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Prepare for a 70-year career | Insurance disruption | Skema in Brazil

September 2016

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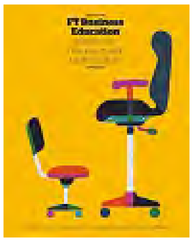

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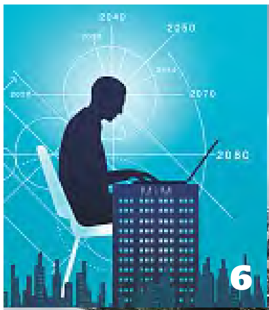

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REVIEW

Adam Jones
Flexibility is key

Today's twentysomethings need to launch themselves successfully into work at the start of their careers

In the new world of work, mobility and value for money chime the loudest for students

Outsiders often bounce off Paris's surface — something I experienced when I was a foreign correspondent there a decade ago. The social networks built up by the French at school can persist at university and carry through to work, creating an impenetrable knot for newcomers. At least that was my excuse for the woeful lack of dinner party invitations I received when I was living there; I'm sure Parisians had their own reasons — ones that were perhaps less consoling to my eggshell ego.

Qihua Wang is obviously faring a lot better than I ever did. A student on the MSc in Management programme at France's Essec business school — and a settled Parisian — she is something of an advert for the cross-border movement of talent in an age when the globalisation of professional careers is under threat from political isolationism and slower economic growth.

The 24-year-old Wang's knack is partly a result of taking things slowly. Having studied for a degree in English literature at Tsinghua University in Beijing, she worked out that a higher degree in the arts might be a little too abstract. She instead cast her eye over masters courses in both management and finance in the UK, the US and France. She opted for Essec, partly because she wanted to learn a new language, partly because it allowed her to spread the course over several years, aiding her French assimilation.

Now, coming into the third and final year of her course — and after various internships and an international case study competition in which she represented Essec and France — she has an offer from the French arm of KPMG to work as a junior consultant in its Paris offices.

But does she not feel she is missing out on a more dynamic career back home in Beijing by putting down roots in Paris? "It is true that there are much more growth opportunities in China. I guess you have to choose the lifestyle as well. I really like the lifestyle in France. It's much more relaxing," she says, without ruling out a return to China later in her career.

Wang's experience highlights the resolute — and highly individual, even idiosyncratic — personal determination that drives many young people to criss-cross the globe picking up the skills they feel they need to prosper over the course of their careers. As Andrew Hill, the Financial Times' management editor, explains on page 6 of this magazine, these working lives are likely to be much longer than those of their grandparents and parents — perhaps even as long as seven decades.

The prospect of such a long haul before retirement is a complication for business schools seeking to design a curriculum that can at least have a shot at remaining relevant over the course of such a long period of employment. But it also underlines the need for today's twentysomethings to launch themselves successfully into the world of work at the start of their careers.

This in turn suggests that it will take more than a hardening of political rhetoric against globalisation or deceleration of growth to choke off demand for masters in management courses akin to the one Wang chose to follow.

One enterprising graduate of these pre-experience masters courses profiled elsewhere in this report is Tim Kunde, the 36-year-old founder of Friendsurance, a peer-to-peer insurance start-up based in the German capital of Berlin. On page 14 he tells Guy Chazan, the FT's Berlin correspondent, that his masters in management degree at WHU-Otto Beisheim School of Management — including stints in Kobe, Japan, and Lyon in France — instilled in him "a kind of business instinct... with an academic underpinning", something that chimes with the idea that flexibility will be the watchword in the new world of work.

But value for money is still vital for young graduates contemplating a masters in management — and the debt burden of tens of thousands of euros that most of these courses will create. The rankings of business school courses, which begin on page 22, are a powerful tool that looks at salary gain, international mobility and many other factors to help graduates choose.

The tables also break new ground in including for the first time a US business school: the WP Carey School of Business at Arizona State University. This addition highlights a diversification of the masters in management qualification away from its European heartland. The horizons are not narrowing for the world's ambitious footloose youth, it seems, even as the gaze of their elders turns inwards. Ⓑ

ILLUSTRATION: NICK LOWNDES. PHOTO: CHARLIE BIBBY


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INTRODUCTION

Preparing for a 70-year career

Andrew Hill wonders if today's young graduates will need more from business schools over the coming decades

At the World Economic Forum last year, one management professor who was instructing students in their early 20s — some of whom might work into their 90s — was heard lamenting "what can I teach them that will still be relevant in 2085?"

Go back 70 years to appreciate the scale of the challenge. Only in 1947 did the word "entrepreneur" appear in a Harvard Business School course description and even then it was years before it took root. Jeffrey Cruikshank writes in *Shaping the Waves*, a history of the teaching of entrepreneurship at Harvard, that these "were the modest beginnings of a faculty effort that would take nearly a half-century to come into its own".

Business schools sometimes like to give the impression that what they teach will endure a lifetime. But as Lynda Gratton and Andrew Scott point out in their new book *The 100-Year Life*, as more people live for a century or even longer, the three traditional stages of a working life — education, career and retirement — will blur and break down.

What are the attributes that an aspiring twentysomething manager might require to thrive over her or his long career? Is it even possible to imagine such skills packaged into a neat curriculum? The most obvious is perhaps the least obviously teachable: adaptability.

As Mary Barra, chief executive of General Motors (and a lifer at the carmaker) has pointed out, young people entering the workforce now anticipate, according to some studies, holding as many as 15 or 20 different jobs. "Your success will largely be determined not just by how good your plan is, but how well you adapt to meet the changing needs of the customer," she wrote in a blog post last year.

As Gratton and Scott note in their book, flexibility is a particular trait of adolescents. Maintaining that adaptability into adulthood will be an important technique for the

Endurance: Mary Barra, chief executive of General Motors, has been with the company all her working life

ILLUSTRATION: NICK LOWDNES


2050
2030
2060
2070
2080
MiM

COMBINED RANKING

The top 25 masters in management in 2016

	School name	Weighted salary ($)*
1	University of St Gallen	101,502
2	HEC Paris	89,793
3	Essec Business School	85,365
4	ESCP Europe	73,592
5	Rotterdam School of Management	73,364
6	London Business School	78,156
7	IE Business School	81,491
8	WU (Vienna University)	63,948
9=	WHU Beisheim	98,360
9=	Esade Business School	67,810
11	Università Bocconi	69,982
12	EBS Business School	82,633
13	Grenoble Ecole de Management	60,840
14	Mannheim Business School	82,710
15	Edhec Business School	61,138
16	Indian Institute of Management Ahmedabad	108,511
17=	Iéseg School of Management	49,776
17=	Nova School of Business and Economics	50,715
19	Indian Institute of Management Bangalore	106,047
20	Imperial College Business School	60,531
21	HHL Leipzig Graduate School of Management	87,800
22	University College Dublin: Smurfit	58,377
23	Indian Institute of Management Calcutta	98,824
24	Audencia Business School	62,150
25	Maastricht University SBE	60,978

*Average salary three years after graduation, with adjustment for variations between industry sectors and purchasing power parity (see p26). Full ranking p21-27.

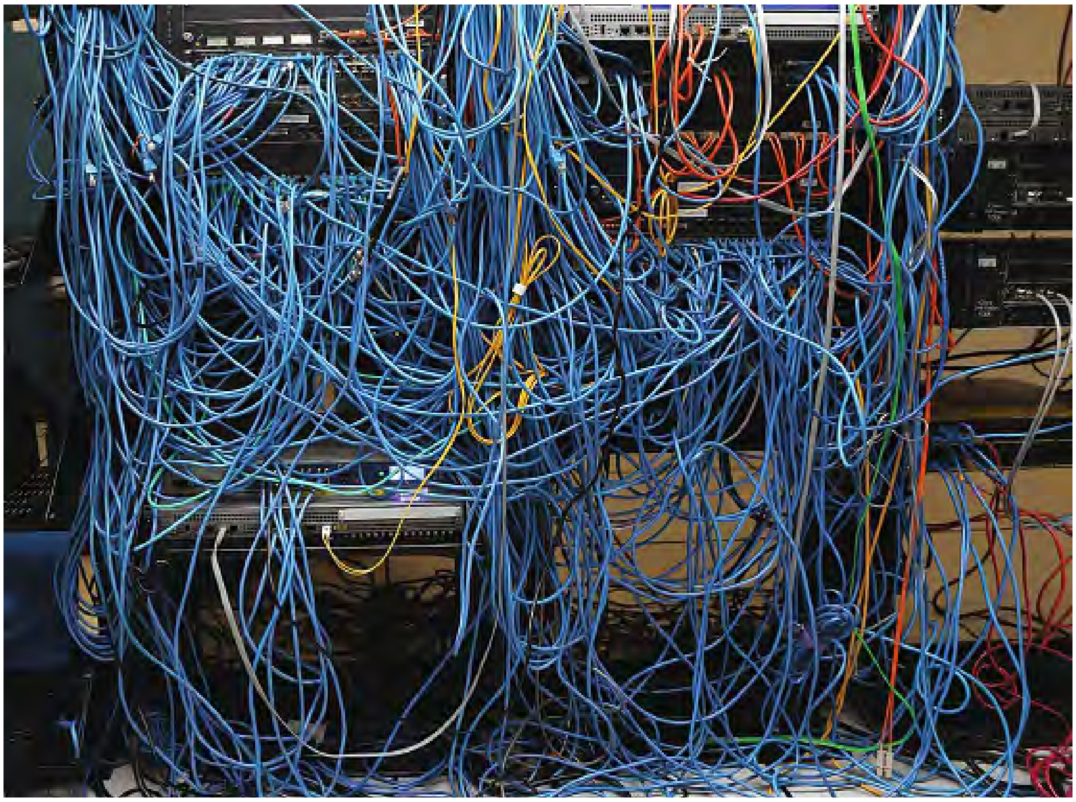
young generation to master. As the relationship between age and life stage changes, it will be more important than ever for generations to mix. An educational or career experience that does not expose younger workers to older colleagues, and vice versa, will handicap both groups. Business schools like to promote the campus experience over online courses with the argument that group study helps solidify a network that can prove useful later: the wider the span of that network, by gender, ethnicity — and age — the more useful it will be.

Collaboration will be a critical skill for generations that expect to work beyond their 90th year. As Margaret Heffernan, the author and entrepreneur, has written in *A Bigger Prize*, her book about the dangers of obsessing over competition, "little in our culture trains, rewards or even seems to notice great collaboration". The most interesting current research on leadership recognises that teams whose members

Collaboration will be a critical skill for generations that expect to work beyond their 90th year

acknowledge the particular expertise of other team members, mostly work better than teams governed from the top down by rigid command-and-control hierarchies.

In fact, the most exciting changes in management are happening from the bottom up, as a wider variety of companies adopt "agile" methods of product and project management borrowed from software developers and start-ups. Willingness to work in autonomous small teams, exercising decision-making power within the framework of a wider project, will be increasingly valuable.



While it is easy to underestimate the inertia of established corporate structures, only a few managers will find their careers mapped out, Mary Barra-style, through one company. Managers will need to gain experience of change, and how to work beyond the traditional corporation, in start-ups, social enterprises, non-governmental organisations and government.

At the same time, managers who want to thrive over their 60- or 70-year careers will need to assimilate softer aptitudes, not only in managing others but in managing themselves, both physically and mentally. A course in mindfulness and meditation may be as beneficial, in the long term, as an understanding of marketing is in the short term.

What of harder knowledge? Susan Athey of Stanford Graduate School of Business found the statistics courses she attended early in her career deathly dull — and she is a gifted mathematician. The "rock stars" of the future, she says, will be managers who not only understand data, but can also explain the significance of statistical analysis to their bosses and teams. Similarly, as cognitive computing advances, being able to use the new tools and to work together with "co-bots", collaborative robots and advanced software tools, will become essential.

As for what such a curriculum would look like, part of it will be built by the managers themselves. "More people will decide to manage their own learning experiences before they join a corporation," write Gratton and Scott. "They will keep their options open by becoming an explorer or an independent producer, gathering up experiences and honing their skills, sometimes before embarking on full-time education, sometimes afterwards."

Business schools can future-proof courses by offering students options for their future education

The best educational organisations will recognise this and offer a range of options that allow for the accumulation of vital current specialisations — today, coding; tomorrow, perhaps, applied neuroscience — while staying open to the attributes that may be necessary decades hence.

