

Women in Business

Tuesday March 8 2016

www.ft.com/recruit @carola_hoyos

Diversity at the top pays dividends

Companies with more female leaders do better, but are these women the cause of the success?
Tim Smedley reports

Does the gender of executives make a difference to business performance? The evidence is mounting that it does.

McKinsey, the management consultancy, has published research showing that mixed-gender boards outperform all-male boards. Separate studies found a positive relationship between the diversity of executive boards and returns on assets and investments among Fortune-listed US companies.

Sodexo, the outsourcing company, even has data that suggest global companies in which women make up at least a third of board members achieve "far higher profit margins" than rivals with fewer women on their boards.

Theories about why more gender-balanced companies perform better smack of common sense. "If 50 per cent of the world's population is facing barriers to reaching top jobs, that is huge untapped potential businesses are missing out on," says Francesca Lagerberg, global leader for tax services at Grant Thornton.

Understanding this to be true is easy. Proving it, however, is difficult.

If companies with a significant number of women in senior leadership roles perform better than those without (see box), there are no studies that definitively show female management to be the cause.

This uncertainty in turn is undermining progress towards gender equality, according to some HR executives and researchers.

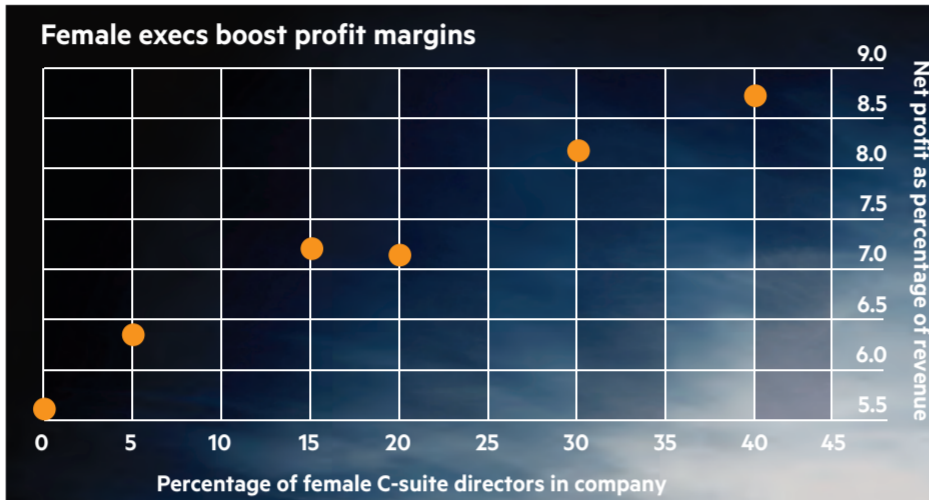
Ms Lagerberg for example acknowledges that "correlation does not necessarily mean causation." But at the same time, she says, "the growing body of compelling research linking corporate performance to having female leaders is unlikely to be a coincidence".

The absence of explicit proof of cause and effect is a red herring, argues Linda Eling-Lee, head of environmental, social and governance research at MSCI, investment portfolio analysts which recently conducted a gender-analysis of 1,621 global companies across 24 countries.

"There are actually very few causal links that you can make in any type of social science, let alone financial performance in business," she says. "I think that people who are sceptical of the premise will be sceptical regardless."

Investors are already starting to pick up on the idea that diversity brings dividends, says Ms Eling-Lee, who explains that MSCI's gender-analysis was "driven by institutional investors who are interested in understanding if there is something to be gained [in looking at diversity] from an investment perspective".

"It is not so much that the firms that are gender diverse do better, it's that the firms that aren't gender diverse do worse, because they are impeding themselves." MSCI found that the return on equity in companies with greater diversity at the top "was really significantly higher".



Source: The Peterson Institute for International Economics, in collaboration with EY, study of board directors in 21980 firms headquartered in 91 countries

Room at the top Execs or non-exec?

The appointment of women to senior management roles has a greater impact on an organisation's financial performance than their appointment as non-executive directors.

This is the finding of research by the Peterson Institute for International Economics, and it comes despite the focus on women in corporate boardrooms driven by Lord Davies' review of women on boards in the UK and the Thirty Percent Coalition in the US.

Marcus Noland, the report co-author, says: "With respect to women on the board, evidence is mixed. But the data on women at C-suite level is much more robust and solid — we can torture that data any way you want and still get the same answer. For the sample as a whole, firms with more women can expect a 6 percentage point increase in net profit."

This, says Mr Noland, points to the importance of establishing "a pipeline" of female managers and leaders in a company, rather than adding female non-executives at the top and hoping for an immediate effect.

Carolyn Fairbairn, director-general of the UK's Confederation of British Industry, backed this view in a speech in January, saying: "Non-executive directors and even chairmen attend between four and 10 board meetings a year... [But] it is the job of executives to take daily decisions, shape and define strategy, and influence culture through the everyday examples that they set." **TS**

"That was a fairly stark result... and investors are interested," says Ms Eling-Lee. "In this more dynamic and competitive world you need a fuller range of experiences and perspectives at the very top of the company."

Looking at the numbers by sector tells a similar story about the benefits of diversity. The accounting firm Rothstein Kass in 2012 found that hedge funds run by women outperformed hedge funds led by men. Among the top 500 mining companies, earnings per share were 13 times higher at those with women on their board, than at those without, PwC reported last year.

Mary Barra, a rare woman at the top of the automotive industry, says she was given the chance to work her way up to becoming General Motors' chief executive because "20 years ago at GM people valued diversity".

She says that "when you want to hire someone to get the job done... you should pick people not like you to create that diversity, which will be across gender and across cultures and across experiences."

Marcus Noland, executive vice-president and director of studies at the Peterson Institute for International Economics, says evidence that gender diversity makes business sense is not hard to find.

He points to the example of a multinational baby formula company that only recently ended its decades long history of men running the marketing department for a product bought mainly by women.

"If a firm is not advancing smart, talented, ambitious employees, and one of its rivals is, then the rival is going to outperform," Mr Noland maintains.

Carolyn Fairbairn, director-general of the CBI, the British employers group, believes developing more female leaders "will make a real difference to the success of the UK economy, our productivity and the UK's future place in the world. "People of different genders, from different parts of the world, and of

Gender gains: the corporate benefits of female leaders are hard to ignore

'If a firm is not advancing smart, talented, ambitious employees... then the rival is going to outperform'

different lifestyles, ages, sexuality, religion, physical and mental health capabilities enable better business decisions," she said in a recent speech.

So does the gender mix of top executives really make a difference to business performance?

Yes, but as Ms Fairbairn, who has occupied both executive and non-executive roles, points out, women form just one part of the diversity needed for corporate success.

Inside

Furious feminist

Gloria Steinem on the next generation and on a woman becoming US president
Page 2



Attracting the best

Companies should scrap paintball and introduce flexible working and childcare
Page 3

Campus rape

Apps to fight violence against female students shine light on distress
Page 5

Young scientists

Stars such as Olivia Hallisey belie the gender divide in Stem subjects
Page 7



HOW DOES THE CHICAGO APPROACH™ HELP ROXANNE DEFY THE ODDS IN A VOLATILE SECTOR?

In the hedge fund world, Roxanne Martino and the Aurora Fund have consistently outperformed benchmarks for diligence, staying power, and results. See how Roxanne has made The Chicago Approach™ her own.

ChicagoBooth.edu/impact



Roxanne Martino, '88
CEO, Aurora Investment Management

Male founders win decisively in fierce battle for start-up funding

Venture capital

Men are more likely to gain support as women lack the necessary contacts, says Sara Calian

Natasha Pilbrow, co-founder of London-based LeSalon, a beauty app, leaves most of the work of pitching to potential investors to her male co-founder.

"It's a little bit scary when I look around and the tech scene is dominated by young guys who eat, live and die by their start-up, and that is the benchmark and expectation that has been set," she says. "People are aware that female-founded start-ups perform well but, on a day-to-day basis, there are not many women in the room."

Rather than showing lack of courage

in avoiding pitches, Ms Pilbrow is being smart. There is a good reason why she hands the job of raising the one-year-old start-up's £500,000 target to Jean Michel Chalayer, LeSalon's male co-founder.

Female founders are up against what could be called the Facebook-Mark Zuckerberg bias, because investors — both consciously and unconsciously — want to support something that has worked in the past. Men are 60 per cent more likely to get funding than women, other things being equal, according to a 2014 study published by MIT, Harvard and Wharton universities.

But, in terms of hard numbers, it

LeSalon's Natasha Pilbrow, believes her male co-founder will have more success pitching for funds



should not be that way. "Venture capital deals that include women outperform their counterparts," says San Francisco-based Sharon Vosmek, chief executive of Astia, a non-profit organisation that is dedicated to identifying, investing in and promoting successful women entrepreneurs.

Ms Vosmek has analysed data from Dow Jones' VentureSource for the past 15 years and says that 64 per cent of successful venture capital-backed exits had at least one female executive as of 2014.

So why is there such a large gap in the funding of women in start-ups? First, there are fewer female founders looking for capital, which venture capitalists refer to as the "pipeline" issue. But there are other reasons, including the way women ask for the capital and how they put their pitches together.

