm. Improved understanding of sector climate risk management by multiple constituents could be expected. ☺



Revised model of risk perceptions in the electricity sector.



HOW ENERGY COMPANIES DESCRIBE CLIMATE RISK REPORTING

The following quotations from electricity supplier reports tended to combine their understanding of the sources of climate risk and the consequences of them, but were mute on the topic of risk responses for the future. Some examples were...

- Climate change is a risk relating to the external environment. In the short term, climate phenomena will have an impact on energy power producers as well as on demand for electricity. In the longer term, climate change could have a broader impact on the company's activities: changing energy needs, CO₂ emissions reduction, etc. (Power producer, 2015 Integrated Annual Report)
- The effects of weather and climate change may adversely impact our business, results of operations and financial condition. Our operations are affected by weather conditions which directly influence the demand for electricity. Temperatures above normal levels in the summer tend to increase summer cooling electricity demand and revenues. Conversely, moderate temperatures in winter tend to increase winter

heating electricity demand and revenues. To the extent that weather is warmer in the summer or colder in the winter than assumed, we may require greater resources to meet our contractual commitments. These conditions which cannot be accurately predicted, may have an adverse effect on our business results of operations and financial condition by causing us to seek additional capacity at a time when wholesale markets are tight or to seek to sell excess capacity at a time when markets are weak. (Power producer, 2015 Annual Information Report).

• The company's facilities and projects are exposed to the elements such as wind, water and are also susceptible to weather and other natural events such as hurricanes, tornadoes, lightning storms and icing events that can cause construction delays. Natural events may also make it impossible for operations and maintenance crews to access the disabled equipment. (Utility, 2015 Annual Report). ☺

How do people deal with the vexed issue of who calls the shots in a multinational organisation? **DR RICHARD SUNDERLAND**, who undertook his Doctor of Business Administration at Heriot-Watt University, has garnered unique insights during his career with the British Council. His findings make vital reading for not-for-profit organisations. Kenny Kemp reports.

In many dynamic and complex organisations, workers and managers have more than one boss. It's a messy fact of working life. As you might expect, this can result in inertia and conflicts of control, and can have a debilitating impact on an organisation. This is the so-called 'matrix' structure where people have two or more bosses, building across the dimensions of job function, product or service delivery, or geographic region. It can lead to people getting themselves and their organisations into a tangle.

Richard Sunderland, a regional director for the British Council, decided to look at how such structures work in multinational organisations. He undertook his Doctor of Business Administration at Heriot-Watt University, studying leadership behaviour during the transition to a matrix structure in the context of this international public sector organisation.

The matrix leadership idea was spawned in the 1960s in the American aerospace and engineering industries, especially in the complex project management of NASA's mission to put a man on the moon. This was so complex that new structures were needed to manage multiple centres of control. By the 1980s the idea of a matrix structure had fallen out of favour and was perceived by many as unworkable and to be 'avoided at all costs'. The associated problems were power struggles, slow decision making, a lack of clarity about roles and increased overheads. However, there has been a revival of interest, and many organisations, faced with increasingly rapid and complex change, are experimenting with the matrix. Today the matrix is an increasingly common organisational form, with some 86% of FTSE 50 and 94% of Fortune 50 companies deploying some form of matrix structure.

'Matrix structures have become increasingly common in contemporary organisations. Evaluation of their deployment is, however, scarce. In parallel, the social and human dimensions of matrix structures are of increasing interest to scholars and practitioners, and leadership behaviour emerges as a possible facet to maximising the benefits, and minimising the downsides, of such structures,' says Dr Sunderland.

DELIBERATE CHANGE TO STRUCTURE

Dr Sunderland has spent a number of years working at leadership level within the British Council, most recently as a director in Myanmar. The Council, founded in 1934 and incorporated by Royal Charter in 1940, seeks to promote a wider appreciation of British culture abroad. It is a non-departmental public body of the UK Foreign and Commonwealth Office and, although part of the UK government's foreign relations infrastructure, operates at arm's length as the UK agency for educational and cultural relations. It has a turnover of £1.1 billion (£158 million of which is government grant) and 8,700 staff working in over 100 countries around the world.

Like all not-for-profit organisations, the British Council has had to make dramatic changes to the way it operates and spends public money. This was partly influenced by the controversial debate over New Public Management (NPM), which was about making deliberate changes to the structures and processes of public sector organisations with the objective of getting them to run more efficiently. As a result, the British Council has been moving towards a matrix structure.

Because the Council formally adopted a matrix structure in 2012, and is experiencing many of the associated challenges as it transitions, Dr Sunderland felt it represented an interesting case study to provide lessons for similar not-for-profit organisations. His research is a single case study drawing on data and interviews from the Council. The primary sources include a managerial practices survey, a focus group discussion and key information interviews.