In this respect, the most important way business schools can future-proof existing courses is by offering existing students options for their future education. Think how useful it would be if courses came with a voucher that students could cash in later — in their 40s, 50s, even as nonagenarians — when they need to acquire knowledge of an area that they, let alone their teachers, cannot imagine today. Ⓑ

The writer is FT management editor and author of Leadership in the Headlines

PHOTOS: BLOOMBERG; MICHAEL BOCCHIERI/GETTY IMAGES

Simon Caulkin

Advertising war

Doubts about transparency of the online industry could lead advertisers to take a fresh look at print media

Consumer fightback against online marketing is ramping up as ad blocking takes off

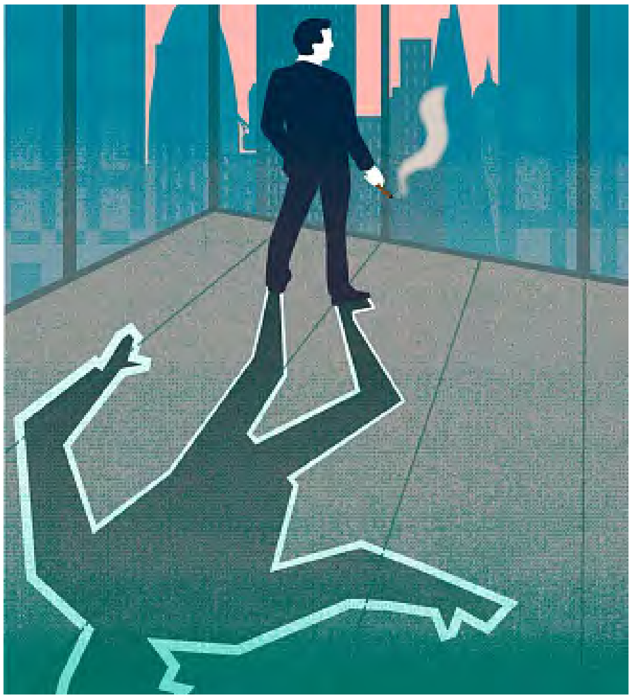
For both clients and agencies, advertising was once the nearest management got to being sexy. Advertising was interesting and fun. Big campaigns were feted, as were their creators. In London, Charlotte Street was for some a stepping stone to Hollywood. The Saatchi brothers advised Margaret Thatcher. At the pinnacle of their power in 1987, following their own mantra that "nothing is impossible", they planned to take over the then Midland Bank.

Appearances were always flattering. "Advertising often looms larger than it should," says Prof Patrick Barwise, doyen of marketing at London Business School. But even the image-industry can no longer disguise the fact that it is facing something of an existential crisis. The cause is that disrupter-in-chief of other sectors: the internet. In a familiar pattern, a technology that first dazzled with its possibilities has wriggled out of the users' control and now threatens to take them to a different destination than the one they originally envisaged.

In the 1990s, online and digital technologies seemed to promise answers to every adman's prayers since the industry's birth in the 1920s. The internet would slay the inefficiency of mass media. All communication would henceforth become one to one and advertisers would finally be able to measure which half of their ad spend was wasted. Online advertising would be scientific as well as cool.

It has not quite worked out like that. Digital advertising has certainly fulfilled the optimists' growth predictions. With about $600bn spent on all advertising worldwide annually, in the next two years online will probably overtake TV's one-third market share to become the largest component of that pot. Online has already largely digested the classified adverts that subsidised newspapers.

But online growth has brought as many problems as answers. The consumer has traditionally tolerated



advertising, which, after all, was always more a service to advertisers than to them because of the straightforward value exchange it represented: their attention in return for free content in online newspapers, TV and magazines.

But the online deal is rather different, notes Ctrl-Shift, a London-based digital consultancy. Internet users now pay for advertising not only with their attention and the increased price of goods due to companies' advertising costs, but also in the bandwidth bought from their internet service provider; in the bandwidth consumed by the advert, correspondingly reducing the value of the service; and in the unregulated intrusion of ads into the online experience.

Above all, they also pay for it in surrendering personal information that is collected and sold back to advertisers for a "capitalist micro-assault [that] is, from all directions at all waking moments... getting much more intense, focused, targeted, unyielding and galactically more boring", in the apocalyptic words of Canadian artist Douglas Coupland in a 2015 column in FT Magazine.

But the consumer is fighting back. The revolt — not too strong a word — and the centre of today's advertising crisis is the vertiginous growth of ad blocking. According to Irish consultancy PageFair, 200m online users and 420m smartphone owners have installed ad blocking software, respectively a 41 per cent and 90 per cent annual surge. Consumers and advertisers are at war. This is hardly good for the advertising industry or its clients. But as in all warfare, this one also inflicts collateral damage — in this case, on publishers, which last year lost revenues of $22bn to ad blocking, a sum that they can ill-afford.

This is not just a blow for the hard-pressed purveyors of news. Even without ad blocking, online has not proved the panacea for advertisers that they had hoped. Largely unpoliced, where the click is king, internet advertising is prey to bots (programmes used to perform highly repetitive operations, such as trawling websites to collect emails), clickbait (a link on a website that encourages people to read on) and other dubious practices.

There are no impartially agreed metrics or research; however, it is an ill wind. Some believe doubts about the transparency of the online industry could lead advertisers to have a fresh look at the benefits of print media.

"Do advertisers and agencies really want a world where there is no national, quality journalism or culturally specific entertainment to place their ads in?" asked one industry figure recently. It is a question that transcends the agency worlds of Charlotte Street and New York's Madison Avenue. Sceptics have doubted advertising's claim to be strategic but this time few would question the importance it has always craved, even if it is the spending rather than creative decisions that matter most. Ⓑ

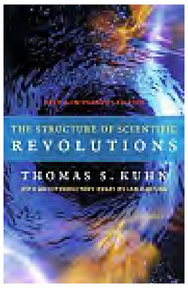
ILLUSTRATION: ANDREW BAKER. PHOTO: ED ROBINSON/ONEREDEYE

Gregory Whitwell

Paradigm shift

We need to be alert to the things we take for granted, the mindset we apply when making decisions

A study of Kuhnian philosophy brings lessons on management style that hold today



Controversial: Thomas Kuhn, who challenged core beliefs on science structure in his book (above), is considered to be one of the most influential scientific philosophers of the 20th century

I was introduced to the work of the late Thomas Kuhn as a PhD student studying economics and economic history at the University of Melbourne. Kuhn, a philosopher of science, was a powerful advocate of the importance of understanding the history of science. He is famous for his masterwork, *The Structure of Scientific Revolutions* (1962). As the title suggests, his particular interest was in scientific revolutions, such as the transition from Ptolemaic to Copernican astronomy, from Newtonian to Einsteinian physics and the Darwinian revolution in biology.

Reading Kuhn I realised his relevance to my dissertation. I had chosen to write about the Australian Treasury in the period from the second world war to the 1980s — a period during which its status as the premier source of economic policy was rarely questioned.

Kuhn shifted my focus from analysing the Treasury's economic policy advice to examining the institution's world view — its set of core beliefs that led it to make the recommendations it did. I argued that over time a shift occurred in the Treasury's world view from a Keynesian to a neoclassical one, which in turn was reflected in a shift in the kinds of policies it proposed. In Kuhnian terms, the changing nature of the Treasury's economic policy advice reflected a move from one paradigm to another.

Scientific revolutions of the kind that Kuhn was analysing occur infrequently. Kuhn used the term "normal science" to refer to the way science is conducted day to day between revolutions. The defining characteristic of normal science is the dominance of a paradigm — the collection of beliefs, values, assumptions that are shared and accepted unquestioningly by the scientific community. The paradigm determines how research should proceed, the key problems to be solved and the method for solving them.

Normal science endures for long periods. Preceding the eventual emergence of scientific revolutions is an accumulation of "anomalies" — nagging puzzles that seem to contradict the paradigm's theoretical assumptions. The emergence of mismatches are initially dismissed. Puzzles that cannot be readily explained or results that seem at odds with the paradigm are not seen as challenging the paradigm but the result of faulty technique by the scientist. But as the number of anomalies increase, a sense of crisis escalates, various alternative paradigms begin to be proposed and eventually scientists settle on a new paradigm.

Kuhn was criticised for suggesting that the shift from one paradigm to another can involve a kind of "conversion experience" and for questioning the notion that sciences march in a linear fashion to the truth. His critics also noted that his model applied well to some scientific revolutions but not to all. Nevertheless, his work has had a monumental influence, not only on how the natural sciences are viewed but also in the way some of the major shifts in the social sciences, including economics, are interpreted.

For me, Kuhn provides broad and enduring lessons. We need to be alert to the things we take for granted, the norms we never question, the assumptions that remain below the surface, the mindset that we apply unquestioningly when making decisions, interpreting evidence and analysing trends. As a manager, can you articulate the paradigm to which you are subscribing? Are you too readily dismissing apparent aberrations as mere outliers? Do you subscribe too willingly to the notion of business as usual?

Cranfield School of Management visiting professor JC Spender's notion of "industry recipes", the beliefs held industry-wide by senior managers about the nature and structure of their industry and the fundamental determinants of success, are analogous to Kuhn's concept of paradigms. Industry recipes are a kind of normal science and with them comes the possibility of blind spots that may cripple an individual firm or even the entire industry's ability to deal effectively with external change.

Consider two historical examples. Ford, General Motors and Chrysler were dismissive of Japanese cars in the 1960s and could not imagine a world in which small cars could be profitable or attractive to American consumers. Before the invention of the Barbie doll in the 1950s, the toy industry took for granted that a doll had to be a baby.

Today, Kuhn seems more relevant than ever: the emergence of "Industry 4.0" or "the fourth industrial revolution", with the rise of automation and data exchange in manufacturing, has produced a mountain of Kuhnian anomalies and a sense of crisis about the relevance of traditional management theories.

What will be the new management paradigm in a world characterised by collaborative and sharing communities and in which digital disruption is the norm? Ⓑ

Professor Gregory Whitwell is dean of the University of Sydney Business School

PHOTOS: THE UNIVERSITY OF SYDNEY/VICTORIA BALDWIN; THE LIFE IMAGES COLLECTION/GETTY IMAGES

INTERVIEW

Friends with benefits

BY GUY CHAZAN
PHOTOGRAPHS BY JAN ZAPPNER

German entrepreneur Tim Kunde, inspired by social media, is aiming to turn insurance upside down

For Tim Kunde, insurance is ripe for digital disruption. An industry that has so far sat out the online revolution is heading for a Big Bang — and the potential rewards are huge.

"Companies like Spotify are so hyped, but the global music industry only makes $15bn in annual revenues, excluding concerts," says the entrepreneur. "The German car insurance market alone gets €20bn a year in premiums."

Kunde's Berlin-based company, Friendsurance, is aiming to tap that rich seam and shake awake an industry that he sees as the sleeping giant of financial services. "There is vast potential... for innovation and digitalisation," he says.

When he set up Friendsurance six years ago, his inspiration was Facebook, which at the time was making huge inroads to Germany. He brainstormed with a group of friends around his kitchen table to come up with a way to apply the principle of social networks to an industry, any industry.

What they came up with was the idea of peer-to-peer insurance. It is simple: a small group of people, each holding the same kind of policy, say personal-liability insurance, pay part of their premiums into a pool, which is used to settle small claims. If any money is left at the end of the year, the members get cash back. If no claims are made at all, they can retrieve as much as 40 per cent of their premiums.

Michael Homoff from Cologne is one of many satisfied customers. He paid €1,900 in premiums on his four policies between 2012 and 2015, and received €800 back in cash through the Friendsurance system over that period.

Kunde's start-up is now one of the leading lights of the burgeoning "insurtech" scene. It has formed partnerships with 16 insurance companies, which offer car, home contents, legal expenses and private liability coverage through the Friendsurance website. Kunde says the number of people who have signed up has now reached six figures. The company, which has 80 employees, raised $15.3m in its latest funding round in March, which was led by Horizons Ventures, the investment fund of Li Ka-shing, Hong Kong's richest man. It is now planning to expand to Australia.

Kunde, 36, got his grounding in entrepreneurship at WHU-Otto Beisheim School of Management, one of Germany's top business schools. Its alumni include some of the biggest names in Berlin's thriving start-up scene such as Oliver Samwer, chief executive of Rocket Internet, the German tech company-builder. "The course was all about finding solutions to problems in business, but not only," Kunde tells the Financial Times at Friendsurance's headquarters, a big open-plan office dominated by a vast ping-pong table, in the trendy Kreuzberg district of Berlin. "They don't just teach you a methodology, but an attitude, too — a kind of business instinct, with an academic underpinning."

Kunde was born near Cologne into a family with a marked scientific bent: his father is a mining engineer, his

When Kunde set up Friendsurance his inspiration was Facebook, which was moving into Germany

Mover and shaker: Tim Kunde says he was taught his business attitude while at WHU-Otto Beisheim School of Management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Against the crowd: Kunde went to Berlin, drawn by a fascination with the city rather than its professional opportunities

mother a nurse. But he always wanted to study something economics-related.

Two factors drew him to WHU's masters in management programme: the curriculum, which focused on practical work and case studies, and the requirement that students study for at least two terms abroad.

Kunde spent a term in Kobe, Japan, and a full year at France's EMLyon business school, where his French ended up being so good that he wrote his final dissertation in the language.

Planning the study programmes was simple because of WHU's partnerships with a range of universities around the world. "All 85 people in my year had at least one year abroad, in Denmark, South Korea, Hawaii, Japan," he says. "That's very special for Germany. You can do that at other places too, but you have to organise it all yourself."

WHU's masters in management course was biased towards concrete case studies and group work. Students were taught the usual subjects: such as accounting. But there was "not much pure theory, for the sake of theory," he says, unlike the classic economics degrees offered by most German state universities.

Most of all, Kunde says, the school gave him "a will to achieve". He adds: "Most people leave WHU with the desire to build things, to put things in motion. You can enter the world of work much more quickly and are ready to act." The school also gave him a "strong, reliable network… that really opens doors".

After graduating from WHU in 2004 he came to Berlin, drawn not by the professional opportunities, which were meagre at the time, but by a "fascination with the city and all its history and contradictions". It was an unusual move: he was one of only two from his year of 85 who went to the capital, with the rest gravitating towards Düsseldorf, Hamburg or Munich — big cities with lots of jobs.

Kunde started working for Boston Consulting Group, advising insurance and consumer goods companies on sales optimisation and on how to improve their strategic focus. "But ironically, I ended up stepping back from the insurance practice and doing fewer and fewer projects with the insurers because it just wasn't very exciting," he says. "There wasn't a lot of dynamism in the industry." At the same time, he built up a sense of "how much you could do there".