"Women are less comfortable asking for money and doing the promotion that

Continued on page 3

CHICAGO BOOTH
CHICAGO LONDON HONG KONG

Make The Chicago Approach your own

Women in Business



Gloria Steinem does not drive. Indeed, a whole chapter in her latest book, *My Life on the Road*, is dedicated to the reasons why she does not. So it seems appropriate I am interviewing this self-described “modern nomad” on a rush-hour train travelling from London to Cambridge, during her UK promotional tour.

In Cambridge, Ms Steinem is due to speak at an event with Laura Bates, founder of the Everyday Sexism Project. The day before, she was interviewed on stage by Emma Watson, the actress and UN goodwill ambassador for women. In the past, the political activist and organiser has written that “if young women have a problem, it’s only that they think there’s no problem”. Does she feel today’s feminists are different from the pioneers of the 1970s movement?

“The contrast for me from the past is how activist young women, how radical they are, how pissed off they are,” she says. “They are way, way ahead of anything in my generation at the same age.”

Ms Steinem says she did not become a feminist until her 30s and she argues that, notwithstanding the Emma Watsons and Laura Bateses of today, women are the only group that becomes more radical with age. In her 1983 essay collection, *Outrageous Acts and Everyday Rebellions*, she says this is because young women “outgrow the limited power allotted to them as sex objects and child bearers . . . [they] haven’t yet experienced the injustices of inequality in the paid labour force, the unequal burden of child rearing and work in the home, and the double standard of ageing”.

Ms Steinem says she has become “angrier” since her 30s (“I’m hopping mad that more progress has not been made”), although she has certainly packed in myriad achievements in the 50 years since, founding the Women’s National Political Caucus and Ms. magazine, as well as writing eight books and leading activism across the globe. One of the initiatives in which she is currently involved is fundraising for a radio station run by moderate Syrian women.

She may be angrier, but she speaks softly and emanates warmth and down-to-earth elegance. At nearly 82, she is beautifully groomed, with perfect

‘Only women become more radical with age’

Interview Sarah Gordon accompanies feminist Gloria Steinem on a memorable journey

Career highlights

- 1971** Co-founded National Women’s Political Caucus
- 1972** Co-founded Ms. magazine
- 1973** Activism includes successfully restoring cartoon character Wonder Woman’s powers and traditional costume
- 1992** Co-founded Choice USA (now known as Urge), a lobby group for reproductive choice
- 2013** Awarded Presidential Medal of Freedom by US President Barack Obama

make-up and long manicured nails. Despite her disquiet over the years with commentators referring to her striking looks, Ms Steinem has never resembled the parody of the dungaree-wearing bra-less activists of the Vietnam war era. Nevertheless, she is still fighting many of the battles of that time.

The day we meet, Lands’ End, the clothing retailer, had just removed an interview with her from its website and apologised for publishing it, after customers voiced their outrage at the featuring of the pro-abortion activist. One customer wrote: “Are you anti-child? You want to kill off possible future customers?”

Ms Steinem has been on the receiving end of such hostility for half a century. In 1978, as she relates in *My Life on the Road*, she was invited to speak at a

church in Minnesota. When she arrived there, “cars are circling St Joan of Arc with huge blow-ups of foetuses mounted on their roofs, and loudspeakers are blasting, ‘Gloria Steinem is a murderer! Gloria Steinem is a baby killer!’” Today she is understanding rather than angry, although she says she will object to Lands’ End’s “censorship”.

“I think they have never had this experience before, so I think they are kind of freaked out. The only reason [the interview] happened at all was because there’s a new woman heading the company [Federica Marchionni], who is Italian and perhaps . . . [the people running the website] are in a more reactionary part of the company.”

The decades of hostility have not affected her commitment to women’s freedom of choice on abortion. She continues to feel as strongly as ever that control of reproduction is a key indicator of women’s equality in any society and her latest book is dedicated to Dr John Sharpe, a London-based practitioner who performed an abortion on Ms Steinem in 1957, when she was 22.

Given such personal details, it is perhaps surprising that *My Life on the Road* has been criticised for including so little about her personal life. It does not mention, for example, her marriage in her 60s to the father of actor Christian Bale, or her brush with cancer in the 1980s.

But there are many deeply personal moments in the book, including a long essay about her father, a cheerful, loving itinerant, who “worried about my fate as an overeducated woman”, sent her adverts for jobs as a dancer in a Las

Leaf in a storm: Gloria Steinem outside King’s Cross Station

Anna Gordon

Vegas chorus line, and was absent for much of her childhood, leaving her to care for a severely depressed mother.

Despite his obvious failings as a parent, she has only generous appreciation for his qualities — “because of my father, only kindness felt like home” — and she recognises how much his itchy feet influenced her own suspicion of the “siren song of home”.

The book also details many of her experiences on the campaign trail, from Robert Kennedy’s presidential bid in 1968 to Hillary Clinton’s competition with Barack Obama to win the Democratic nomination in 2008. Then she felt frustrated that interviewers always wanted her to choose between two — as she felt — impressive candidates. For Ms Steinem, racism and sexism have always been inextricably linked and the battle is against both.

She is also horrified at the hostility Mrs Clinton continues to face, particularly from women. “I don’t know how she stands it,” she says.

“In living rooms from Dallas to Chicago,” she writes, “I noticed that the Hillary Haters often turned out to be the women most like her: white, well educated, and married to or linked with powerful men . . . they hadn’t objected to sons, brothers and sons-in-law using family connections and political names to further careers — say, the Bushes or the Rockefellers or the Kennedys — yet they objected to Hillary doing the same”.

But she dismisses concerns that many

younger women, in particular, have supported Bernie Sanders, Mrs Clinton’s rival in the current Democratic presidential candidate selection race, instead of supporting a fellow woman.

“I’m glad they are being drawn into activism by Senator Sanders,” she says. “It isn’t about getting a job for one woman, it’s about making life better for all women.”

“I wouldn’t [have supported] Sarah Palin [Republican 2008 vice-presidential candidate] if my life depended on it. You don’t want to see another woman humiliated because of being a woman. But that does not mean that I would not fiercely oppose her at every turn.”

She believes, though, that Mrs Clinton is a better candidate than Mr Sanders. The latter, she believes, “appeals to unrealistic hopes”, while Republican presidential candidate Donald Trump offers “the politics of fear”.

Ms Steinem believes a society’s attitude to women says much about its politics and that it is no coincidence that many of today’s terrorists have come from the world’s most sexist environments. She writes in *My Life on the Road* that “the most reliable predictor of whether a country is violent within itself — or will use military violence against another country — is not poverty, natural resources, religion, or even degree of democracy; it’s violence against females. It normalises all other violence”.

She acknowledges that much has improved for women since she became an activist, although she says — albeit laughingly — that there are “many” events she would have played differently during her long career.

In the 1960s she wrote about becoming a Playboy bunny at one of Hugh Hefner’s clubs. She says the article made her feel even more excluded from “serious” political journalism than she had been before. But the essay is still pertinent 50 years on. New Playboy Clubs are opening in India, where a book of Ms Steinem’s work has just been published, including *A Bunny’s Tale*.

While Ms Steinem says she does not know whether “to celebrate or mourn” the fact that her message is still so relevant today, there is no doubt that its power is undimmed.

‘I’m hopping mad that more progress has not been made’



Investing in Europe’s future.
Investing in you.

At the **European Investment Bank**, we’re as diverse as the projects in which we invest. We are committed to supporting talented women to reach their full potential. Through our diversity efforts, we have increased the number of women in Managerial roles, but we can still improve. This is why we are looking for you – talented bankers, lawyers, engineers and economists! Join us to shape the future of Europe.

eib.org/jobs

climate action

strategic infrastructure

innovation & skills

smaller enterprises

Good for People, Good for Business

Women in Business

Scrap paintball, add childcare

Recruitment If you want more senior female staff, a formal change of corporate culture is required, reports *Sara Calian*

Throw out the man-sized T-shirts embroidered with the company's logo, and the loud power-point presentations. If your organisation wants to recruit, retain and promote women, then bring in flexible working, networking groups and childcare facilities instead.

"A lot of culture changes start by being thoughtful," says Elizabeth Ames, senior vice-president of marketing, alliances and programmes at the Anita Borg Institute, a social enterprise that was founded on the premise that women are vital to building the technology world needs.

She adds: "There are some obvious things, like realising that paintball wars for off-site [events] might not be such a great idea, or that references to pornography in the office need to stop."

But culture change in business also requires formal processes. Firstly, Ms Ames recommends that the systems of hiring and promotion be made as transparent as possible.

Women also need to apply for more promotions. "I don't recommend promoting someone who is not qualified, but there should be targets and an effort on the part of the company to identify talent that can be developed," she says.

And when it comes to recruiting, Ms Ames recommends "blind resume surveys" that do not show the name or reveal the gender of an applicant. This, she says, helps organisations to create a more diverse group of employees.

She adds that recruitment agencies should be pushed by companies to produce more female candidates.