These sources are complemented for triangulation purposes by secondary sources, which include such documents as corporate plans, annual reports, HR data, internal financial and non-financial data, and organisation charts, as well as publicly available government records published by the Foreign Affairs Committee and Public Accounts Committee of the UK Parliament. The sample was selected from three of the Council's eight regions: the Middle East and North Africa (MENA); Sub-Saharan Africa (SSA); and South Asia (SA).

PERCEPTIONS OF GOOD LEADERSHIP

These regions represent around 50% of the global network in terms of number of countries and 40% of regional and senior country posts. The regions have more mixed business portfolios and, arguably, experience more aspects of matrix working. All three regions represent a mix of large, medium and small operations, which makes them ideal to offer insights into the matrix structure. These regions are culturally diverse, which provided some interesting insights into how the matrix is viewed by different national or regional groupings.

The key aim was to see if a 'good' matrix leadership could increase the quality of communication, make more effective use of shared resources, lead to faster decision making, increase innovation, and prevent teams from working in silos. Dr Sunderland found that, in the 200 pages of transcripts and over 80,000 words of data, there were no significant differences between perceptions of 'good' leadership behaviour across the regions studied. Equally, there were no substantial variances in perception between those in regional leadership roles, professional services or country leadership.

His research concluded that 'good matrix leaders'

demonstrate similar patterns of behaviour irrespective of role type or geographical location. Dr Sunderland found that public sector leaders at the British Council exhibit good levels of external behaviours such as networking, which were cited as positive indicators of effective matrix structures. The British Council has an appropriate focus around people and external relationships to deploy a matrix structure successfully. This, he suggested, shows that other public sector bodies with a comparable people focus have similar potential.

However, detailed examination of primary and secondary sources highlighted that the Council is struggling to realise other purported benefits associated with matrix structures. It was evident that the potential is not always matched by leadership behaviour. In fact, clear gaps exist between the most commonly observed behaviours and the behaviours associated with perceptions of 'good' leadership. This disparity relates primarily to empowering behaviours (consulting, delegating and developing), task-oriented behaviours (planning, clarifying and problem solving), and change-oriented behaviours (envisioning and encouraging innovation), all of which were observed relatively less by research participants but highlighted as key behaviours of those perceived as 'good' leaders.

 **86% of FTSE 50 and 94% of Fortune 50 companies deploy some form of matrix structure.**

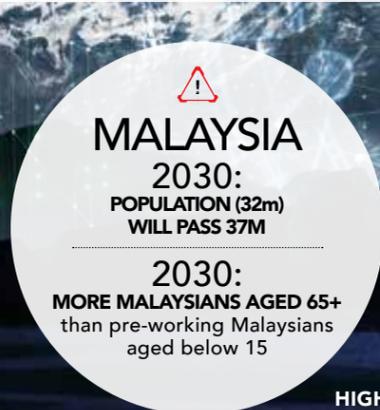
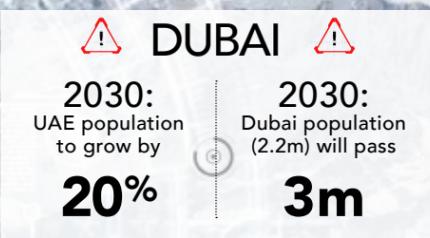
Future scholarly enquiry could build on these points and seek to further examine these constructs and attempt to determine any causal links between them.

Unlocking the Matrix

A fresh angle on the leadership tangle

2030 and beyond: GAZING INTO THE FUTURE

What does a university need to do to secure its future?
A horizon scan project commissioned by Heriot-Watt University discovered eight themes:



3 OUTCOMES FOR HERIOT-WATT

- The university is now considering its own STRATEGY FOR CLIMATE CHANGE.
- Planning and preparation needed to ensure HIGHER LEVELS OF STUDENT AND STAFF MENTAL WELLBEING.
- Cyber security of students and staff requires WIDER DISCUSSION ON USE AND GATHERING OF INFORMATION.

► The research showed relatively low scores for leadership behaviours associated with the effective sequencing of work, sharing of knowledge across teams and the successful implementation of activities, despite these behaviours being cited by research participants as those demonstrated by 'good' leaders.

The study has been illuminating for the British Council. Organisations deploy matrix structures expecting to realise benefits such as an ability to respond to multiple priorities, improved quality of communication, more effective use of shared resources, faster decision making, access to more diverse skills, and better integration between teams. However, detailed examination of primary and secondary sources highlighted that the Council is realising few of these purported benefits. A staff survey showed limited evidence that the quality of communication had improved since the deployment of the matrix structure. This confirmed that, while the quantity of communication may increase following the implementation of a matrix structure, an increase in quality does not necessarily follow.