He was particularly struck by the lack of digitalisation. "In the banking world there are now clear interfaces, you can transfer money from here to the other side of the planet," he says. "But you don't have that in insurance and whole forests of paper are still sent round the world every day." Digitalisation could lead to "massive cost savings" for customers.

He left BCG in 2008 and worked at Rocket Internet for a couple of years, heading a travel start-up. But he was keen to set up his own business and soon the idea for Friendsurance was born. Progress was slow at the start: it took a year to persuade the first insurance company to sign up as a partner. "It was a completely new concept for them to get used to and we had to learn how to broker, too," he says.

People who have just moved house should be able to update their home insurance in one click

The biggest challenge was the innate conservatism of the average customer. "Very few people are happy with their insurance provider or their broker, but very few will decide to sit down one day and optimise their entire insurance portfolio — they're just too nervous about it," he says. "So you have to overcome that inertia."

Private investors began to stump up cash, including a few from the old economy, such as Benjamin Otto, scion of the family behind Germany's Otto Group retail conglomerate. In the past couple of years, funding has got easier, with inflows from Li as well as the European Regional Development Fund and e.ventures, the venture capital fund.

Kunde says the world of insurance is set for big changes. The advent of self-driving cars should lead to fewer accidents: and when they do happen, it will become easier to establish exactly how and to what extent a car has been damaged and to validate claims, which could mean fewer instances of fraud.

"Our aim is to play a formative role in all of that," he says. Friendsurance also wants to help make the whole process of buying insurance easier, he says. People who have just moved house should be able simply to click a button and update their home contents insurance with their new address. "There's a lot one can do in terms of convenience, simplification and usability," he says.

Friendsurance is one of many start-ups founded by WHU alumni. Other more recent examples include cooking app Kitchen Stories; Evopark, which has developed a smart parking card; Kale&Me, a juice delivery service; and store2be, an online booking service for retail space in shopping centres.

Kunde says most of the graduates from his year in WHU went into consulting. "Now, the newer graduates want to go straight into start-ups," he says. "It's become much more prestigious to work for yourself." B

FEATURE

Spain's city of angel investors

Joint know-how of 40 IESE classmates boosts Barcelona's start-up scene. By Jonathan Moules

After the bonding experience of studying together, it is not uncommon for a group of business school classmates to engineer some scheme to remain in contact after graduation. The class of 2015 on the advanced management programme at Barcelona's IESE Business School went further than most by setting themselves up as a business angel network.

The decision to form PDG Invest, named after the Spanish initials for the IESE management course, is all the more remarkable because none of the 40 members had any significant experience as angel investors.

Ramón Faus, who came to study at IESE after working for several years as a senior corporate lawyer, exudes excitement about being part of a link to Barcelona's fast growing start-up community.

"When I was a lawyer in the Spanish division of Procter & Gamble I was an employee," he says. "When you are launching a project like this, you feel it is yours."

A fundamental question was whether another angel network was needed in a city like Barcelona, whose success as an entrepreneurial hotspot is, in large part, thanks to a plentiful supply of rich individuals looking to back local early stage ventures.

Faus argues that the city does and stresses that PDG Invest distinguishes itself from its peers in that its members have years of experience from the senior executive level. "Our way to compete is the know-how of the 40," he says.

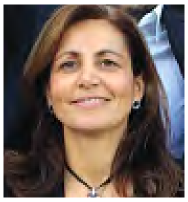
PDG Invest has a €1m investment fund to put into new ventures in Barcelona, created by each of its members committing to put in €8,000 per annum over 10 years. This makes the investment for each individual affordable, according to Faus. The goal is to invest in 10 early stage start-ups with the potential, not yet realised, of achieving a period of rapid growth that could provide substantial returns for the investors' original stake.

Not all 40 PDG Invest members have to commit their money to every investment. Only 13 agreed to back PDG Invest's first two companies, a cosmetics business called Cocunat and a smartphone app for classified advertisements called 500 Markets, both of which received €100,000.

The risk of encouraging management students with little or no experience of investing to become business angels is reduced by the shared experience of individual PDG Invest members, according to Faus. The size of the group means that there is usually at least one person who understands the sector an investment opportunity operates in, he notes. "We have no hurry," he says, adding that PDG Invest received 50 funding proposals in its first three months of operation, thanks partly to entrepreneurs attending IESE's start-up events.

"There are many projects, but not many good ones and you have to choose well," Faus notes. "We know that out of 10 investments, five or six will go wrong. For us it is going to be a great learning experience."

Another PDG Invest member is Agustín Andujar, who before coming to study at IESE was a manager at



Corporate experience: Luisa García-Valdecasas (above), Fernando Zallo (middle) and Ramón Faus (right)

Group adventure: the class of 2015 did more than just keep in touch, they set up a business angel network

PHOTOS: DESFILE NÚVIES; JORDI ESTRUCH

Dow Chemical Spain. "In my opinion we are going a little bit fast," he says about the speed with which former classmates have signed up to the first two investments. "But hopefully in a good way."

Trust in his fellow students' judgment is critical, according to Andujar. Although PDG Invest has a process for assessing funding bids, the final call tends to come down to each member's instinct, Andujar admits. "It is the stomach," he says. "What is the impression we are getting of these companies from our stomach."

Whether the group can make any money from its chosen investments is uncertain. But according to Andujar this is not critical. The biggest selling point for him, apart from remaining in regular contact with his former classmates, is the feeling that he is helping hard-working people develop their businesses.

The biggest selling point is the feeling of helping hard-working people develop their businesses

Barcelona has gained a reputation as an entrepreneur-friendly city in recent years, helped by the high quality of life, low cost of living and positive global image the city has fostered in recent decades. "We are helping with this entrepreneurial society," Andujar says. "We are the good guys."

This is echoed by Luisa García-Valdecasas, another PDG Invest member, who also works in the fundraising team at IESE. She stresses that it is critical to support job creation among young people in a country where their employment prospects are limited. "It is very important to have these people adding value to the economy," she says.

A short walk from the IESE campus, at Barcelona's other business school, Esade, there is another, more established, angel investor programme for former students.

Esade Business Angel Network (Ban), which recently won the award for Europe's best private network of business angels, comprises more than 200 private investors.

Out of the 600 projects it analyses a year, it has invested a total of more than €15m in 94 companies over the past four years. Channelling more than €4m into 43 entrepreneurial projects last year. The team hopes to invest a similar amount in 2016.

The catalyst for forming Esade Ban in 2008 was the school's 17,000-strong alumni organisation of former students, according to Fernando Zallo, Esade Ban's director.

One of the main goals of Esade Ban is to add discipline to those looking to become angel investors.

"We want to professionalise the network," he says.

Esade Ban operates alongside other initiatives created by the school to boost new businesses, Zallo notes, including EGarage and EWorks, incubator programmes designed respectively to advance start-ups.

"We as a business school thought it would be good to give a service to local entrepreneurs, but on the other side alumni were keen to invest," he says.

Business schools are good breeding grounds for angel networks because they can pool a critical mass of people with the brains and resources to invest, reducing the risks for any one individual taking part, according to Zallo.

"We have created a school for business angels," he says. "We try to teach students that this is a very risky investment class so you need to invest with others." B

rankings

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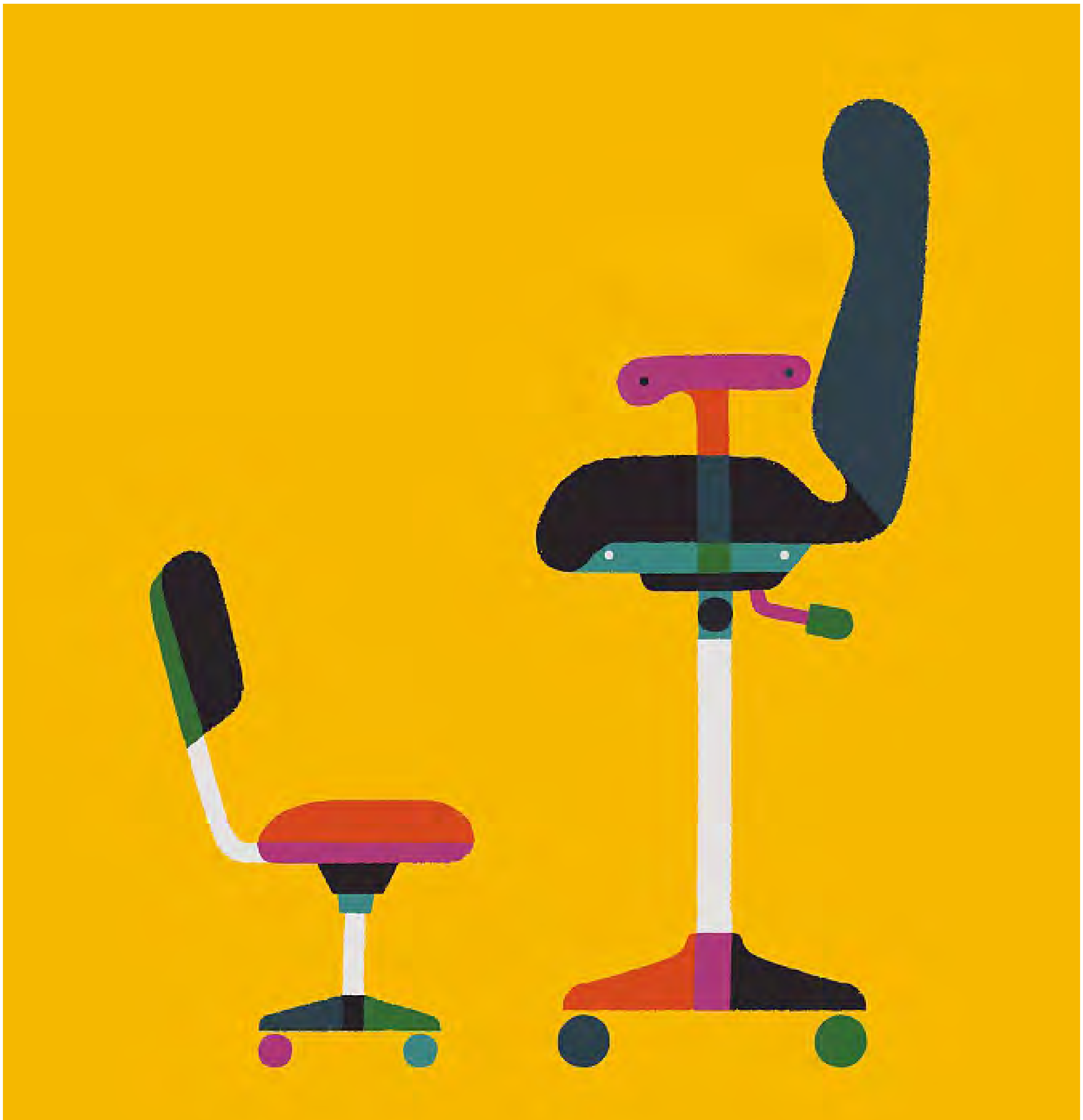
What the 2016 survey reveals

Rankings p24-27
Full tables of the top schools

Key p26
How to read the data

Masters in management 2016



The leading 90 programmes and how they compare

ILLUSTRATION: ADRIAN JOHNSON

RANKINGS

From learning to earning

Alumni from St Gallen university show their appreciation of international mobility. By Laurent Ortmans

The University of St Gallen's domination of the Financial Times' ranking of masters in management courses continues for another year. The Swiss school came top of the list of 90 best masters programmes worldwide in 2016, winning its sixth consecutive crown. France's HEC Paris and Essec Business School remained second and third, respectively, for the third year running.