One of the most successful ways to recruit women from university campuses is to bring along senior female employees to inspire them to come forward. At undergraduate level, for exam-



Focused attention: most of Goldman Sachs' recruitment events to increase diversity are aimed at women — Bloomberg

ple, Goldman Sachs, the investment bank, last year hosted 40 diversity recruiting events, 29 of which were specifically targeted to women. "We find it is very beneficial to bring female role models to campus to talk to female students," says Sarah Harper, Goldman Sachs' head of recruitment for Europe, the Middle East and Asia.

Another tactic is to target girls before they get to university. Goldman encourages women as young as 17 and 18 to consider professional opportunities in the industry through one-day programmes aimed at A-level and International Baccalaureate students. These give attendees an insight into the world of financial services.

'We find it beneficial to bring female role models to campus to talk to students'

Energy company BP has also broadened its recruitment schemes in the past decade to attract more women, by approaching them at younger ages in an effort to encourage their interest in the industry. The company hosts BP

discovery days for students in their first and second years of university, to experience working life at the company, as well as offering internships.

BP also awards university scholarships to help with funding the education of talented students. The programme is made up of an equal number of female and male students.

"We are working to develop a relationship with talented individuals who are [working] in specific disciplines such as chemical or mechanical engineering," says Victoria Bourne, BP's global head of downstream resourcing. "We don't just show up [on] campuses and start interviewing. We have engaged with the recruits at different points in their education."

BP says that in 2015, 46 per cent of graduate recruits were women, up from 33 per cent in 2013.

Networking and developing women's careers once they are working has also been a priority for both Goldman and BP. There are 11 women's networks at Goldman that host networking events and provide mentoring opportunities.

Last year in London, and for the first time, the company held two recruiting events focused on women in technology. Ms Harper says that one of the main

priorities for retention is a strong focus on flexibility.

This appears to be working. In 2015, Goldman reported that women represented 27.5 per cent of its promotions to managing director, up from the rate of 16 per cent two years ago. The bank's children's nursery at its London offices gives each employee a free "back-up" allocation of up to 20 days per child a year.

BP has also developed a strong approach to "agile working", varied working hours and locations, working from home and job shares. There has been a strong emphasis on ensuring panels for promotions have a diverse representation of men and women to make decisions.

BP has publicly set a target that by 2020 women will represent a quarter of group leaders. When this target was set in 2011, 15 per cent of group leaders were women. By 2014 this had risen to 18 per cent.

"There is no one, secret answer," says BP's Ms Bourne. "We are trying to build an inclusive culture, which is underpinned by strong values and behaviours, and which facilitate the recruitment and development of talent."

Male founders win the battle for funding

Continued from page 1

is required to successfully raise venture capital funding," says Brynne Herbert, founder and chief executive of Move Guides, a UK-based start-up that helps companies to relocate employees globally.

"It is critical for female founders to develop their presentations and [have access to] mentors and seminars that develop these skills," she says.

Ms Herbert adds that fundraising often requires a personal introduction and having a wide network of both male and female supporters can help founders to find funding.

"It sounds obvious but it's important to build a really strong company and be confident talking about it," she says. "Investors want to make money and building a strong company will make money for everyone."

In some cases, women are not scaling their business to a big enough size to attract significant funding.

Isabel Fox, head of venture at White Cloud Capital, has seen 2,500 presentations and met about 150 founders in the past year. Only a quarter were women. She says many female entrepreneurs have successful "lifestyle" businesses that aim to make a few million pounds or dollars a year but are not dreaming bigger. "Men have the confidence to say, 'I am going to have the next billion dollar business', and they will knock on 30 to 40 doors, and if they don't get any money they just say 'those investors, just don't get it,'" she says.

"The funding issues for women entrepreneurs need to be addressed even before the venture capital stage," says Susanne Chishti, co-editor of *The Fintech Book* and chief executive and founder of Fintech Circle, Europe's first Angel Network focused on technology investment in the financial services sector.

She explains that the funding ladder starts when family or friends put money into a business idea followed by private angel investors who provide the first external funding round.



Eileen Burbidge — Getty

"The problem is that financial technology firms operate in a male-dominated environment," she says, noting that most bank customers, investors and most senior decision makers across financial services and technology are men.

Ms Chishti adds: "A lot of big cheques are being written by men for men. Being given an introduction and knowing people is very important to a company in its very early stages."

However, some venture capitalists say there has been some progress for female founders. Eileen Burbidge, a partner at Passion Capital, an early-stage technology venture capital investment company based in London, says that the representation of women among founders is improving. She has more than 2,000 approaches from start-ups every year and, of those, female founders have increased from about 3.5 per cent to 5 per cent. "It is getting better, slowly," Ms Burbidge says.

She advocates more entrepreneurial education in universities to encourage women to pursue start-up ideas.

Both female founders and investors agree that when a venture capital firm has female partners, women have a better chance of securing funding. Ms Burbidge's firm has invested in 52 founders in the past five years and four of those have been women.

Indeed, adding to the number of female venture capitalists on selection teams would be another step towards increasing the amount of money going into start-ups founded by women.

Astia's Ms Vosmek says that the key to increasing performance and funding for female founders is to have a diverse mix of investors on venture capital teams. "The best group performance is not with likeness, it is with differences."

Timeline of career milestones:

- 1998: Joined PwC Risk Assurance, Glasgow
- 2000: Moved to Silicon Valley during dotcom boom
- 2001: Promoted to Senior Associate
- 2005: Promoted to Senior Manager
- 2008: Promoted to Director
- 2010: Started a family
- 2012: Promoted to Partner
- Partner

Take your career further

A career at PwC is endlessly challenging and immensely stimulating. Claire's has taken her all over the world as she has grown, developed and progressed. Choose a career that matches your ambition, and there's no limit to how far you could go.

Take the opportunity of a lifetime. Join PwC.

pwc.com/uk/careers



[/pwccareersuk](https://www.facebook.com/pwccareersuk)
[@pwc_uk_careers](https://twitter.com/pwc_uk_careers)

Create value through diversity.
Be yourself, be different.

© 2016 PricewaterhouseCoopers LLP. All rights reserved.

ie business school

FOUNDED IN 1973 BY INNOVATIVE ENTREPRENEURS

IE BUSINESS SCHOOL

- OVER 40 YEARS EDUCATING THE BUSINESS ELITE AND SUCCESSFUL ENTREPRENEURS
- AN URBAN CAMPUS THAT CONNECTS STUDENTS TO THE HEART OF MADRID
- A UNIQUE ENVIRONMENT WITH A DIVERSE COMMUNITY OF STUDENTS AND FACULTY
- AN ENRICHING EXPERIENCE THAT EXTENDS BEYOND GRADUATION

HUMANITIES | ENTREPRENEURSHIP | SOCIAL INNOVATION | DIVERSITY

www.ie.edu/business-school | admissions@ie.edu | [f](https://www.facebook.com/iebusinessschool) [i](https://www.instagram.com/iebusinessschool) [in](https://www.linkedin.com/company/iebusinessschool) [yt](https://www.youtube.com/channel/UC8vXp11111111111111111111)

Women in Business Technology

When female tech pioneers were the future

Technology's trailblazers Women were not always detached from computing, writes *Sarah Murray*

She caused a sensation with her sultry eyes and smouldering beauty. But Hollywood leading lady Hedy Lamarr – a star in the 1930s and 40s – was also the co-inventor of a radio transmitter used to secure wartime military communications that paved the way for mobile phone technology. Lamarr is among a cohort of pioneering women whose technological achievements often go unsung – something many argue needs to change.

While today's tech superstars are mostly male, in the early days of computer programming, a woman shared the limelight. As Charles Babbage was designing a programmable computing engine, Ada Lovelace, daughter of the poet Lord Byron, conceived algorithms that would enable Babbage's "Analytical Engine" to conduct different tasks.

Lovelace took a broad view of computing's possibilities. "She said that if we could figure out a way of making a science of music, we should be able to feed that into computers," says Thomas Misa, director of the Charles Babbage Institute at the University of Minnesota. "It's not the sort of thing a scientist would say, but computing seems to make advances with people that are a bit visionary."

Vision is one thing, but it is often conflict that serves as an incubator for technological advances. The second world war was no exception as it created new

career opportunities for women. While women worked on farms, in munitions factories and as radio operators, they also became lab technicians.

When American maths professor Grace Murray Hopper left her job to join the war effort, she found herself working on IBM's Mark I computer at Harvard University. After the war, Hopper, who became a rear admiral in the US Navy, was instrumental in developing the compiler, which translates English instructions into machine code, and the Cobol programming language.

"Her understanding that programmes should be written more closely to natural language in English has laid the foundations for software engineering," says Shilpa Shah, a Deloitte director who leads the firm's Women in Technology network.

Other wartime pioneers include a group of women who worked at the University of Pennsylvania on developing what is credited as the world's first programmable general purpose electronic computer, the Electronic Numerical Integrator and Computer (Eniac).

Some have made their biggest contribution not as inventors or computer scientists, but as businesswomen. One example is Dame Stephanie Shirley (see Page 7), who arrived in the UK as a young refugee fleeing Hitler.