FINDING THE RIGHT MINDSET

Dr Sunderland's conclusion was that an evolution towards a matrix structure is not merely a change of organisational form; it must be supported by the revision of wider HR practices and the right mindset and organisational culture to succeed.

'Structural, systemic and cultural challenges remain for the British Council to better realise the benefits of its matrix structure. There is a wide range of implications for the Council as a result of this study in terms of developing management practice. Some of this work has already begun. However, much more is required to disseminate the research findings and use the insights to further redesign management development programmes, recruitment and selection practices and other HR systems. There are also insights and implications more broadly for public sector organisations,' he said.

He concluded: 'If "good" matrix leadership is a combination of leadership approach, behaviour, traits and skills, future scholarly enquiry could build on these points and seek to further examine these constructs and attempt to determine any causal links between them. Within the emerging picture of leadership in matrix structures, are there dependent, independent or mediating variables between the approaches, traits, skills and behaviours?'

In thanking many people for his work, he singled out those inside the British Council and the regional directors and heads of learning and development for their encouragement.

'Lastly, and most importantly, a huge thank you to my British Council colleagues around the global network who took an interest in the research, who emailed notes of support and encouragement, and to all those who participated, for their time, insights and contributions to

the study. It's been great to talk to existing colleagues, meet new people and hear such a range of insights. Despite often starting conversations with "I'm sorry, I don't know much about leadership", please let me assure you that you do. You are experts in the field!'

Since completing his thesis at Heriot-Watt, Dr Sunderland has continued to support HR and other teams at the British Council in unlocking the matrix. He has shared insights from the research with similar complex organisations in the public sector. Reflecting on his experience of doing a doctorate, Dr Sunderland said it had been challenging yet hugely satisfying with a great deal of professional and personal learning, not to mention a great example to set to his children of being curious about the world around us. 📍

SUMMARY OF SIMPLE MATRIX STRUCTURES

Type of matrix model	Brief description	Example organisation(s)
Corporate functions vs business unit	Matrix structure to combine corporate functions (HR, legal, communications, finance) and business units (which may be geographical, customer based or functional e.g. sales)	Procter & Gamble Time Warner
The two-hat model	Similar to one above but with one person responsible for two aspects of the organisation e.g. corporate legal and a region. Often favoured by smaller companies who can't afford the extra costs of the two management positions.	Royal Dutch Shell Chrysler
The baton pass model	Matrix structure often deployed to support product development where the 'leadership baton' is passed from team to team to get new products to market e.g. from R&D to marketing and then to distribution.	Eli Lilly
The matrix within a matrix	Matrix structure where a project manager is deployed across multiple projects or products, or where an organisation has multiple business units.	Time Warner Mars Pet Food

Source: adapted from Galbraith (2009)

"If "good" matrix leadership is a combination of leadership approach, behaviour, traits and skills, future scholarly enquiry could build on these points and seek to further examine these constructs and attempt to determine any causal links between them.

SUMMARY OF COMPLEX MATRIX STRUCTURES

Type of matrix model	Brief description	Example organisation(s)
The three-dimensional matrix	A matrix structure similar to the model outlined above but with a third dimension incorporated e.g. corporate function, geography and product; or corporate function, geography and customer segment	Nestlé ABB
More complex matrix structures	Similar to the above but with an additional fourth dimension added, often an account management approach to service customers who interact with the organisation across multiple markets, or demand multiple products from the organisation (often called 'front-back' model)	Citibank General Electric
The IBM model	A six-dimensional matrix structure incorporating functions, products, solutions, customers, geographies and channels	IBM

Source: adapted from Galbraith (2009)

LEADING THE MATRIX: A mixed methods case study into leadership behaviour during the transition to a matrix structure in the context of an international public sector organisation, Richard Sunderland, Doctor of Business Administration, Heriot-Watt University, Edinburgh Business School, 2017.

DR RICHARD SUNDERLAND is Director of the British Council Myanmar. He has been with the British Council for a number of years, serving as a director in various overseas locations.

SOCIETY
&
conversation,
therefore, are the most
POWERFUL
REMEDIES
for restoring the mind
to its tranquillity,

*if, at any time, it has unfortunately lost it; as well as the best
preservatives of that equal and happy temper, which is so
necessary to self-satisfaction and enjoyment.*

The Theory of Moral Sentiments, by Adam Smith, Third Edition. 1767.



 **ADAM SMITH**
Economist, philosopher and author
1723–1790