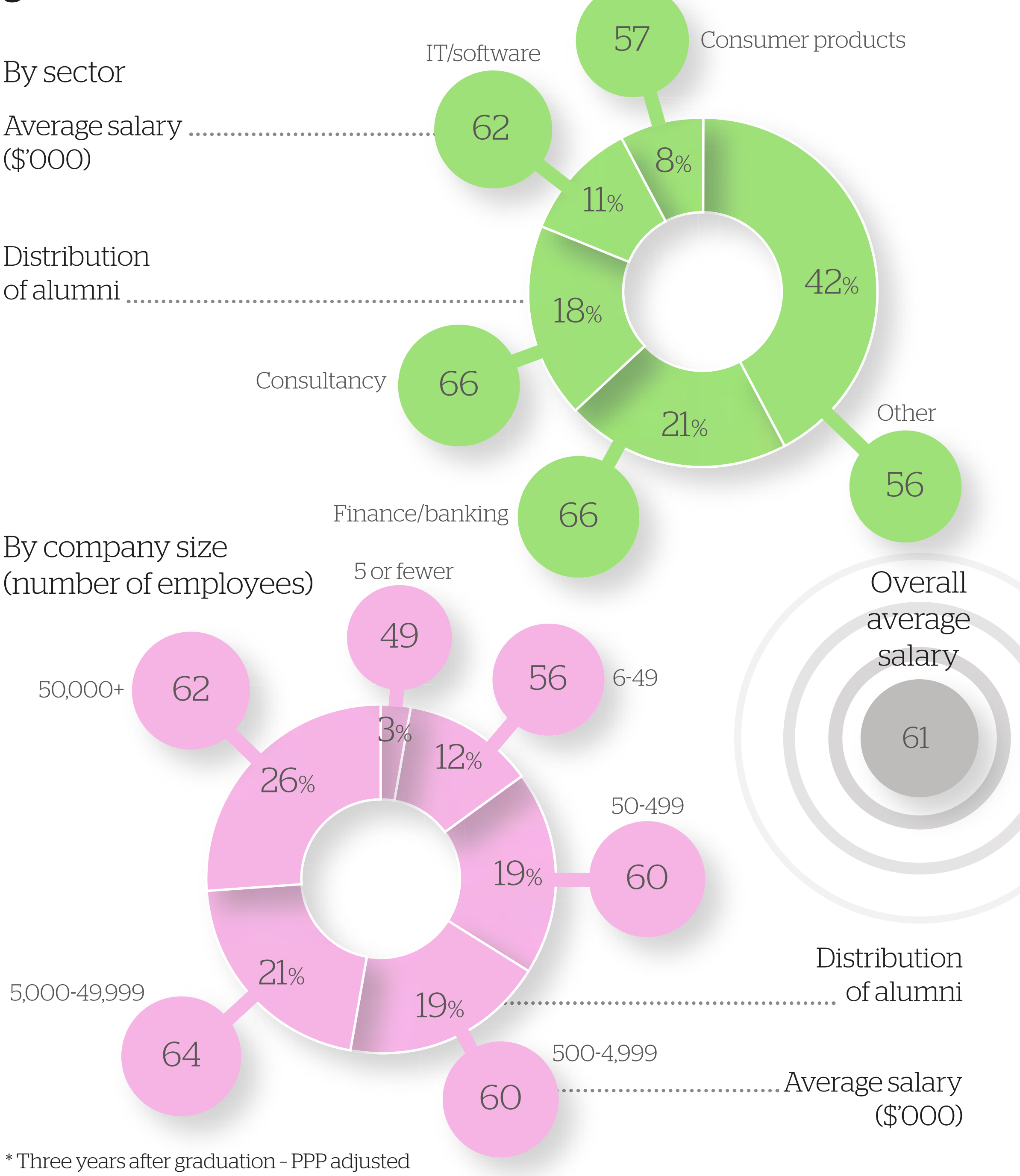
The 2016 ranking features a record 90 programmes, up from 70 in 2014. The ranking is based on data collected from two surveys: one of the participating business schools and the other of alumni who graduated three years ago — the class of 2013. The ranking is in part based on how successful alumni have been in their careers, as reflected in the salary data.

The average salary of St Gallen's alumni jumped to $102,000 three years after graduation compared with $90,000 last year. It is the third-highest overall behind the two Indian management academies at Ahmedabad and Bangalore, with respective salaries of $109,000 and $106,000.

The school ranks first for alumni satisfaction. "We were forced to leave our comfort zone but were rewarded with unique experiences," says one graduate. Overall, St Gallen's alumni report a 95 per cent satisfaction level, 2 percentage points more than the alumni from London Business School and WHU Beisheim. Other high points for the school include being first for alumni international mobility, second for international experience and third for job placement.

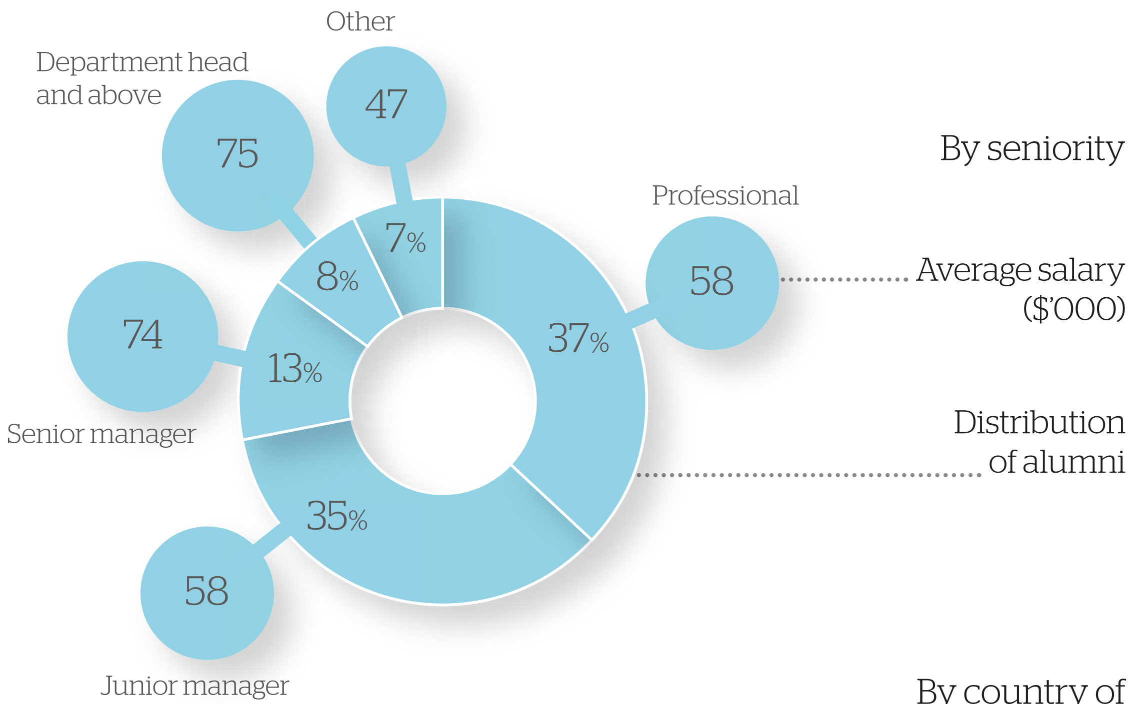
Elsewhere, Stockholm School of Economics was a big winner, climbing 16 places to 28, not only recording the best year-on-year progression but also recovering from a drop of 11 places last year. Meanwhile, La Rochelle Business

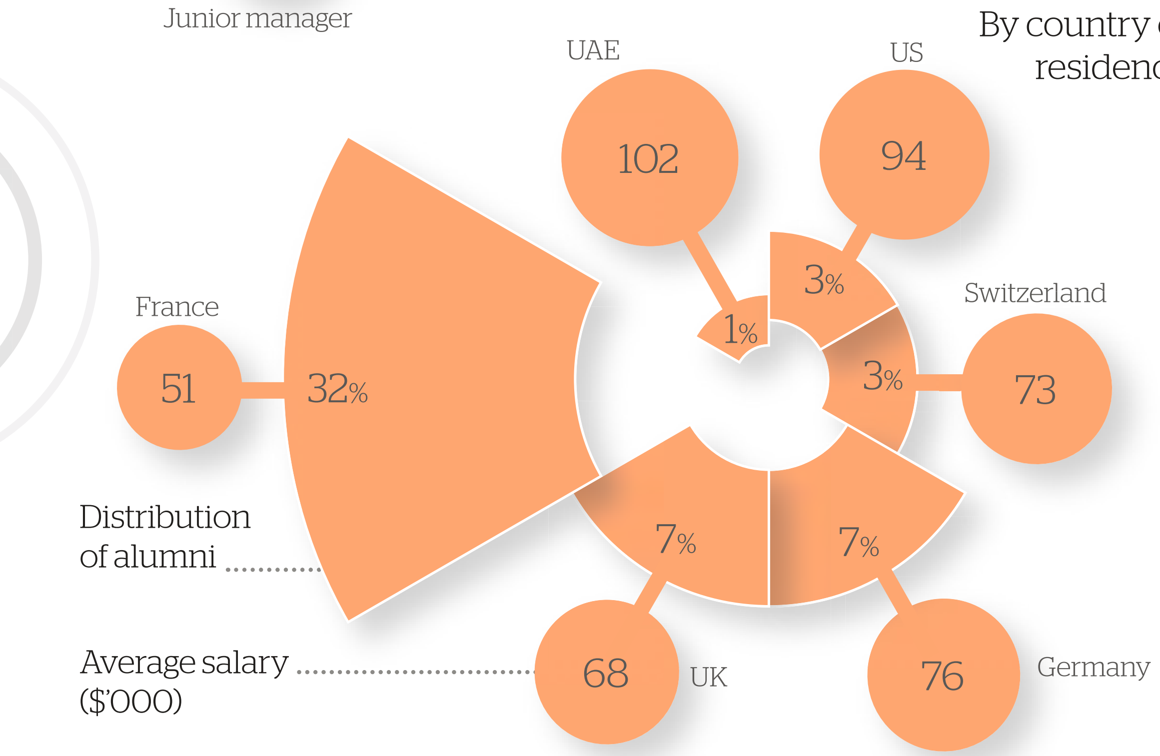
Distribution and average salary of masters in management graduates from the class of 2013*



* Three years after graduation – PPP adjusted

'We were forced to leave our comfort zone but were rewarded with unique experiences'





GRAPHIC: RUSSELL BIRKETT; LAURENT ORTMANS

School dropped 12 places to 60 having been last year's highest climber.

Nova School of Business and Economics consolidated last year's strong performance by climbing a further 14 places to 17. The Portuguese school has risen 31 places over the past two years since its International Master in Management course was first included in the ranking. It has now entered the top 20 for the first time.

While heavily dominated by French and English schools, accounting for 44 per cent of the table, the ranking is more diverse than ever with schools from 25 countries. Notably, among the nine schools ranked for the first time, WP Carey School of Business at the Arizona State University is the first US institution to take part in the ranking, having entered at 82. The highest newly ranked school is Université Paris-Dauphine at 57.

Unlike MBAs, masters in management are targeted at those at the beginning of their career. They are typically designed for students with an average age of 22. About 60 per cent have not yet worked and a further 30 per cent have less than two years' experience.

When many millennials struggle to find jobs or make do in low-skilled positions, these masters programmes achieve strong employment rates thanks to their links with corporate partners and alumni networks.

More than 90 per cent of alumni from the most recent graduating classes accepted a job offer within three months of completing their programme.

"The school's network was vital in helping me find a job in one of the most prestigious companies worldwide," says one graduate from Rotterdam School of Management. "The company was a corporate partner so I basically received the job application in my mailbox." Ⓑ

The top masters in management

Top school: St Gallen
This is the sixth year that the University of St Gallen's MA in Strategy and International Management has topped the FT's ranking. All students at the Swiss school take part in exchanges and overseas internships – leading to a number two ranking for international experience. It is also in the top 10 for value for money. **– Laurent Ortmans**

First time in the top 10: WU
Vienna University of Economics and Business's Master in International Management course was ranked 22nd for three years in a row. In 2015, it moved to 13th place and this year, the member of Cems, an academic and corporate alliance, has jumped to eighth place. The course is ranked first for international experience. **– LO**

TABLES: JOHN BRADLEY

FINANCIAL TIMES GLOBAL MASTERS IN MANAGEMENT 2016

The top 90 masters in management programmes

2016	2015	2014	3-year average	School name	Country	Programme name
1	1	1	1	University of St Gallen	Switzerland	MA in Strategy and International Management
2	2	2	2	HEC Paris	France	HEC MSc in Management**
3	3	3	3	Essec Business School	France	MSc in Management**
4	7	7	6	ESCP Europe	France, UK, Germany, Spain, Italy	ESCP Europe Master in Management**
5	5	8	6	Rotterdam School of Management, Erasmus University	Netherlands	MSc in International Management
6	6	10	7	London Business School	UK	Master in Management
7	10	9	9	IE Business School	Spain	Master in Management
8	13	22	14	WU (Vienna University of Economics and Business)	Austria	Master in International Management
9=	8	4	7	WHU Beisheim	Germany	MSc in Management
9=	12	6	9	Esade Business School	Spain	MSc in International Management
11	9	12	11	Università Bocconi	Italy	MSc in International Management
12	11	14	12	EBS Business School	Germany	Master in Management
13	20	15	16	Grenoble Ecole de Management	France	Master in International Business
14	14	18	15	Mannheim Business School	Germany	Mannheim Master in Management
15	18	16	16	Edhec Business School	France	Edhec Master in Management**
16	15	16	16	Indian Institute of Management Ahmedabad	India	Post Graduate Programme in Management
17=	21	21	20	Iéseg School of Management	France	MSc in Management**
17=	31	48	32	Nova School of Business and Economics	Portugal	International Master in Management
19	26	-	-	Indian Institute of Management Bangalore	India	Post Graduate Programme in Management
20	19	19	19	Imperial College Business School	UK	MSc in Management
21	17	11	16	HHL Leipzig Graduate School of Management	Germany	MSc in Management
22	-	-	-	University College Dublin: Smurfit	Ireland	MSc in International Management
23	16	13	17	Indian Institute of Management Calcutta	India	Post Graduate Programme in Management
24	28	27	26	Audencia Business School	France	MSc in Management-Engineering
25	28	37	30	Maastricht University School of Business and Economics	Netherlands	MSc in International Business
26=	30	20	25	EMLyon Business School	France	MSc in Management**
26=	25	28	26	Skema Business School	France, US, China, Brazil	Global MSc in Management**
28	44	33	35	Stockholm School of Economics	Sweden	MSc in International Business
29	34	34	32	Antwerp Management School	Belgium	Master of Global Management
30	21	26	26	HEC Lausanne	Switzerland	MSc in Management
31=	27	29	29	Eada Business School Barcelona	Spain	Master in International Management
31=	40	36	36	Vlerick Business School	Belgium	Master in General Management
33	36	44	38	Shanghai Jiao Tong University: Antai	China	Master of Management Science and Engineering
34	34	40	36	Neoma Business School	France	Master in Management**
35	-	23	-	ESC Rennes	France	Master in Management**
36=	23	31	30	Warwick Business School	UK	MSc in Management
36=	32	37	35	Copenhagen Business School	Denmark	MSc in General Management
38	24	24	29	City University: Cass	UK	MSc in Management
39	46	56	47	St Petersburg State University GSM	Russia	Master in Management
40	36	30	35	Toulouse Business School	France	Master in Management**
41	43	40	41	Louvain School of Management	Belgium	Master in Business Engineering
42	42	35	40	Kozminski University	Poland	Master in Management
43	50	51	48	ICN Business School	France	Master in Management**
44	39	47	43	University of Sydney Business School	Australia	Master of Management
45	38	39	41	Solvay Brussels School of Economics and Management	Belgium	Master in Business Engineering
46=	33	25	35	Télécom Business School	France	Master in Management**

Top new entrant: Smurfit

Smurfit's MSc in International Management at University College Dublin is the Irish branch of the Cems programme. It is popular with foreign students as more than 90 per cent of the 50 enrolled come from abroad. It is also almost perfectly balanced for gender, with 48 per cent of students women.
– LO

Footnotes (key overleaf)
* Data in these columns are for information only and are not used in the rankings.
** Grande École programme ‡ Limited access at masters level. Undergraduate degree in management, business or economics required. Although the headline ranking figures show changes in the data year to year, the pattern of clustering among the schools is equally significant. Some 250 points separate the top programme, University of St Gallen, from the school ranked number 90. The top 11 participants, from St Gallen to Università Bocconi, form the top group of masters in management providers. The second group, headed by EBS Business School, spans schools ranked 12th to 45th. Differences between schools in this group are small. The 21 schools within the third group headed by Télécom Business School are similarly close together. The remaining 24 schools headed by Burgundy School of Business make up the fourth group.