In 1962, she established Freelance Programmers, a network of professional women computer specialists. Initially

employing only women (a policy she had to change in 1975 following the passing of equal opportunity legislation), the company, later called FI Group, gave women the flexibility to combine work with family responsibilities.

Looking back through history reveals many prominent tech pioneers who were women. But women working in technology's rank and file were also well accepted in the past.

In the US and much of western Europe in the 1980s, says Prof Misa, women collected almost 40 per cent of computer science degrees. Today, however, the figure is 15 to 20 per cent. "Through the 1980s, computing looked like something of a women's success story," he says. "Computing was doing something right in attracting women – and that's not the case today."

Many have posited theories for the change. Some suggest that the advent of the personal computer – which was marketed to men and boys – introduced a male flavour to the culture of technology.

Prof Misa says that when US colleges introduced requirements for programming experience of their students, this also created a deterrent. "It was a huge filter that chased women out because, for whatever reason, high school computers labs were taken over by boys."

However, while gender biases have swept across the US and Europe in recent decades, some parts of the world

Girls allowed: **Karlie Kloss (right) with young coders**



appear less affected. Minerva Tantoco, chief technology officer for New York City, witnessed this when, in a previous job in banking, she visited her company's offices in China to find that, on the technology floor, 60 per cent of the staff were women.

"It was proof positive that there's no reason women can't be in technology," she says. "This has got to be cultural. People think it's normal to be a computer engineer as a woman in many parts of Asia."

Prof Misa agrees, citing India and Malaysia as examples. "It seems the gender coding gets done in a different way," and adds: "Computing is seen as a challenging and well-paid field."

This still leaves large chunks of the world in which women are perceived to be not natural technologists.

Clearly schools play a central role in sparking the interest of girls in so-called Stem (science, technology, engineering and maths) subjects. But as technology becomes all-pervasive in people's lives, this should also be the case in education, argues Rebecca George, a Deloitte partner who has been promoting the participation of women in the IT sector since the mid-1990s.

"It's not just about teaching IT, but engaging teachers to use it in all their subjects," she says. "We need teachers to be IT literate."

Civil society groups and non-profits can inspire girls to take an interest. Girl

Scouts of the USA has, for example, been incorporating digital technology into activities such as cookie sales.

The organisation's "Digital Cookie" platform allows girls to create web pages, conduct sales online or via mobile apps, keep track of orders and use interactive tools to learn about budgeting, online security and safety.

For companies wanting to build a pipeline of female technology employees, partnerships with such groups is one way to contribute. Dell, the computer company, and Visa, the credit card company, are partners with Digital Cookie platform, for instance.

Sue Black, an adviser at the UK's Government Digital Service, says home life also shapes girls' interest in technology. She founded #techmums, providing workshops for mothers on online security, social media, computing skills and app and web design.

Celebrity role models are also encouraging girls and women to take up coding. For example, model Karlie Kloss has formed a partnership with New York's Flatiron School Pre-College Academy to encourage young women to apply for a "Kode with Karlie" scholarship, a two-week programme introducing software engineering and web app creation.

If they make progress, they will demonstrate, as Lamarr did in the 1940s, that female success and technological innovation are not mutually exclusive.

In the 1980s, women took 40 per cent of all computing degrees

Digital world offers opportunities to break the job mould

Leadership

Flexibility is attractive for women with MBAs, writes *Emma Boyde*

By the time Chantal Ambord reached Insead she was already heart-set on a non-traditional career path. The 28-year-old says she rapidly gained a reputation for going to fellow MBA students at the top-ranked business school, to ask them why they would want to join a management consultancy and "spend their time doing power point presentations".

"I was looking at the future. The reality is that businesses as we know them today are not going to exist in the future," she says.

Ms Ambord describes herself as entrepreneurial, and decided the ideal career for her would be in a new technology company. She now works in business development for BlaBlaCar, a

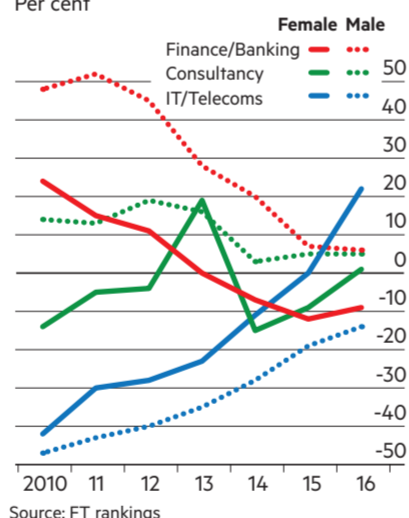
ride-sharing service that pairs car owners with potential passengers.

Ms Ambord, who graduated from Insead in 2015, appears to be part of an emerging trend. Research by the FT for its most recent ranking of the top 100 MBA programmes showed that by 2015, the number of women from the class of 2012 employed in technology had gone up by 22 per cent. The same survey showed that 14 per cent fewer men were employed in technology roles than three years earlier.

A similar rise in the number of women choosing technology careers has been noted by the US-based Forté Foundation, which mentors women for workplace leadership roles. Elissa Sangster, executive director, says the organisation partners with 46 of the world's highest ranked business schools and conducts surveys of female MBAs.

Only a handful of women chose careers in technology companies a few years ago but that has risen to "between 9 and 11 per cent", says Ms Sangster. "I'm not surprised by the increase," she

Growth of women (v men) who chose tech jobs following their MBA



adds. "The group going into MBA programmes now can see great opportunities in technology companies."

It seems possible that for female MBA graduates, technology companies might finally be offering the chance of some

change in their work prospects. Women are mostly in a minority in elite business schools and afterwards can expect to encounter glass ceilings and persistent pay inequality in the traditional finance and consultancy roles that attract high-flying candidates.

Andrei Kirilenko, head of Imperial College's Centre for Global Finance and Technology, believes technology will alter things a great deal for women, not least in fintech. "My feeling is that women are particularly well positioned to benefit from the fintech revolution," he says. "Glass ceilings will not be driven by gender. They will be driven by what you know."

Mr Kirilenko's optimism, however, is not yet justified by current proportions of women in large technology companies. An FT investigation in November found that nearly 80 per cent of Google's top management were male. Similar figures were reported at Facebook. At Apple, women occupied nearly 30 per cent of management roles.

Claire Cockerton, chief executive and

chairman of Entiq, an innovation consultancy, is the founder of Innovate Finance, a UK industry body for the fintech industry. She says she has noted increasing numbers of female developers and believes a particular driver for increasing gender diversity in the tech industry is data analytics.

"If you can harness data analytics then you are the most important person in the room."

Ms Cockerton graduated from Imperial in 2010 with an MBA in innovation, entrepreneurship and design and says she was never going to be interested in joining a bank or consultancy.

"I felt that climbing the traditional corporate ladder was long and arduous and full of hurdles for women," she says. Even in the cases where women did succeed, she adds, they had to put up with being paid far less than their male counterparts. "I think the tech industry offers far greater mobility."

An Amazon spokesman confirmed that globally each year the company now hires hundreds of people with

MBAs. He said the online retailer was targeting women in its recruitment process and developing flexible working guidelines that would help the effort.

For Laurelle Schoepke, an MBA and a senior product manager at Amazon Lending UK flexibility is important but so is the unpredictable nature of her job. "It's fun to meet fighter pilots, economists and publishers all in the same company," she says. "Unlike some other industries, career paths in new technology companies are not a straight line or planned for you."

Non-linear careers and the promise of flexible working patterns are part of the attraction of the tech industry but some people cite other reasons, too. Ms Ambord says a new technology company such as BlaBlaCar is particularly attractive to her because it enables her to exert influence.

"One of the reasons I joined BlaBlaCar was because a lot of companies in the technology industry are looking to improve the status quo and they are actually doing it," she says.



EUROPEAN CENTRAL BANK
EUROSYSTEM

Careers at the European Central Bank – Diversity Matters

The European Central Bank together with the national central banks constitutes the Eurosystem, the central banking system of the euro area. The main objective of the Eurosystem is to preserve price stability. In addition, The Council Regulation establishing a single supervisory mechanism confers specific tasks on the European Central Bank and the national supervisory authorities of the participating countries to ensure the safety and soundness of the European banking system.

We look for professionals of all backgrounds and disciplines to join a dynamic and multicultural work environment. To further enhance the diversity of our workforce, the ECB particularly encourages applications from female candidates. Explore the fascinating challenges, varied opportunities and people-centred working culture that give you a voice, influence and the remit to make an impact – for Europe.