Alumni career progress							School diversity						International experience and research				Additional notes*					
Salary today (US$)*	Weighted salary (US$)	Value for money rank	Careers rank	Aims achieved (%)	Placement success rank	Employed at three months (%)	Women faculty (%)	Women students (%)	Women board (%)	International faculty (%)	International students (%)	International board (%)	International mobility rank	International course experience rank	Languages	Faculty with doctorates (%)	Maximum course fee (local currency)	Course length (months)	Number enrolled 2015/16	Relevant degree‡	Company internships (%)	Rank in 2016
101,502	101,502	9	11	95	3	100(92)	15	40	38	80	91	50	1	2	1	100	SFr9,978	25	55	Yes	100	1
92,130	89,793	36	16	92	4	96(91)	19	38	13	69	42	67	4	6	2	100	€36,000	18	491	No	100	2
85,864	85,365	45	4	92	8	94(74)	32	49	18	53	35	50	10	4	1	99	€38,000	21	746	No	100	3
74,243	73,592	55	18	89	17	96(90)	35	50	29	73	76	48	12	9	2	97	€35,800	18	905	No	100	4
73,364	73,364	20	23	90	33	94(100)	24	48	33	49	69	35	7	5	2	100	€17,000	19	67	Yes	95	5
80,526	78,156	56	55	93	10	96(98)	27	42	37	86	98	71	2	54	1	100	£28,900	12	237	No	54	6
80,661	81,491	57	29	91	29	95(89)	38	45	46	62	71	84	14	47	1	98	€33,200	10	506	No	31	7
63,948	63,948	21	12	89	49	94(98)	39	55	46	26	44	62	8	1	2	96	€2,907	24	75	Yes	100	8
98,360	98,360	30	28	93	2	98(91)	27	30	12	29	32	12	50	44	0	100	€23,600	20	110	Yes	100	9
67,160	67,810	53	8	90	21	83(88)	35	35	24	40	90	82	3	23	1	92	€26,100	13	180	Yes	40	9
69,982	69,982	48	5	89	6	96(41)	37	53	15	30	24	65	9	22	1	95	€25,400	28	135	No	100	11
82,633	82,633	42	19	91	7	84(69)	24	44	0	24	51	0	35	42	0	100	€23,850	20	137	No	100	12
61,646	60,840	43	31	85	76	95(75)	44	48	59	47	85	59	6	13	1	83	€20,200	24	260	No	91	13
83,113	82,710	18	36	91	24	97(83)	36	49	20	24	25	20	78	36	0	85	€557	32	273	No	92	14
61,192	61,138	67	30	86	16	97(88)	36	49	35	41	38	82	22	19	2	89	€30,000	28	952	No	100	15
107,748	108,511	83	2	86	1	100(97)	19	14	12	4	0	0	84	68	0	100	Rs1,415,000	22	395	No	100	16
50,121	49,776	79	17	85	38	94(63)	47	50	10	87	25	70	26	18	2	100	€18,751	24	721	Yes	100	17
50,079	50,715	34	57	87	25	89(96)	37	49	29	35	76	29	13	8	2	100	€15,967	20	280	No	63	17
105,865	106,047	85	3	83	11	100(99)	21	28	25	4	0	6	87	58	0	100	Rs1,870,000	21	414	No	100	19
61,126	60,531	76	59	87	23	92(93)	29	51	40	92	82	67	16	75	0	100	£26,000	14	173	No	26	20
87,800	87,800	39	54	91	9	95(97)	17	28	32	17	36	47	74	24	1	100	€25,000	22	53	Yes	100	21
58,377	58,377	37	82	89	64	100(95)	35	48	21	50	91	47	5	32	2	100	£17,900	14	46	Yes	100	22
98,679	98,824	68	1	85	5	100(100)	20	20	7	1	0	0	80	70	0	99	Rs1,900,000	22	463	No	100	23
62,150	62,150	35	6	88	15	95(100)	49	25	21	40	10	57	31	30	2	81	€17,950	16	101	No	100	24
60,978	60,978	13	46	87	67	98(91)	22	40	36	50	70	91	23	45	1	99	€14,000	16	576	No	12	25
60,282	60,044	75	43	86	32	89(86)	31	54	11	46	44	89	25	15	1	97	€33,500	30	902	No	100	26
54,312	54,282	64	20	84	34	90(69)	47	58	39	40	49	67	19	10	2	81	€22,500	24	486	No	100	26
60,681	60,681	23	70	88	45	91(97)	26	43	25	35	57	0	34	3	2	99	SKr300,000	21	44	No	100	28
55,696	55,696	41	14	83	52	88(92)	27	50	30	43	56	70	44	11	0	92	€10,950	10	78	No	100	29
64,447	64,447	16	34	81	72	89(87)	25	46	20	80	59	50	33	67	1	100	SFr2,520	24	146	Yes	83	30
58,804	58,804	63	41	89	30	90(82)	35	44	39	55	87	43	21	26	1	71	€21,400	12	79	No	100	31
63,426	61,748	24	22	85	13	99(95)	29	40	17	23	14	92	67	35	1	94	€14,500	10	154	No	100	31
65,619	65,619	1	27	88	12	100(100)	29	52	16	3	29	35	89	74	1	92	Rmb50,000	30	31	No	100	33
53,701	53,407	59	10	83	31	93(86)	45	55	50	56	28	50	53	25	2	89	€22,440	22	1,213	No	100	34
53,324	53,669	77	7	83	66	92(71)	33	51	60	85	13	30	24	14	0	82	€20,800	24	507	No	100	35
53,618	53,618	72	35	88	36	97(92)	31	57	22	78	94	22	47	85	1	100	£26,500	14	210	No	0	36
64,920	65,089	7	53	88	75	80(92)	33	46	27	40	58	9	29	56	0	90	Kr280,000	33	569	Yes	9	36
58,601	58,601	78	51	87	47	72(90)	26	58	50	71	91	57	17	64	0	95	£23,000	12	146	No	2	38
53,622	53,530	11	25	88	39	94(74)	50	56	11	5	20	28	41	38	1	91	Rub880,000	22	110	No	100	39
54,726	54,663	73	21	82	56	92(61)	40	54	40	42	29	30	38	16	2	92	€19,800	20	697	Yes	100	40
56,910	57,497	8	33	85	57	91(96)	35	36	31	24	12	54	71	31	2	100	€8,350	23	239	Yes	100	41
74,664	74,664	26	81	88	14	92(89)	33	48	20	22	13	60	83	43	1	88	Zloty 22,400	24	85	No	48	42
50,909	50,217	65	48	85	53	90(64)	48	51	15	48	30	15	36	12	2	85	€19,200	33	505	No	100	43
62,786	62,786	50	47	85	40	81(75)	36	64	50	29	72	40	18	53	1	85	A$63,000	15	160	No	100	44
55,190	55,168	2	40	84	22	92(75)	21	35	52	35	12	52	57	37	2	94	€9,360	25	226	Yes	100	45
51,630	51,434	22	44	85	50	92(76)	49	51	36	44	10	45	40	39	1	80	€16,740	31	302	No	100	46

The top masters in management

Key to the 2016 ranking

Weights for ranking criteria are shown in brackets as a percentage.
Salary today US$: average salary three years after graduation, US$ PPP equivalent (see methodology at ft.com/mim).†
Weighted salary US$ (20): average graduate's salary with adjustment for salary variations between industry sectors, US$ PPP equivalent.†
Value for money (5): calculated according to alumni salaries today and other costs.
Careers (10): calculated according to alumni seniority and their company's size in terms of the number of employees worldwide.†
Aims achieved (5): extent to which alumni fulfilled their goals for doing a masters.†
Placement success (5): effectiveness of the careers service in supporting student recruitment, as rated by alumni.†
Employed at three months % (5): percentage of most recent class that found employment within three months of completing their course. Figure in brackets is the percentage of the class for which the school was able to provide data. ‡
Female faculty % (5): percentage of faculty that is female at May 1. For all gender-related criteria, schools with a 50:50 (male/female) composition receive the highest score.
Female students % (5): percentage of women on the masters programme.
Women on board % (1): percentage of women on the school advisory board.
International faculty % (5): contribution to ranking is based on the mix of nationalities and the percentage of faculty members at May 1 whose citizenship differs from their country of

FINANCIAL TIMES GLOBAL MASTERS IN MANAGEMENT 2016

The top 90 masters in management programmes

2016	2015	2014	3-year average	School name	Country	Programme name
46=	41	32	40	Montpellier Business School	France	Master in Management**
46=	55	54	52	IAE Aix-en-Provence, Aix-Marseille University GSM	France	MSc in Management
49	51	-	-	Essca School of Management	France	Essca Master in Management**
50	52	65	56	Tongji University School of Economics and Management	China	MSc in Enterprise Management
51	54	46	50	Aalto University	Finland	MSc in Economics and Business Administration
52	59	49	53	Católica Lisbon School of Business and Economics	Portugal	International MSc in Management
53	45	42	47	Kedge Business School	France	Master in Management**
54	62	-	-	University of Edinburgh Business School	UK	MSc in Management
55	52	49	52	University of British Columbia: Sauder	Canada	Master of Management
56	57	57	57	Durham University Business School	UK	MSc in Management
57	-	-	-	Université Paris-Dauphine	France	Master of International Business
58	49	43	50	University of Strathclyde Business School	UK	MSc in Business and Management
59	-	-	-	Queen's University: Smith	Canada	Master of International Business
60	48	64	57	La Rochelle Business School	France	La Rochelle Master in Management**
61=	65	52	59	Tias Business School	Netherlands	International MSc in Business Administration
61=	60	66	62	Nyenrode Business Universiteit	Netherlands	MSc in Management
63	69	-	-	EM Normandie	France	EM Normandie Master in Management**
64	63	61	63	Leeds University Business School	UK	MSc in International Business
65	64	60	63	NHH	Norway	MSc in Economics and Business Administration
66	66	53	62	University of Cologne, Faculty of Management	Germany	MSc in Business Administration
67	76	-	-	Burgundy School of Business	France	Master in Management**
68	79	-	-	Aarhus BSS	Denmark	MSc in Economics and Business Administration
69	67	-	-	Hanken School of Economics	Finland	MSc in Economics and Business Administration
70	68	70	69	Corvinus University of Budapest	Hungary	MSc in Management and Leadership
71	73	67	70	BI Norwegian Business School	Norway	MSc in Business
72	74	62	69	Lancaster University Management School	UK	MSc in Management
73	75	68	72	Warsaw School of Economics	Poland	Master in Management
74	61	59	65	University of Bradford School of Management	UK	MSc in Management
75	70	55	67	Alliance Manchester Business School	UK	MSc in International Business and Management
76	-	-	-	EM Strasbourg Business School	France	MSc in Management**
77	58	-	-	IQS/FJU/USF	Spain, Taiwan, US	Master in Global Entrepreneurship Management
78=	78	63	73	Politecnico di Milano School of Management	Italy	MSc in Management Engineering
78=	77	-	-	ESC Clermont	France	Master in Management**
80	80	-	-	University of Exeter Business School	UK	MSc in International Management
81	72	69	74	University of Economics, Prague	Czech Republic	Business Administration and Management
82	-	-	-	Arizona State University: Carey	US	MSc in Management
83	71	58	71	University of Bath School of Management	UK	Master in Management
84	-	-	-	Tilburg University	Netherlands	MSc in International Management
85	-	-	-	Aston Business School	UK	MSc International Business
86	-	-	-	DCU Business School	Ireland	MSc in Management
87	-	-	-	National Sun Yat-Sen University	Taiwan	Master of Business Administration
88	-	-	-	Adam Smith Business School, University of Glasgow	UK	MSc in Management
89	-	-	-	Henley Business School	UK	MSc in Management
90	-	-	-	Southwestern University of Finance and Economics	China	Master in Management

employment (the figure published in the table).
International students % (5): contribution to ranking is based on the mix of nationalities and the percentage of masters students whose citizenship differs from their country of study (figure published in the table).
International board % (2): percentage of the board whose citizenship differs from the school's home country.
International mobility (10): calculated according to changes in the country of employment of alumni from graduation to today.†

International course experience (10): calculated according to whether the most recent graduating class undertook exchanges, company internships or study trips in countries other than where school is based. ‡
Languages (1): number of extra languages required on graduation.
Faculty with doctorates % (6): percentage of faculty with doctoral degrees at May 1.
Course fee (local currency): maximum programme fees paid by the most recently enrolled, in the currency of the school's base.
Course length (months): average duration.