Interested? Visit our job opportunities page at:

www.ecb.europa.eu/ecb/jobs



Women in Business

Apps raise alarm over campus sexual assaults

Stay safe Universities are under pressure as one in four women report being abused, writes *Maija Palmer*

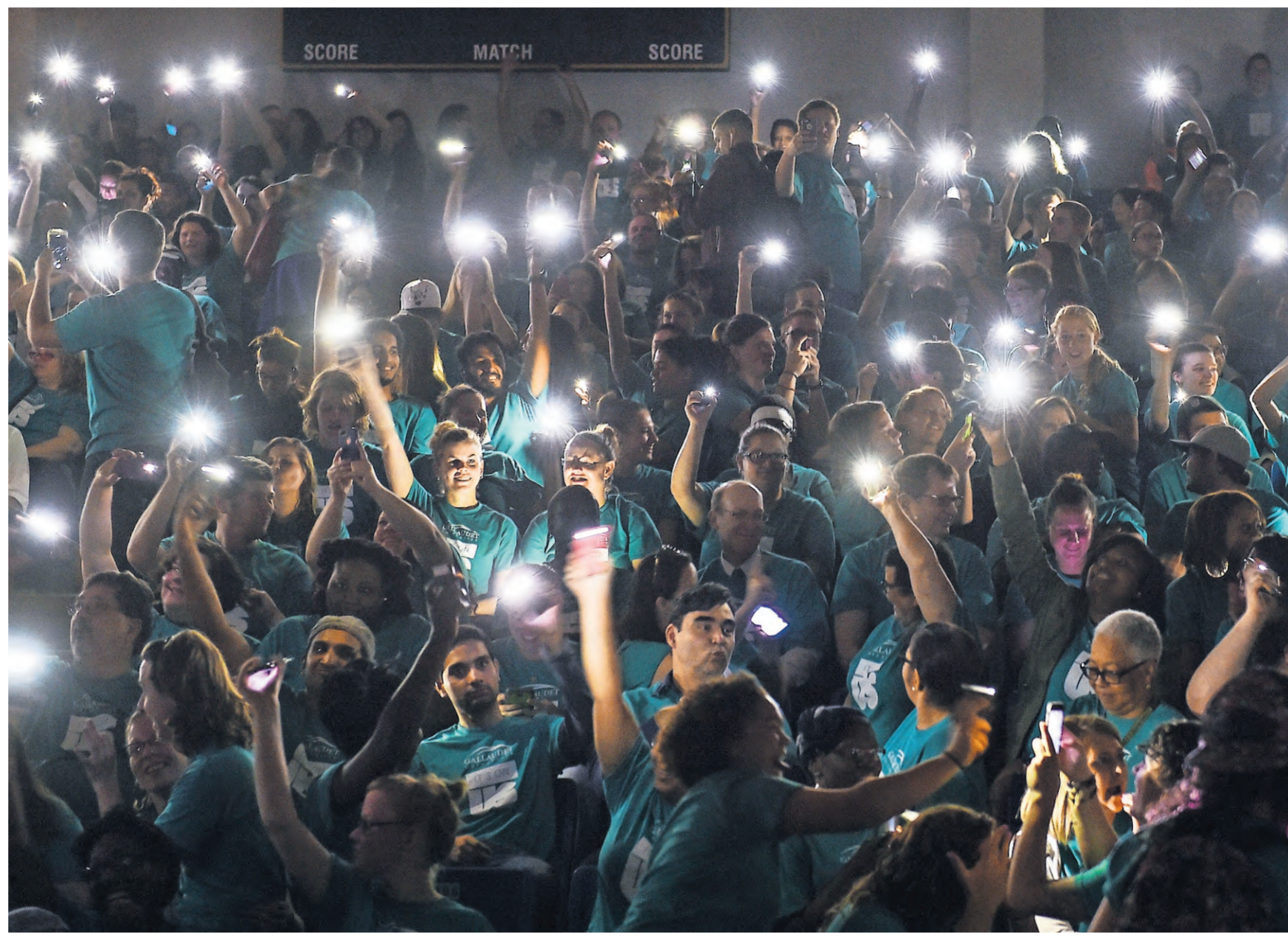
Nancy Schwartzman survived a rape. One of the things she remembers from her ordeal is the sense of bewilderment and powerlessness that struck after the event.

"I remember having to make really hard decisions. Should I stay where I was with the rapist and get him to drive me home in the morning, or go out into an unfamiliar neighbourhood in the early hours of the morning, which would also be dangerous?" she says.

Ten years later she built a mobile phone app – Circle of 6 – that helps give people better options should they find themselves in a similar situation. Circle of 6 allows users to pick six friends who they can message quickly if they find themselves in a dangerous situation. The app allows them to send pre-written messages such as "Come and get me. I need help getting home safely" to this group, with just two touches of the phone.

The app was one of the winners of the 2011 Apps Against Abuse challenge launched by the White House in the US, and has been adopted by a number of universities in the US, including Williams College, University of California, Los Angeles and the University of Houston, for their students. The US Air Force advises all of its first-year cadets to use it.

Universities are looking at apps like these that offer help to rape victims, as they come under pressure to tackle an epidemic of sexual violence on campuses. Nearly one in four college women say they are sexually assaulted during their time at university, according to a report released late last year by the Association of American Universities. The first six weeks of college, between student orientation and Thanksgiving break in November – known as the "red zone" – are especially dangerous for first-year students.



App power: Gallaudet University students, faculty and staff use their phones as a light source during a protest against sexual violence in Washington DC – Getty

Even the recent Academy Awards acknowledged the problem of campus rape, with Lady Gaga's song "Til It Happens To You" from *The Hunting Ground*, a documentary about campus rape nominated for an Oscar. Joe Biden, US vice-president, introduced the song at the ceremony with a speech about the need to end rape culture.

But, as *The Hunting Ground* powerfully shows, many campus assaults go unreported, and even when they are, they may not be handled well.

About 40 per cent of US colleges failed to investigate even one sexual assault in five years

A 2014 report by the US Senate Subcommittee on Financial and Contracting Oversight, found that out of a sample of 440 colleges and universities, 40 per cent had failed to conduct a single sexual violence investigation in the previous five years. Last month, Harvard became the latest university to face a lawsuit from a student over alleged mishandling of a sexual harassment case.

The threat of lawsuits is pushing universities to take action, and apps are some of the tools being considered,

alongside more conventional measures such as education programmes and the installation of emergency call boxes around campus. Loyola University in Chicago opted to create its own rape assistance app in 2014, in response to concerns about campus assaults. The Here for You app is not focused on prevention, but at giving students information about the help and resources available to them if they are attacked.

"It is about meeting students where they are at, which is on their mobile

phones," says Stephanie Atella, Loyola's Wellness Centre health educator.

Universities have also adopted apps that link students directly to campus police in order to help prevent attacks. Lifeline Response, for example, allows users to alert the police directly, giving their geographic location, when they are in trouble.

The company says the app, which has been adopted by more than 100 universities, has so far prevented 25 assaults. Other apps, such as EmergenSee, stamp images captured by the user with the date and time, so they can be used in a criminal investigation.

Apps such as Guardly and the YWCA's Safety Alert, for example, let off loud noises when phones are shaken while at the same time sending emails and texts to notify friends.

Meanwhile bSafe uses GPS to allow friends to track your movements remotely when you are on a date or jogging alone. One of the simplest apps, Kitestring, works off text messages, sending notifications to check if you are all right and notify your emergency contacts if you do not respond within a set amount of time.

However, Katie Russell at Rape Crisis UK urges caution with these apps. She notes that women are often raped by people they had trusted, and that drugs and alcohol can impair a victim's ability to activate the alarm. "We should be careful about making too many claims. They can potentially give a false sense of security."

Loyola's Ms Atella says she is not aware of anyone who has used an alarm or prevention app to ward off an attack.

Ms Schwartzman does not dispute this. "Would Circle of 6 have helped me on the night of my rape?" she asks. "It would not have prevented it, but it would have helped me afterwards."

One of the biggest benefits of anti-rape apps, she says, may be that they raise awareness.

Focus groups at Williams College, which was the first campus in the US to pilot Circle of 6, indicated that there was a change in overall student behaviour following introduction of the app.

"It sets a baseline of saying that abuse is not OK, and that you should have more trusted people in your network."

Genomics, virtual reality and ethics: how progress will affect us

Futurology

Four key individuals shaping the world of tomorrow offer their insights into the most significant developments.

By *Sophie Clowes*

Swift changes in technology – from the development of driverless cars and robotics to the collection of increasingly large amounts of data – are transforming the way we live.

We asked four distinguished thinkers who are shaping that future through their scientific and academic research, writing and entrepreneurship, to predict what aspects of this new industrial revolution will affect us most. Will women benefit or lose and which ethical questions will we have to answer most urgently?

Prof Paula Hammond, head of the department of chemical engineering at the Massachusetts Institute of Technology. Her research seeks to deliver anti-cancer therapies in a more targeted and therefore less destructive manner. She says that gene editing to address genetic disorders and cancer is a key emerging technology. "Genomics as medicine is really where it's at."



She cites Crispr, a gene-editing tool that was named breakthrough of the year 2015 by Science magazine, as an example. This technology will raise broad ethical questions and prompt difficult and personal questions for parents-to-be, especially mothers.

"We need to ensure that enabling science doesn't go beyond the concept of helping mankind. From governments to the general public, this is something we all have to engage in," Prof Hammond says.

Many women, including Martha Lane Fox, the UK web pioneer and government adviser, feel women need to be part of creating technology if their problems are to be addressed. Prof Hammond takes a broader view, believing that diversity in general is the key. "The diversity of the people I work

with not only changes the way we approach problems but it changes the kind of problems we approach."

Alec Ross, former senior adviser for innovation to Hillary Clinton when she was US secretary of state, and author of *The Industries of the Future*, believes



robotics, advanced life sciences, the codification of money, cyber security and big data will affect economic and social change.

"I think the commercialisation of genomics will have as much impact on our lives over the long-term as the rise of the internet," he says.

"We are going from a world which today has 16bn internet-connected devices, to one that in 2020 is going to have 40bn," he adds.

However, the US and Europe risk falling behind if the west continues to cling to its outdated educational institutions, Mr Ross warns.

"People say government is slow to change; nothing is slower to change than education and this is really what puts the working and middle classes in Europe and the US in a disadvantaged position."

In a world of increased artificial intelligence and automation, we are going to see enormous changes in labour, with machines increasingly replacing humans, says Mr Ross. But some labour that will not be replaced will grow in importance.

Here, Mr Ross believes those with strengths traditionally seen as "female" may hold an advantage. "A workplace where a greater premium is placed on attributes like emotional intelligence ultimately benefits women in the executive ranks."

Amali de Alwis, chief executive of Code First: Girls, a social enterprise tackling the lack of women in technology and entrepreneurship through



community courses, networking events and corporate activities, says: "There is no such thing as a non-tech industry these days."

Ms de Alwis believes this is the year of virtual and augmented reality. "Pretty much every single company is launching some sort of virtual or augmented reality headset," she notes, pointing to the Oculus Rift, HTC's Vive and Google's VR headset for smartphones.

Houzz, a website and online community dedicated to architecture and design, wants to use virtual reality to allow people to experience what is about to be built. But the technology's impact will reverberate far beyond entertainment and interior design, with "applications for surgery and the inspection of oil pipelines", Ms de Alwis says.

In the US, immersive virtual reality has already been shown to reduce pain in burn victims. Could headsets in the labour ward be next?

Personal passions for Ms de Alwis include crypto currencies and blockchain (the same decentralised ledger book that underpins bitcoin). But it has potential for use in applications other than currencies, such as Leanne Kemp's Everledger, which tracks diamonds, so making them far more difficult to steal.

Prof Saeema Ahmed-Kristensen, deputy head of the Dyson School of Design Engineering at Imperial College London, says 3D printing will enter the mainstream within the next five to 10 years. She also cites big data as an emerging trend.



"People are no longer designing products but entire systems," she says. But as technology such as 3D printers becomes cheaper and more sophisticated, it also provides people with the power to do harm.

"When we are educating designers the ethics are very important," says Prof Ahmed-Kristensen. She points to the example of 3D printing being used to create weapons.

"There's a need to understand how a product fits into an infrastructure, including ethics, social responsibility and cultural sensitivity. From a design and engineering perspective, either we start with the need or the technology, but we need to understand the human aspect of it: how women and men use the technology."



EXECUTIVE | FLEXIBLE EXECUTIVE

THE HENLEY MBA



BE THE LEADER YOU KNOW YOU CAN BE

Helping women to develop their leadership potential is at the heart of Henley programmes. So much so that Henley is #1 in the world for percentage of female faculty members*.

We focus on maximising your personal strengths and attributes while developing your strategic thinking and enhancing your managerial capability.

The outcome is transformational - providing you with the knowledge and confidence to excel in your chosen profession and make a positive impact on your career and organisation.

We are proud to support women in leadership. **Speak to one of our MBA Advisors to discuss which Henley MBA best meets your aspirations and lifestyle.**

+44 (0)118 378 7593 | mba@henley.ac.uk | henley.ac.uk/mba



*FT Executive MBA rankings 2015



Women in Business

Housework stymies wives worldwide

Domestic chores The corporate success of women often depends on a supportive partner, writes *Gill Plimmer*

In Melinda and Bill Gates' annual letter outlining their philanthropic priorities Ms Gates highlighted the unpaid housework and childcare done by women across the world.

"Unless things change, girls today will spend hundreds of thousands more hours than boys doing unpaid work simply because society assumes it's their responsibility," wrote Ms Gates, co-founder of the couple's charitable foundation, in late February.

The problem is not just that household chores are dull, she points out.

"It ends up robbing women of their potential," Ms Gates said when quizzed for further explanation. "This is a societal issue that in 2016 shouldn't exist any more."

Women across the world spend an average of 4.5 hours a day on unpaid work while men spend less than half that much time, Ms Gates writes.

The burden of unpaid work falls most heavily on women in poor countries. But these domestic inequalities also hurt women in developed countries. Even in the very top echelons of society, such imbalances are continuing to drag the chances of women achieving their ambitions of reaching the top of business organisations.

According to a study of US corporate leaders, 25 women made up just 5 per cent of Fortune 500 chief executives in 2015 – a tiny fraction of a cohort overwhelmingly dominated by men. The large majority of such leaders are often already drawn from privileged economic backgrounds, who can afford to pay for nannies and housekeepers.

"By the time they are CEOs they make big bucks so they can afford nannies and housekeepers, even if they are among the relatively few who came from backgrounds that were not economically privileged," says Richie Zweigenhaft, professor of psychology at Guilford



Viral video: Ariel advocates that men pitch in
Procter & Gamble India

College in North Carolina, who conducted the research. Ethnicity adds another layer to the problem. There has been only one African-American woman who has been a Fortune 500 chief executive – Ursula Burns of Xerox. Two of the 11 Asian-American chief executives in 2015 were women and there is yet to be a Latina Fortune 500 chief executive, says Prof Zweigenhaft. He adds that the gradual increase in female chief executives has been "glacial at best".

The study found the limited progress that has taken place applies much more to white women and recent South Asian immigrants than to African Americans, Latinas, or those from traditional Asian-American backgrounds such as China, Japan or Korea.

One of the "ironic" effects of the increase in women at the top may be that the "heyday of diversity has come and gone", argues Prof Zweigenhaft.

"Now that there have been some women, African-American, Latina and Asian-American CEOs, there may be less, not more, pressure on boards to consider and appoint them as CEOs."

Nearly all of the successful female chief executives have been married and most have had children.

"We weren't inside these marriages but clearly some of these had husbands who were willing to put their careers second to their higher-powered partners, helping with the children and household chores and showing a willingness to move," he adds.

"Even having help with the entertaining can be an important to CEOs, who have to do a lot of it."

According to a survey by Mumsnet, the UK website, around two-thirds of mothers felt that parenthood had affected their careers. Nearly half of the women who reported suffering from the so-called motherhood penalty believed that more should be done to address the issues by employers and governments. Most also felt that their male partners' careers had not been affected.

Companies are picking up on the trend. A recent video advertising Ariel washing powder in India received millions of views and has been highlighted by women such as Sheryl Sandberg, chief operating officer of Facebook and

the author of *Lean In*, a book on women's role in the workplace.

It depicts a father watching his young professional daughter juggle a work call while cooking, doing the laundry and attending to her young son. Meanwhile, his son-in-law watches television and demands dinner. The advertisement ends with the father writing his daughter a letter, apologising on behalf of "every dad who set the wrong example" and promising to do more to help her mother with household chores.

In her book, Ms Sandberg says that she had to resist falling into a traditional role once she had children.

Although Ms Sandberg credited her recently deceased husband, Dan Goldberg, "with making everything possible" and sharing tasks in the home, she also acknowledged that for too many women it remained a rarity.

Her advice: "When it comes time to settle down, find someone who wants an equal partner. Someone who thinks women should be smart, opinionated, and ambitious. Someone who values fairness, and expects or, even better, wants to do his share in the home."

The burden of unpaid work falls most heavily on women in poor countries



Win a place on an Executive MBA

The FT today launches its fourth annual Women in Business competition in partnership with the 30% Club and Henley Business School. The winner will be announced at the FT's Women at the Top summit on September 29 in London, to which all the finalists will be invited. The prize is a fully funded place on Henley's Executive MBA course.

The competition is open to both men and women who have experience in the workplace either in managing a team, running a project or planning strategy at any level. This year's contest has two compulsory sections: writing an opinion piece and making a video.

In no more than 800 words, answer: How will women shape the future of business over the coming ten years? The article should consider factors such as globalisation, technology and evolving societal attitudes.

In a one minute video, answer: Which words tend to be those used to describe successful women versus successful men? How does the vocabulary differ? Does it depend on whether a man or a woman is speaking? Do the age, level of education, nationality and background of the speaker or person being described matter? What impact do the words used have on the advancement of women in the workplace? The video can include several speakers. It should be shot on a smartphone and will only be judged on content and the creativity displayed in using this medium. Send entries to mba@henley.ac.uk by May 3, 2016. T&Cs can be found at www.henley.ac.uk/30percentclub

Who says creativity and empathy have no place in business?

#BreakingBias

Imagine a working environment where people aren't defined by gender. Or anything else but the value they add and the impact they make. It's a world we're striving for here at Deloitte, where everyone can bring their unique talent.

With that in mind, explore career paths spanning audit, risk, financial advisory, tax and consulting, as well as exciting opportunities in cyber, technology and digital.

Explode myths. Stand up to stereotypes. Make an impact. Break the bias.

www.deloitte.co.uk/careers

Deloitte.