Number enrolled 2015-16: number of students who enrolled on the first year of the masters programme in the past year.
Relevant degree: whether an undergraduate degree in management, business or economics is required to enrol on the masters.
Company internships (%): percentage of the last graduating class that completed company internships as part of the programme. ‡

† Includes data for the class of 2013 and one or two preceding classes where available. ‡ Graduated between May 2015 and April 2016

Alumni career progress							School diversity						International experience and research				Additional notes*					
Salary today (US$)*	Weighted salary (US$)	Value for money rank	Careers rank	Aims achieved (%)	Placement success rank	Employed at three months (%)	Women faculty (%)	Women students (%)	Women board (%)	International faculty (%)	International students (%)	International board (%)	International mobility rank	International course experience rank	Languages	Faculty with doctorates (%)	Maximum course fee (local currency)	Course length (months)	Number enrolled 2015/16	Relevant degree‡	Company internships (%)	Rank in 2016
45,761	45,884	87	45	79	48	99(95)	48	52	47	52	38	33	55	21	2	91	€21,000	30	507	No	100	46
49,437	49,170	10	15	81	42	92(84)	44	57	48	15	31	26	49	49	1	90	€4,255	19	508	No	100	46
52,089	51,956	62	32	84	18	90(79)	36	48	50	51	8	60	77	29	2	91	€18,500	22	506	No	100	49
52,443	52,443	6	13	83	19	100(100)	36	49	30	7	34	30	85	48	1	89	Rmb90,000	30	88	Yes	100	50
56,836	56,717	3	74	86	65	92(96)	35	48	43	22	18	57	82	40	2	97	€116	24	537	No	31	51
44,961	44,989	33	56	84	20	97(97)	30	62	24	40	66	24	45	27	2	95	€13,560	19	76	Yes	61	52
50,041	50,182	66	38	80	51	89(85)	26	49	34	44	22	41	37	20	2	92	€23,500	30	1,248	No	100	53
49,731	49,731	84	67	87	55	89(53)	40	60	35	58	95	41	30	60	0	91	£21,350	12	58	No	0	54
46,354	46,354	54	62	85	43	95(92)	25	48	31	77	48	23	39	77	0	99	C$40,783	10	46	No	0	55
56,570	56,570	40	80	83	54	91(65)	34	62	39	67	86	39	56	73	0	98	£18,500	12	280	No	1	56
51,992	51,992	15	65	85	26	70(85)	40	70	45	22	44	40	48	41	1	91	€6,000	15	66	No	100	57
51,027	51,027	61	39	84	87	93(84)	37	36	35	46	91	47	46	63	0	80	£17,000	12	53	No	22	58
52,609	52,609	46	76	83	83	86(57)	31	56	24	49	80	44	28	46	0	99	C$73,382	16	98	Yes	3	59
46,282	46,494	86	24	81	68	83(74)	55	60	14	48	17	48	63	7	2	65	€20,000	27	293	No	100	60
51,488	51,488	51	86	86	46	92(89)	23	47	33	39	51	17	27	52	0	89	€19,900	14	87	No	12	61
61,295	61,295	49	58	87	37	73(89)	26	42	22	13	15	22	73	65	0	95	€20,500	13	139	No	18	61
45,671	45,669	81	49	80	62	78(64)	46	51	33	37	25	27	32	17	1	72	€18,380	28	577	No	100	63
41,805	41,805	82	63	90	35	86(66)	38	51	44	48	83	33	65	83	0	89	£21,000	14	143	No	14	64
61,274	61,029	19	68	85	88	85(46)	28	45	45	29	11	18	81	51	1	95	NKr3,120	24	668	Yes	7	65
70,614	70,708	25	9	83	80	70(17)	20	43	50	7	9	10	79	69	0	88	€1,023	25	289	No	13	66
46,162	45,580	69	71	77	60	90(82)	47	54	45	46	21	30	68	34	2	81	€17,600	30	436	No	100	67
58,804	58,506	4	77	85	44	66(32)	37	32	30	23	17	60	70	76	0	93	€20,000	24	744	Yes	47	68
49,982	49,743	17	85	83	74	95(87)	38	49	60	19	11	10	72	57	0	93	€240	27	364	No	52	69
45,495	45,495	5	64	85	69	95(62)	44	61	11	6	8	61	52	50	0	80	Ft1,580,000	21	236	No	17	70
57,998	58,234	38	69	86	59	100(94)	25	49	62	28	18	12	86	61	0	74	NKr87,400	24	311	Yes	24	71
38,496	38,496	74	75	89	27	83(58)	31	64	38	54	89	50	60	78	0	94	£17,000	13	44	No	52	72
45,374	45,374	14	42	85	73	100(44)	44	61	11	1	13	11	76	72	1	95	Zloty 0	23	318	No	24	73
38,838	38,838	60	73	82	61	94(55)	45	51	30	33	87	40	42	85	0	83	£14,500	12	82	No	0	74
46,896	46,896	80	79	82	81	91(48)	37	47	38	43	92	15	43	84	0	89	£19,500	14	118	No	0	75
45,081	45,293	70	66	80	82	84(56)	55	54	25	22	15	12	20	33	2	76	€8,500	36	386	No	100	76
54,316	54,316	89	78	86	77	65(49)	21	49	21	9	81	0	15	28	0	64	€26,000	12	37	No	100	77
42,678	42,144	29	50	77	28	89(77)	35	35	31	11	30	69	54	59	0	79	€6,717	25	601	No	41	78
46,232	45,919	58	37	77	58	83(81)	58	41	12	44	14	0	58	55	2	72	€23,250	24	92	No	100	78
44,889	44,889	71	52	84	63	80(19)	32	60	31	48	83	15	61	82	0	82	£18,500	11	121	No	0	80
38,306	38,745	28	61	82	79	95(91)	38	56	20	9	19	35	64	62	1	83	€3,600	28	421	No	15	81
54,150	54,150	47	88	78	41	57(92)	25	56	9	28	30	1	11	85	0	91	$43,682	9	43	No	0	82
40,204	40,204	88	87	82	78	95(79)	34	70	31	65	76	31	66	79	0	98	£18,500	12	94	No	0	83
49,938	49,938	12	83	74	86	80(51)	20	48	40	40	21	0	51	81	0	91	€13,000	14	66	Yes	7	84
53,095	53,095	52	84	81	71	86(38)	36	61	21	41	84	29	62	71	0	74	£17,350	12	57	No	5	85
45,564	45,564	31	89	84	89	82(87)	49	54	42	15	46	17	59	85	0	80	€13,400	12	65	No	82	86
37,497	37,497	32	72	85	83	57(53)	26	49	14	8	9	32	69	66	1	97	NT$166,320	24	45	No	0	87
32,322	32,322	90	60	86	70	75(2)	40	64	7	60	99	0	88	85	0	86	£18,900	12	281	No	0	88
48,456	48,456	44	90	79	90	78(23)	47	66	36	48	84	29	75	85	0	88	£19,200	12	99	No	0	89
24,406	24,406	27	26	72	85	98(100)	34	72	0	4	14	31	90	80	1	91	Rmb10,000	34	71	No	99	90

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PHOTOS: AFP; GUILHERME BERGAMINI

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City of innovation: in the shadow of the Serra do Curral mountain range, Belo Horizonte has a reputation as Brazil's answer to Silicon Valley

Brazilian campus broadens horizons

Harsh realities of a country in crisis offer masters students at Skema's Belo Horizonte site more than just an academic course, discovers David Ricketts

For the 61 students who turned up at French business school Skema's new Brazilian campus last year, the experience provided as many lessons outside the classroom as from within.

"Currency and prices changed a lot," recalls 23-year-old Mathilde Cesses from Toulouse, one of the campus's first intake. "One day we were so rich and the next so poor. It was something that had an impact on our daily life. In Europe, we are not used to prices changing so much."

Patricia Girod, director of the new campus in Belo Horizonte, acknowledges the students had to learn quickly how to deal with the harsh realities facing Brazil. "Inflation and currency risk are things students have to live with," she says. "It is real life and they have a feeling for the crisis the country is going through. I don't need to tell them it is a complicated country. They learn it the first day they arrive."

When Skema first planned its Brazilian site, little did it know the country would be rocked by political scandals and one of the most prolonged recessions in its history.

The campus, which was established in partnership with Brazilian business school Fundação Dom Cabral, is one of three locations outside France where students on Skema's masters in international management programme can choose to study. In addition to three domestic campuses, it has bases in the US state of North Carolina and Jiangsu in China.

'We chose Brazil because it has the biggest economy [in Latin America] and... lots of foreign investment'

Girod says the reason for setting up in the Latin American country was simple. "We chose Brazil because it has the biggest economy [in Latin America] and there is a lot of foreign investment," she says. "It would be strange if you are a business looking to expand in Latin America and you did not consider Brazil."

The school expects the number of starting its masters in management programme to almost quadruple by January 2017.

In a country plagued in some parts by serious crime — almost 60,000 people were murdered in Brazil in 2014 — Belo Horizonte provides a relatively secure environment for students to interact with fledgling and well-established companies.

'We are educating future managers. We want to open their minds to Brazil'

Often referred to as the Brazilian Silicon Valley, Belo Horizonte, a city of about 1.5m people in the south east of the country, is home to more than 200 start-ups, while well-known names including Fiat, Google and Toshiba also have operations in the region.

"Being in a place where innovative companies are based is very important to us," says Girod. Skema's ambition is that alumni from its Belo Horizonte campus will one day return to the country to do business. "We are educating future managers. We want to open their minds to Brazil."

International companies looking to expand into Latin America typically prefer Mexico or Chile as a base, as the Portuguese language in Brazil can be a barrier to entry.

Emilie Chidiac was among the first cohort of students to arrive at the Belo Horizonte campus and describes the teaching experience as vastly different to what she had known before. "The French and Brazilian cultures are very different. For the Brazilian teachers, it was the first time they were teaching foreign students so they too had to adapt and learn," she says.

The professors who teach on the Skema masters course also act as consultants to Brazilian companies, meaning students can take advantage of the strong business links forged by their mentors.

Marie-Hélène Panthier, who studied in Brazil for six months, describes the masters programme as "more than just an academic course".

"It was a great chance to... discover how the country works," she says. "We visited a lot of companies and it was great to see things for real. Our teachers knew a lot of people and helped connect us with firms."

Cesses, who will return to Belo Horizonte later this year to take up a post with engineering services company Vinci Energies, says close interaction with businesses in Belo Horizonte "helped students who wanted to start a career in Brazil".

She says students were able to gain an insight into a range of business sectors, including interaction with the country's national electricity and water companies and businesses moving into solar energy.

Representatives from innovative social projects such as Associação de Proteção e Assistência ao Condenado, an alternative prison system in Brazil that does not use guards, were invited to give talks to students.

Outside the classroom, Skema students arriving in Brazil have experienced first hand the economic and political crisis unfolding around them. Alongside the deep recession being experienced in the country, Brazilian senators recently voted to impeach suspended president Dilma Rousseff for breaking budget laws — a charge she denies.

In addition, a probe into a $3bn bribe-for-contracts scandal at Petrobras, the national energy company that was chaired by Rousseff before she became president, has resulted in the arrest and jailing of several high-ranking businessmen and lawmakers.

Despite the country's challenges, Skema is optimistic about the future of its campus in Brazil and aims to increase the intake of students at its Belo Horizonte site to approximately 1,000 in four to five years' time.

But not all Skema alumni are optimistic they will one day return to Brazil to pursue their international business careers, at least in the short term. "Brazil has a lot of opportunities, particularly in international business," says Chidiac. "The sad part is the situation today is very complicated and it is hard to find a job." B

Secure: Skema's Belo Horizonte campus (top). Emilie Chidiac (above) was among the first group of students to arrive at the Brazilian campus

Belo Horizonte

Some of the world's most innovative companies have been looking up Belo Horizonte on the map recently, with fledgling businesses helping the city earn a reputation as Brazil's answer to Silicon Valley.

Situated 360km from Rio de Janeiro and 500km from São Paulo, Brazil's sixth-largest city is home to more than 200 start-ups and 10 incubators.

Overlooked by the Serra do Curral range, Belo Horizonte, which takes its name from its mountain views, is the capital of the Minas Gerais state, a region that has played a crucial role in Brazil's mining and agricultural industries.

Belo Horizonte is known as Brazil's garden city for its abundance of trees and has experienced significant change in recent years with rapid expansion of its service sector. Today, 80 per cent of the city's economy is based on trade, finance and property.

Multinationals began to arrive in Belo Horizonte during the 1970s, and the city is now home to global brands including Fiat, Arcelor, Toshiba and Google. Moving in alongside global software and IT providers, biotechnology and pharmaceutical companies have also established themselves in the region.

Away from industry, Belo Horizonte benefits from strong tourism, despite many visitors to Brazil being drawn to the beaches of Rio de Janeiro and the bustling metropolis of São Paulo.