[f](#) [in](#) [t](#) [v](#)

© 2016 Deloitte LLP. Deloitte LLP is an equal opportunities employer. Member of Deloitte Touche Tohmatsu Limited.

African Development Bank

Be the change Africa needs

From large-scale infrastructure programmes to micro-credit projects stimulating private enterprise, our involvement is driving new initiatives in governance, the environment and social development.

Championing diversity and gender balance both within and outside our organization, we are now seeking the best and brightest from all walks around the world to join us in our mission to transform futures across Africa.

For a career that offers much more than a job, look no further than:

www.afdb.org/jobs

Building today, a better Africa tomorrow

www.afdb.org

Women in Business

Is gender neutrality the way to shut the Stem gap?

Science Outrage erupted on social media after a boy won a prize aimed at girls. *Neil Munshi reports*

When EDF Energy launched its “Pretty Curious” campaign in October aimed at “inspiring girls’ curiosity about science, technology, engineering and maths”, it probably did not intend to highlight the debate about the gender imbalance in the sciences. But that is exactly what it did.

Critics lambasted the apparent irony of using a stereotype to name a programme aimed at fighting stereotypes. “I hate this presumption that Stem (science, technology, engineering, and mathematics) stuff needs to be ‘girlified’ to appeal to women,” wrote Emily Schoerning, director of community organising and research at the National Center for Science Education in the US, adding that it draws attention “to our gender over and above our achievements”.

Last month, EDF announced the win-

ner of its Pretty Curious science challenge: a 13-year-old boy. The company explained that, while the campaign was aimed at girls, the competition was “gender-neutral”. Another social media firestorm ensued.

Sue Black, a British scientist, took to Twitter in response: “I’d love to know: how is the winning entry seen by EDF to encourage girls into Stem?”

Women are under-represented in many professional Stem fields. According to the US census bureau, male science and engineering graduates are twice as likely to be employed in a Stem occupation than female ones. The commerce department found women represent roughly a quarter of the Stem workforce; in the UK, the figure is 14.4 per cent. Countless studies illustrate how unconscious and institutional biases, along with societal and familial pressures, inhibit how women scientists are perceived, encouraged and promoted.

Not intimidated: Olivia Hallisey, 2015 Google Science Fair prize winner

Young women are narrowing the gap in participation in mathematics and science courses, according to the US department of education. But the question remains: should girls be singled out and encouraged to pursue and stick with Stem careers, or is the best route to equality gender-blind?

At 15, Ciara Judge was joint winner of the 2014 Google science fair for a project that studied how bacteria could boost low crop yields and fight world hunger. The Irish teenager offered a point of view shared, in particular, by some of her fellow young female peers. She wrote on her blog: “To those criticising the idea that a contest to promote females in Stem would have a male winner, I ask: is allowing a girl to win by default really a way to promote girls in Stem? There is no worse feeling on earth than feeling like your success is because of your gender.”

Nicole Ticea, 17, won the Intel

‘Stem education should be consistent and mandatory for both genders in all schools’
Nicole Ticea

Foundation’s Young Scientist award last year for developing a cheap, portable HIV testing device that delivers results within an hour. She says she did not notice gender imbalance in her pursuit of the sciences, in part because she attended an all-girls school.

She says: “I don’t know how effective these programmes are that target only young women solely for the fact that they are young women. I think it should be something that is consistent and mandatory for both genders in all schools.

“If you’re not highlighting the distinction between men and women . . . if you’re just having everyone do science, then I think that’s the only way we can overcome this inequality.”

Seventeen-year-old Olivia Hallisey won the \$50,000 top Google Science Fair prize last year after developing a low-cost, rapid detection Ebola test. She takes a more neutral view.

Ms Hallisey says her school in Connecticut “does a really good job of making it gender-blind”, and that the scientific research class in which she developed the Ebola test is roughly split between boys and girls. “I think that’s really important — since there are so many girls it helps, because sometimes girls get intimidated when they don’t see other girls.”

Theresa Rohr-Kirchgraber, head of the American Medical Women’s Association, says a lot of women feel pushing for equality is “old school stuff — even my daughter says we’re all equal now.”

“Well, no, we’re not. We’re not making as much, we don’t have the same opportunities, there are times when someone looks at you and says, ‘you’re a cute girl, I don’t think you can do it’ — it doesn’t matter that it’s not a stated fact, it’s more subtle.”

“It isn’t until it hits you in the face that you realise it.”



The automated future is nothing to fear — it belongs to women

GUEST COMMENT
Natalia Brzezinski

The machines are coming, or so we are led to believe. An image of a robotic-looking crowd of delegates wearing virtual reality headsets at the Mobile World Congress caused quite a stir last month.

Are we marching toward a soulless, robotic future, the stuff of science fiction?

Rising fears about automation, and a lament for the end of an “unplugged society”, is dominating the discussion around the future of work.

But the future will not be owned by machines, it will be owned by great storytellers.

Automation and technology will work hand-in-hand with human innovation — humanity will be the purpose and narrative behind the machine — and reflect a new career world of constant entrepreneurialism and transformation, both digitally and physically.

I believe women will be leading this future, head first and heart first.

In June 2012 Forbes Magazine hailed entrepreneurship as “the new women’s movement”. The writer and entrepreneur Natalie MacNeil says women have been starting businesses at a higher rate than men for the past 20 years and are projected to generate more than

half of the 9.72m new small-business jobs expected to be created by 2018 in the US.

Women own 29 per cent of private US businesses, employing 16 per cent of the nation’s workforce, the National Women’s Business Council says.

I see encouraging signs that automation will help female entrepreneurs to build leaner, more digital and flexible businesses, which are our niches already.

Women will take traditionally male jobs and create new ones.

The Steve Jobs of tomorrow will not require endless degrees, old boys’ networks or pedigrees. Most commentators predict that the jobs our children will be doing in the future have yet to be created. So how can these traditional structures survive?

Women are reshaping the workplace into one steeped in collaboration

Our children will require grit, unfettered hearts, open minds and a willingness to constantly transform. These are qualities that underscore the definition of womanhood — we are always changing as girls, women, mothers, redefining our roles and juggling them all in a way that is the essence of innovation.

Many entrepreneurs cite the solving of a problem as the genesis of their business plan: women all over the world are looking at the workplace, realising it does not work in their favour, and reshaping it into one that is attuned to modern

values steeped in collaboration, creativity and transparency, and the *modus operandi* of the modern woman’s life. Women look at the world differently, and different is good.

One thing holding us back is what has been at the heart of most men’s success: a willingness to put ourselves out there, take a controversial position and make a stand.

I believe in equality, but being equal does not have to mean being the same. Nor does it mean staying quiet. If we cannot speak up for ourselves, chances are no one else will believe in us, or speak up for us.

We are moving in the right direction. But there are still too few countries in the world that work to empower both men and women equally, and give them equal responsibilities.

We will need to innovate, not only with machines and technologies, but also in our societies to seize the opportunities of the future.

Sweden is one place that has forged a future around gender equality and innovation. It is a start-up centre, a spawning ground for tech companies valued at \$1bn or more and has some of the highest percentages of women’s full participation in the workforce, equal pay and nearly equal representations of women in parliament.

One thing the world can learn from the Nordic model is how gender equality, pure tech leadership and a focus on the future can exist together.

As the chief executive of Symposium Stockholm, a week-long festival of ideas, fashion, music and tech that takes place in June, I work every day to bring people together around these transcendent, futuristic values.

This year, our main event will highlight how innovating societies tend to be more open, and gender equality creates exponential creativity.

As an entrepreneur, I cry on aeroplanes when I see my daughter’s face on Skype, but I also sit in boardrooms and have my voice heard on inclusion and social consciousness. I raise my voice for my daughter, and all of our daughters.

The future wants to thrust machines on us. We must be machine-like in our perseverance. Do not live a life set out by others — human or artificial.

Natalia Brzezinski is chief executive of Symposium Stockholm and hosts the ‘Stand Out!’ podcast



A LEADER
IN EXECUTIVE
EDUCATION
WORLDWIDE*

15 YEARS OF EXPERIENCE?

THAT’S A GOOD START

*Financial Times Ranking 2015

EXECUTIVE MBA

Next intake - September 2016

exed@hec.fr
+33 (0)1 55 65 59 09
www.exed.hec.edu

Women in Business

Interview Dame 'Steve' Shirley

The views of the computing pioneer will annoy some, but they are difficult to ignore, writes *Rhymer Rigby*

'Now there's nothing holding women back'

"I haven't got a lot of patience with women who complain," says Dame Stephanie Shirley. "There's nothing holding women back now except our own avoidance of trauma and hard work."

"Young women today have the choice over whether they want a vigorous professional career or whether they want to float around a bit more and enjoy life."

It is views like this that do not always endear Dame "Steve" Shirley to the current generation of feminists and she cheerfully admits she knows they can annoy people. But she is difficult to ignore, because she is uniquely well placed to talk about women in the workplace and in technology.

Dame Stephanie is 82 and it is perhaps best to call her a female pioneer, because she rejects the feminist term. She was born in 1933 in Dortmund, Germany, to a Jewish father and a genteel Austrian mother. She left them behind when, aged 5, she was moved to the UK as a Kindertransport refugee. She was raised by foster parents on the Midlands and Welsh borders, where she discovered a flair for maths. She decided not to

go to university, joining instead the Post Office Research station in Dollis Hill, London. Here she worked on computers and took a maths degree at night school.

In 1962, she founded a software company called Freelance Programmers, which she ran from her dining room table. "Computers came along when I was realising that maths wasn't for me," she explains. "The industry was wide open for anyone to contribute."

But it was not just a company, it was a calling. "I set up a software house because I'd hit the glass ceiling. I was passionate about not being patronised and became very assertive, although I've never been a feminist."

The company was radical for its time. Its employees were nearly all women and they mostly worked from home.



Dame Stephanie Shirley

Rose Hallam

The programs were written on paper and sent in by letter.

Dame Stephanie was determined to give women, particularly those with children, the chance to work. The business was revolutionary in other ways: "We were one of the first networked companies. We used phones and we used people's home television sets. You can imagine how popular that was."

Of course, she had to deal with the attitudes of the time and one legacy of this is her nickname, "Steve". She used it in letters to clients who did not reply to "Stephanie". She received a far better response rate if clients thought they were dealing with a man.

The company, which she owned in its entirety, was floated in the 1990s and made her very rich. With a net worth of \$200m, she was at one point the 11th wealthiest woman in the UK. She shared the money with staff, giving them a quarter of shares and at the IPO, creating 70 millionaires. But all this is history. Dame Stephanie is now into her third decade of retirement, having stopped work in 1993.

However, like many entrepreneurs she cannot really stop. Even now, her productivity puts many people half her age to shame. "I'm a workaholic and can't imagine doing anything else," she says. "I suppose I'm a role model: look, your granny can still be working."

Over the course of an hour-long conversation, our topics range from the tech-enabled, agile workforce and the use of robots to teach the severely autistic to interact, to the spread of Islamophobia and her Apple Watch.

She is funny and aphoristic. Describing what might now be called "intersectionality" (a critical tool that says oppressive behaviours such as sexism and racism are interconnected), she explains that she employed one of the few black directors in the City of London. "It was the mid-80s and you could hear the whispers: 'Look, Steve's not with her husband . . . she's with a black guy.'"

These days, she sees herself as a philanthropist, something that has its roots in her childhood – the Kindertransport and her life with a foster family meant that she had been dependent on the kindness of strangers. Moreover, she cannot bear the idea of a fortune sitting idle, so she has given the vast majority of her wealth away. "Money that does no work has a sort of obscenity to it."

Most of her efforts are now focused on autism research. Her only son was severely autistic and died in 1998 as a result of an autism-related fit. "I fund medical research and I'm working with scientists, so I'm having a wonderful time," she says.

The sums she donates are typically £100,000, but the biggest was £20m, so she wants to ensure that she gives wisely and strategically. "I remember costing one project and realising it was going to run to £400m, which was way out of my reach. We are now doing the work, but we're piggybacking on something the Gates Foundation started."

As 'Steve' she received a better response because clients thought they were dealing with a man

You should, she adds, start charities with a view to walking away when they are sustainable. "You want to have an exit strategy." Reaching sustainability is a bit like an initial public offering for good causes.

Towards the end of the interview, I press her again on the barriers women still face in technology and she gives a similarly brief answer – that there are not many – and then we are back to talking about fingerprint recognition and how brilliant it is in helping severely autistic people.

"They're using this technology on doors, because it means these people they don't have keys to use. It improves the quality of their life, but also reduces the care cost."

This, I think, is the reason for what some view as her disdain for modern female workplace concerns.

Compared with the mountains her generation faced, today's women are griping about molehills. All big battles have been fought and won, she feels, and there are more important things to worry about.

Academia develops technology to boost entrepreneurial talents

Education

Coaching, mentoring and fundraising skills encourage women to strike out alone, says *Sarah Murray*

Women in the US state of Indiana are receiving help to succeed in technology and entrepreneurship with the assistance of the WomenIN incubator, which was launched in October.

WomenIN is one of several projects emerging from academia to help would-be entrepreneurs. It is backed by the Purdue Foundry, which helps students, faculty and alumni at the eponymous university to monetise ideas.

"Over the past 10 years, the distinction between the types of support have blurred in a healthy way," says John Hanak, the Foundry's director of venture capital and funding resources. "Business incubation has taken on a larger meaning, which is anything that's providing support to entrepreneurs."

Dhruv Bhatli, co-founder of UBI Global, which ranks more than 400 incubation programmes in more than 70 countries, agrees: "In the old days, incubation programmes had buildings, infrastructure and labs.

"It's moving to a service model, with coaching, mentoring and skill development. So the infrastructure becomes less relevant and the coaching and mentoring become more important."

In Indiana, WomenIN members receive some of both. They can participate in workshops online and use educational tools, while entrepreneur-in-residence assistance and quarterly networking events are also provided.

"It's really a decision to be deliberate in terms of providing support for

women," says Mr Hanak, who is also board chair at the International Business Innovation Association.

A physical space remains important. For example, university researchers creating biomedical spin-off companies need sophisticated equipment and laboratory space.

But the requirements for digital start-ups are simpler. "They need a good connection, a desk and – very important – a coffee machine," says Celia Caulcott, vice-provost for enterprise at University College London (UCL).

Meanwhile, universities also recognise the need for other forms of support. While stressing the value of mentors, many in academia point to the importance of role models who can inspire women to follow in their path.

This means ensuring a gender balance exists in the make up of faculty and guest speakers. "It sounds trivial, but when women enter the classroom it's very important that they see people like them," says Fiona Murray, associate dean of innovation at MIT Sloan School of Management.

Perhaps the most crucial element is securing the funding that start-ups need to become viable. Some institutions are providing seed funding to students and faculty start-ups through competitions. For example, UCL's Bright Ideas Awards help fill a funding gap for companies that have viable ideas but are not yet ready to seek venture capital.

While they can tap into such funding at university, it can be hard for female entrepreneurs to secure venture capital in an industry that is heavily male dominated.

Here, academic institutions have another powerful tool to offer female entrepreneurs. "Through their alumni base, they have access to experienced women entrepreneurs and business-

women who are interested in advancing the funding of companies for women," says Mr Hanak.

He also points to the rise outside academia of investors providing seed funding to female-led technology start-ups. "Ultimately, we hope to see universities doing something similar."

App design challenges – also known as "appathons" – are an increasingly popular way to support technology development and entrepreneurship in universities.

For example, UCL backs the Rosalind Franklin Appathon, named after the pioneering British biophysicist. The competition promotes female leaders in science, technology, engineering, maths and medicine.

The first challenge, open to women and men, was to develop mobile apps to encourage women in these subjects.

The winners were Ahrani Logan and Brett Haase, who developed a gaming app for boys and girls designed to challenge cultural stereotypes.

The winners of the second challenge – recognising women developers of apps for research, social benefit and enterprise – was the team of Pam Sonnenberg, reader in infectious disease epidemiology at UCL, which developed a web app that allows people to test themselves for chlamydia.

UCL supported the appathon, which took place in February, by offering its networks, marketing resources, and mentors.

Rachel McKendry, a UCL professor instrumental in setting up the event, says academia should support such activities.

"All the bright young students who become leaders come through universities," she says. "So we have a key role to play in changing perceptions of women in science."

Contributors

Sarah Gordon
Business editor

Majja Palmer
Digital editor, Special Reports

Gill Plimmer
Reporter

Emma Boyde
Writer

Neil Munshi
FirstFT writer

Tim Smedley, Sara Calian
Sarah Murray, Rhymer Rigby
and Sophie Clowes
Freelance writers

Carola Hoyos
Editor, Women in Business and Executive Appointments

Steven Bird
Designer

Alan Knox
Picture editor

For advertising details: **Peres Kagbala** at peres.kagbala@ft.com or +44 (0) 20 7 873 4909 or your usual FT rep.

Advertisers have no influence on articles



FINANCIAL TIMES

WOMEN AT THE TOP

How to Achieve Gender Balance and Redefine Leadership

29th September 2016 | Renaissance St Pancras

LONDON

Leadership is evolving as the aspirations and expectations of men and women converge, making traditional attributes and career paths increasingly outdated. Significant progress has been made to tackle the gender imbalance on boards, but women are still under-represented at senior executive levels. Much is at stake if this remains unresolved.

The Financial Times will launch an agenda-setting summit of chief executives and policy makers. It will address the inhibitors companies face as they seek to promote their most talented leaders, regardless of gender. The discussion will include:

- Unconscious bias: Many are getting it wrong, but there are ways to stop it from hindering the recruitment and promotion of women.
- Changing lifestyles: Men, women and younger workers want more flexibility. Companies that fail to address the demands for a better work-life balance will fall behind their nimbler peers.
- The pipeline problem: Education is failing to close the huge skills gap, especially in STEM subjects. But forward-thinking employers are dealing with the problem themselves.

To align with this event and the issues it plans to address as a commercial partner, please contact Craig Bethell at E: craig.bethell@ft.com or T: +44 (0)20 7873 4110

live.ft.com/WomenAtTheTop