It has also attracted some of the world's sporting elite, with Belo Horizonte a base for two of Brazil's top-flight football teams: Cruzeiro Esporte Clube and Clube Atlético Mineiro.

Belo Horizonte was one of the host cities during the 2014 World Cup and several matches were played in the local Mineirão stadium, which was built in the 1960s and renovated especially for the tournament.

The city also played a vital role in this year's Olympic Games, with British athletes training at one of Belo Horizonte's sports grounds on their way to Rio and matches in the women's football tournament being played there. — **DR**

PHOTOS: JORGE SANTOS; GUILHERME BERGAMINI

INSIDE

Meet the Dean

Scott DeRue

Ross business school's 'favourite son' is big on empowerment – of his staff and his students, he tells Jonathan Moules

You know you are getting old when all the policemen appear younger than yourself. Looking at Scott DeRue, who has just taken charge at the University of Michigan's Ross School of Business, I get the same feeling about US business school deans.

The institution's 40-year-old management professor, award-winning researcher and "favourite son" arrives for our interview in a navy-blue suit and crisp white shirt looking more like a student than the head of one of the world's top business schools.

Perhaps this is why Prof DeRue is able to claim such good relations with students and faculty alike at Ross, evidenced by his previous nominations for numerous 40 under 40 lists of academics, a ranking of the most influential young people to watch.

"I was hired because I have the relationships and the appreciation and the culture at the University of Michigan and, in particular, the Ross school," he says, noting that he owed his appointment in part to backing by fellow teaching staff.

"I have the ability to bring people together in a world of academia, which is not always easy to do."

Prof DeRue, who comes from the tiny North Carolina town of Wallburg, claims to be driven by the Ross mission to develop leaders who make a difference in the world. In his LinkedIn profile, he describes himself as "living life with purpose and passion", something he proved in 2013 by climbing Mount Everest.

"I am a very empowering person and I want to hire great talent and empower them to do a great job," he says. "When we have a shared understanding of where we're going I have no doubt that our facility and our staff, when we come together, will be able to deliver on that."

Despite his relatively young age, Prof DeRue is a long-standing member of Ross's faculty staff and has already held several senior roles at the school. During his tenure as associate dean of executive education, Prof DeRue led the programme to its best performance in a decade, expanding its portfolio to more than 30 open enrolment and dozens of custom courses.

He also helped create Alumni Advantage, an initiative to strengthen the bond between former Ross students and the school with offers such as free tuition on executive education courses. He launched the Sanger Leadership Center to provide leadership training to all 3,400 current students.

"The way that organisation is managed is a perfect illustration of what I mean by empowerment," Prof DeRue says. "We want to create transformational leadership development experiences for our students that demonstrate for them the power of business to create value for customers, create value for shareholders, create great places to work for employees and create value for our communities at large."

One challenge will be to match the fundraising talents of his predecessor Alison Davis-Blake, who, during her five-year term as dean, helped Ross raise more than $400m for scholarships and expanded operations.

Prof DeRue says he should be judged after completing his planned 10 years in office, spread over two terms. "If the university decides it doesn't want me after five years then so be it," he says. "But when I think about building this organisation for the future I don't think about five years, I think about a decade and beyond."

One of the ways Prof DeRue feels he can make a difference is to build programmes like the masters in management degree. Ross, which started offering this course in 2013, is one of the few top US schools to offer the masters in management

'When we have a shared understanding of where we're going... our faculty and staff will be able to deliver on that'

CV

Born June 1976, North Carolina in the US

Education
PhD in management at Michigan State University's Eli Broad College of Business

Bachelor of science in business education degree in management from the University of North Carolina at Chapel Hill's Kenan-Flagler Business School

Career
1998 Analyst in Merrill Lynch's private client division
1999-2003 Management consultant at Monitor Group (now Monitor Deloitte)
2003-07 Instructor at Michigan State University
July 2007-present Professor of business and, since July this year, dean of the University of Michigan's Ross School of Business
2015-present Partner at Chibor Angels, a business angel network

Married with children

Interests
Running, mountaineering, water sports, sailing and photography

Ten-year plan: Scott DeRue says he is driven by the Ross mission to develop leaders who make a difference in the world

qualification, which is far more prevalent in Europe.

Although it is early days for the programme at Ross, Prof DeRue sees the masters in management degree as a gateway to attracting students with liberal arts degrees.

"We'll get students in the arts who want to open a gallery, all the way to the person who wants to work in the bank, but wanted to study history as an undergraduate," he says.

"Before the masters of management, in the US in particular there wasn't anything for that student," he adds, noting that 93.5 per cent of those who have completed the programme have found jobs within three months.

"That's a world class career placement stat."

Prof DeRue joined Michigan State University in 2003 shortly after his 27th birthday, initially as an instructor on leadership skills to undergraduates and MBA students.

Before that he had five years in corporate life, working in private equity, investment banking and as a marketing executive for a luxury yacht builder.

He majored in management studies only after realising that he lacked the scientific knowledge to gain a place on the premedical course during his undergraduate studies at the University of North Carolina at Chapel Hill.

"I wanted to be a doctor at a very early age, right up until that first biology class, then I couldn't find the business school fast enough," he says, adding that he secured the second best option by marrying a doctor.

But Prof DeRue insists that despite not following a medical career, his academic work still allows him to change lives for the better.

"If you think about it, higher education has been one of the most successful social experiments in world history, in terms of driving social mobility, in terms of building productive citizens, advancing society and how we work together," he says. B

From the drawing board

To catch a bicycle thief

How a masters degree at Audencia is turning the wheels of a nascent idea. By Jonathan Moules

When Pierre Regnier discovered his bicycle was stolen, rather than becoming angry and frustrated at being powerless to do anything about it, his thoughts turned to a potential business opportunity.

Regnier wondered whether there was a way of integrating a tracking device into a bike's structure to enable the victims of such thefts to have a chance of catching the perpetrators or at least retrieving their property.

The thought evolved into a start-up, called Velco, aided by two fellow cycling enthusiasts whom Regnier had met at an entrepreneur convention at Audencia Business School in France.

At that first meeting two years ago the trio hatched a plan for each to study for a masters qualification at Audencia in entrepreneurship, during which they could work on a business plan to help raise the necessary finance to get the idea off the ground. "We all arrived [at the convention] by bike, which made us talk about common pains cyclists have," Johnny Smith, another of the three co-founders, recalls. He is now entering the final year of his masters in management.

The Nantes-based higher education institution not only provides a meeting point and a place to learn business skills, it also offers office space and technical support in areas such as strategy, marketing and corporate finance through its start-up incubator programme. "Audencia [has] provided access to a huge network of people," Smith notes, adding that the trio were able to create an advisory board of people from successful companies who had studied at Audencia.

The product the co-founders decided to focus on was a handlebar with built-in lights and wireless bluetooth capability, enabling it to connect to a smartphone app. It offers cyclists directions on pre-planned routes using flashing lights, as well as alerting them to incoming calls. It also warns cyclists if their bikes are being moved without their knowledge and has a tracking device to help police locate stolen bikes. They call it The Wink.

Its design has been a collective effort with input from French insurance companies, local government officials, police forces, manufacturers, wholesaler and cycling clubs. "Mixing our competences has been our biggest strength," says Smith, who was made Velco's chief marketing officer partly because it was felt his English and Spanish parentage would equip him with an understanding of selling the product outside the French market.

Regnier, the chief executive, is in the final year of a double degree studying business at Audencia and engineering at the Angers faculty of France's Eseo Institute of Science and Technology. To gain experience of living outside France and to get a feel of other markets, Regnier has completed parts of his courses at the campuses of partner colleges in Wales and the US, as well as working in London. "For me, it was crucial to have an international background to be open-minded and to discover the Anglo-Saxon lifestyle," he says, having grown up in France. While studying, Regnier has undertaken some consultancy work for local companies, using the proceeds to seed fund Velco.

The third co-founder, Romain Savouré, is completing the same course combination as Regnier, but has also studied at the University of California, Berkeley. He is Velco's chief technology officer, in part due to his engineering background.

The co-founders are now working on the industrialisation phase of The Wink. They are also in negotiation with many bicycle manufacturers and wholesalers.

Seven people work full-time at Velco but the company has relationships with more than 30 partners on different business specialisms, including

The co-founders focused on a handlebar with built-in lights and bluetooth, so it can communicate with a smartphone app

Master plan: Romain Savouré (above), Pierre Regnier (right) and Johnny Smith (far right), founders of Velco

PHOTOS: JEAN-SEBASTIEN EVRARD

Jargon buster: 'Scale up'

In the Tiggerish world of technology entrepreneurship, 'up' is a word to which people naturally attach themselves. They also love to attach it to other words.

Even before Sir Tim Berners-Lee unleashed the world wide web upon an unexpecting planet, computer companies created a new word for the process of, in essence, fixing the mistakes they had made in the software they had sold – what we now all call the upgrade.

People in Silicon Valley were never able just to launch a new business. They had to create a start-up.

The desire for growth has dictated that founders can no longer be satisfied with merely creating a business that provides some useful product or service and in turn new jobs for people.

They must now aspire to a new state of mind, that of the scale up.

Wanting to do better is, of course, to be applauded, not least because the few that can achieve a rapid growth spurt do have a disproportionately large impact on raising productivity and employment levels for us all.

But is it too much to ask those urging them on to put a little more effort in finding a phrase that is a little less jarring? – **JM**

The aim is to raise €1m, enough to launch The Wink in France, the Netherlands and Germany over the next two years

technical experts, lawyers, economists and business development managers.

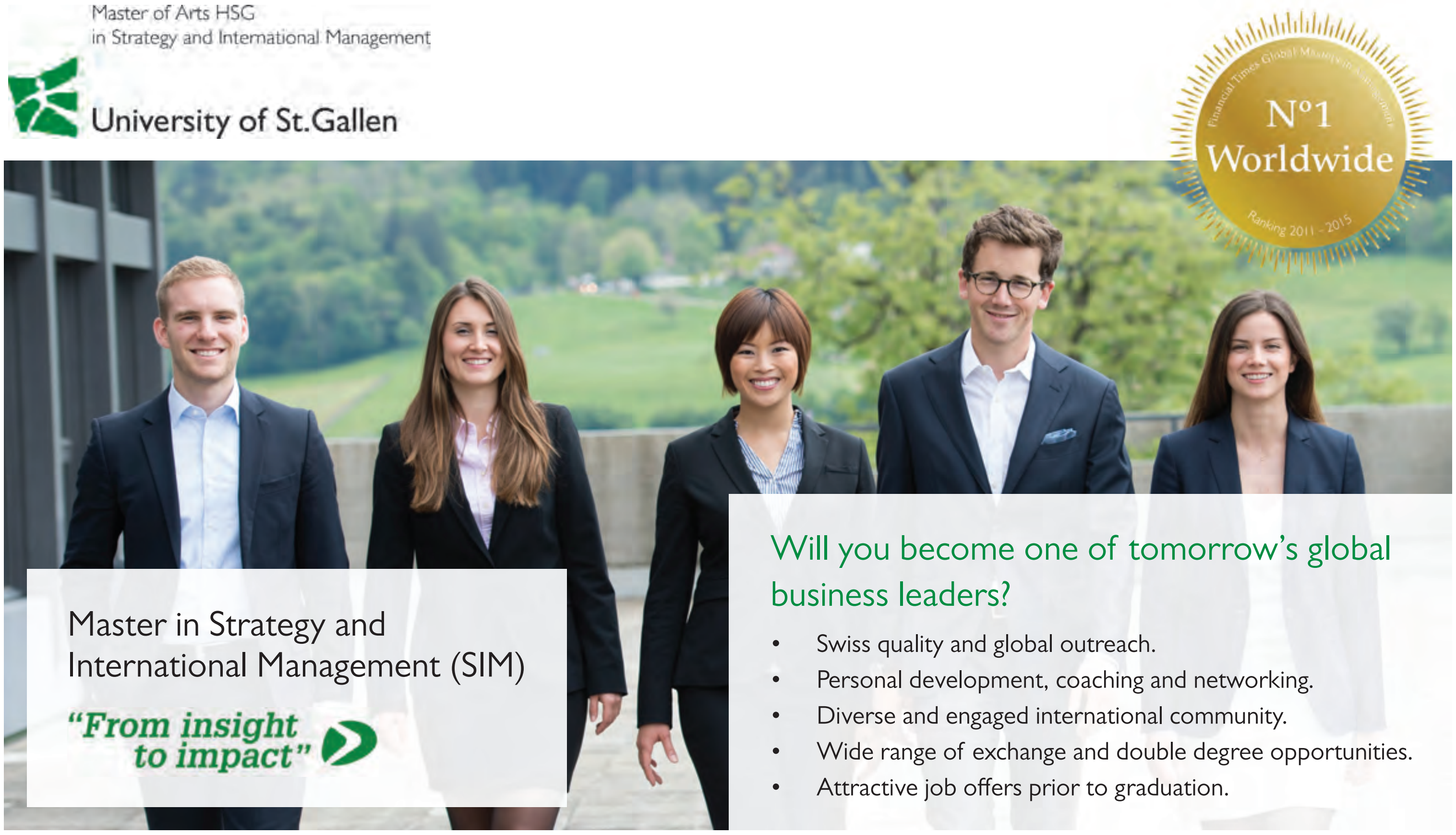
Ahead of launching The Wink in a selected number of cycle shops next March, Velco's co-founders will make an initial production run available from October for investors to pre-order via the crowdfunding website Kickstarter.

Product development has been helped by winning cash prizes from national and international start-up contests, including receiving €10,000 from France's Public Investment Bank.

The aim is to build on this by raising €1m, which, say the founders, would be enough to launch The Wink in France, the Netherlands and Germany over the next two years. The medium-term goal is for a turnover of more than €1m by 2018, no mean feat for a specialist device that requires consumers to rebuild their bikes.

But Velco's trio believe cyclists will not be put off if it means they will be able to keep track of their much-loved bikes. Ⓑ

Johnny Smith: 'Audencia has provided access to a huge network of people'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Unexpected lessons

books

Lights, camera, data

TV and film networks need to move away from 'gut instincts'. By Jane Wild

When the makers of the US version of *House of Cards* were pitching their series to television networks they were sure they had all the makings of a hit. The only problem was that none of the networks they approached wanted to take the risk of funding a pilot, let alone the series, because according to conventional wisdom in the industry, political dramas were not successful.

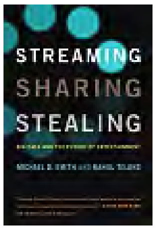
But streaming service Netflix analysed data on its 33m subscribers to discover that many were fans of lead actor Kevin Spacey, director David Fincher and had rented the original BBC series. Those data were proof enough for Netflix to dispense with a pilot and instead offer $100m upfront for two series — a decision greeted with scepticism in the industry, but which turned out to be inspired. The programme has proved incredibly popular with audiences and critics alike and its fifth series is due for release next year.

The story demonstrates the role that data now play in entertainment industry decision making — Netflix was even able to produce several trailers targeted at its various audience categories.

It shows how the balance of power is shifting away from film, TV and music businesses, traditionally the biggest and most powerful, towards such entities as Netflix and Amazon — those that distribute content.

Streaming, Sharing, Stealing charts the history of film, TV and music industries, going back a century to show how developments in technology and changing consumer habits have created a period of unprecedented change for them.

The book, by two professors at Carnegie Mellon



University, offers many lessons for executives in the creative industries, as well as serving as a case study of the challenges faced by any industry grappling with disruptive forces.

It is packed with examples, from the nimble-footed who reacted quickly to adapt their businesses, to laggards who lost empires.

Consider Apple, which was struggling when Steve Jobs rejoined in 1997 and became its chief executive. Jobs pinpointed the failure: Apple relied upon third parties to sell its computers and staff in those shops were often happier to recommend the cheaper products of competitors. He hunted out market and demographic data to show where Apple could build its own shops in the most convenient locations and sell directly to its customers — a strategy that went against the grain at the time.

The book also offers insights for artists, film-makers and writers, pointing to how they can maximise what they earn and provide incentives that discourage piracy. The band Radiohead decided to bypass traditional music publishers when releasing their 2007 album *In Rainbows*. They made the tracks available to fans directly through their website, for any price they wished to pay, including nothing at all. It was the band's most profitable album at the time.

Those that failed to recognise the changing climate include NBC Universal, which took a gamble in 2007 to remove its TV shows from Apple's iTunes player. However, viewers largely opted for piracy rather than following NBC to other digital outlets.

In one sense, *Streaming, Sharing, Stealing* highlights what the seasoned marketer has always known: the immense value of knowing your customer. Yet this study of the triumph of data is still much needed, as evidenced by the many executives who refuse to believe that the age of "gut instinct" and the "taste maker" has passed.

The upshot for businesses is clear: change is happening and the way to ensure your business survives is to be ready to adapt and take bold decisions — just as Netflix did with its $100m bet on a series the industry said would never work. Ⓑ

PHOTO: BLOOMBERG

Data day: authors Michael Smith and Rahul Telang show how the success of House of Cards, starring Kevin Spacey, upended the film and TV industries

REVIEW

technology

Free... but at what cost?

No-charge tools are great, until they go wrong, change or disappear, says Kate Bevan

Recent changes in the mysterious Facebook algorithm that have deprioritised posts by pages and brands in favour of posts by actual human beings sparked despair among marketers who watched, powerless, as their page views and shares fell sharply.

Meanwhile, big news publications have begun to experiment with Facebook's Instant Articles, publishing straight to the platform rather than posting links to their own websites, raising questions about the risks of ceding control to a platform with its own priorities and an opaque algorithm.

Both of these tales tell us much about the necessity and wisdom of relying on third-party tools, particularly free ones. As the big brands relying on Facebook to deliver traffic are discovering, free tools can come with a sting in the tail.

Third-party tools are the backbone of work. Right now, I am writing this at my desk, using a copy of Word 2016, saving revisions to my computer's hard drive and listening to music stored on my networked hard drive via my Sonos speakers, which is all very old-school. However, I could take my Android tablet down to my local coffee shop and finish writing this column there.

To do that, I would be relying on third-party services: OneDrive, Microsoft's cloud storage service, where I would save a version of this column; then Office Online, where I would pick up and carry on writing and editing this piece. While I am at the coffee shop, I could also fire up the Sonos app and use that to access my music via any number of online services — such as Spotify, Amazon Music, Google Play, SoundCloud, Apple Music, Groove — and carry on listening to David Bowie's masterful final album, Blackstar, as I am now doing at home.

I would also be relying on the wifi at my coffee shop: I would be trusting that it is fast enough and has sufficient bandwidth for me to be able to use those services and, crucially, I would be trusting that it is secure.

Free tools drive businesses: Slack, the chat tool of the moment, has a free tier that is fine for many of the groovy start-ups that use it. Google Docs powers collaborative working and goodness knows how many small business websites are built on WordPress. Meanwhile, Amazon's AWS cloud computing service, both the free tiers and the more comprehensive paid-for iterations, provides the back end for untold millions of organisations' websites.

It is frustrating when something you rely on changes and even more infuriating when it is discontinued

Free tools can be great, says Thomas Pepper, a user experience designer at Parker Software, which provides online marketing and customer relationship management tools. "Many free tools are useful and if that's not the case, there's nothing lost other than a day or two trying something that was free," he says.

However, things can go wrong with free tools: the terms and how they work can change and they can simply vanish. Evernote, the venerable note-taking app, recently infuriated its users by making substantial changes to its free version, including restricting syncing to just two devices. That has left people scrabbling around for alternatives, losing time as they research another tool. Or it has

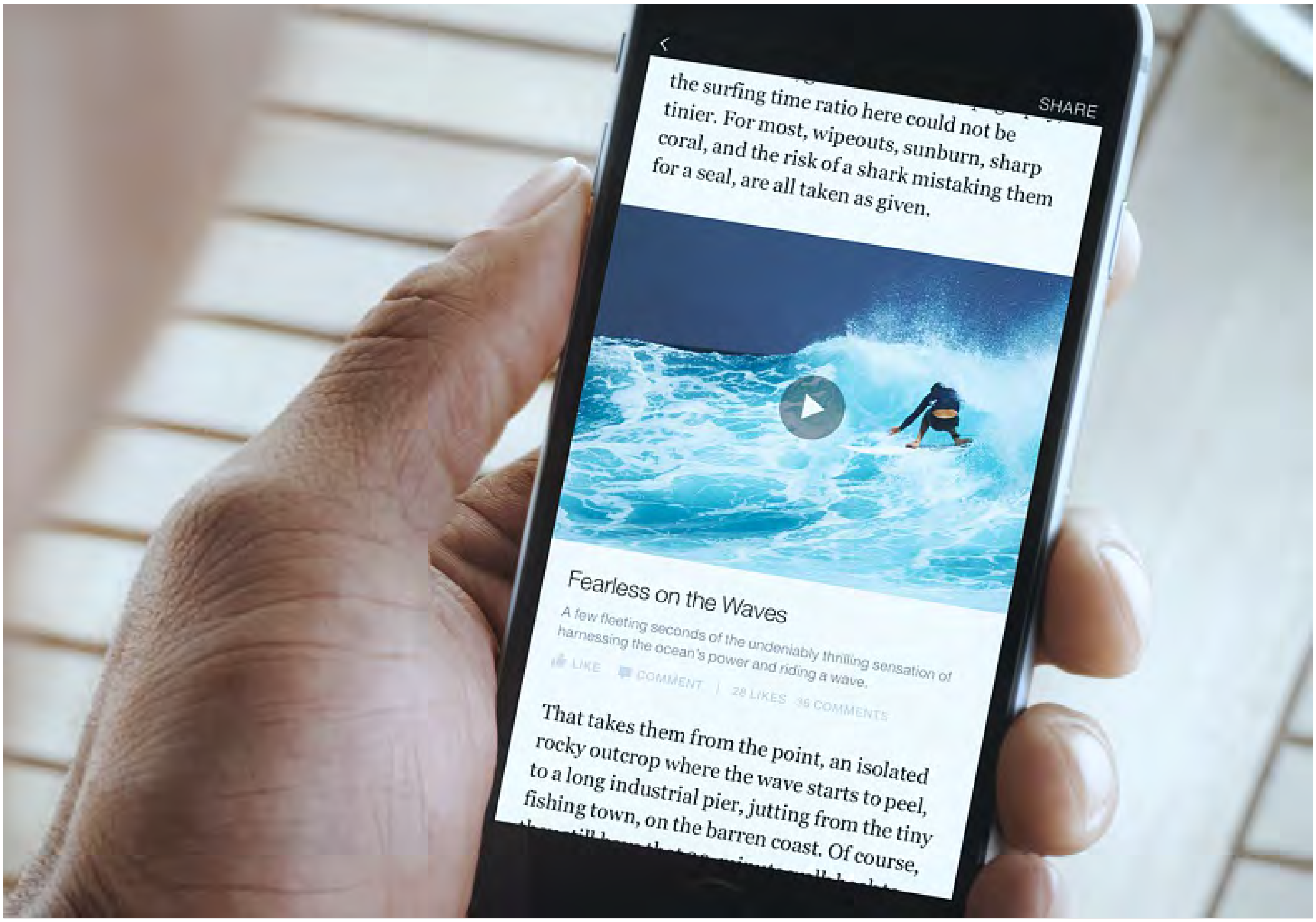
Nasa fires the imagination while a camera app keeps the hand steady

Exploding Kittens
iOS, £1.49; Android, £1.69. In-app purchases
First, an anti-productivity app. This is the virtual iteration of last year's hottest Kickstarter campaign, a card game that beat its modest funding goal of $10,000 within eight minutes, eventually raising $8.7m. The game, which is simple to play but requires fiendish strategising, translates well into an app. Its charm is the design and the writing (you can defuse an exploding kitten card with a catnip sandwich card, for example). You either play against friends or against strangers online – there is no option to challenge the machine, which is annoying. And in-app purchases for expansion decks and new avatars feel opportunistic in a paid app. However, this is a charmer and a lot of fun.

Open Camera
Android, free
I really like this open-source camera app. It offers very granular control over all kinds of settings, from quality to date stamping and geotagging, and offers a couple of neat tricks, including the ability to use your voice or a noise to trigger firing the shutter (you could whistle, or say "cheese", for example).
Of course, no app will improve the quality of images from dodgy hardware or from a talent-deficient user, but this, with helpful features including a choice of framing guides and a tool to make sure you are holding the phone level, should improve your results. Do chuck the developer a few pennies via his donation app, found on the Google Play store, to support its further development.

Nasa
iOS, Apple TV, Android, Kindle Fire, free
I absolutely love this app, which offers plenty of educational content for kids and masses of ways to while away time if, say, you are waiting for a plane. Check the schedule of the International Space Station to see if it will be visible from whichever far-from-home city you are in tonight, learn about the Nasa missions to gather data for climate scientists or just enjoy the stunning range of images and videos shared by the space agency that range from historical shots of early space missions to photos from deep space. This is how science communication and engagement should be done. This app is a delight to lose yourself in.

PHOTO: DAVID FIRN



meant a sudden unexpected cost for businesses that bite the bullet and pay to avoid the grief of moving to another platform.

Pepper wonders how many users of a free service such as Evernote will pay for an upgrade. "Most of us just keep an eye on our usage to make sure we remain within the limits," he says. He points out that there is a downside for the provider of the service. "There's a degree of risk in relying on this kind of customer base to build profits. This is particularly true when you're operating a business model where you're generating less money upfront."

It is frustrating enough when something you rely on changes its terms, but it is even more infuriating when a product is discontinued without warning. Misty-eyed geeks recall the ahead-of-its-time social bookmarking service Delicious, which Yahoo neglected when it bought it in 2005. And Google Reader, an RSS aggregator, was similarly beloved by geeks for its user-friendliness, but was discontinued by Google in 2013.

Deciding to use third-party tools

When it comes to third-party tools, make sure you apply the what-could-possibly-go-wrong test

should be about how your time is best spent, says Adam Sager, the founder and chief executive of Canary, a New York-based company that makes a consumer security camera. Sager says his team uses several third-party services. "We asked ourselves: is there a unique value proposition if we build it ourselves," he says. Canary uses AWS for its back end, says Sager, adding: "Having the best cloud infrastructure is not our value proposition."

Where functions are core to its product, Canary chose to build its own services. The Canary camera learns how your family comes and goes in the house and becomes more responsive and useful as you use it. That, says Sager, is a fundamental part of the product and so the company built its own deep-learning platform. "That's available as a [third-party] service, but they're very generic and their usefulness only goes so far," he says. "We have a unique information set,

Tool kit: media organisations can now post stories straight to Facebook Instant Articles (above). The Canary security camera (below)

so we decided to build that ourselves."

The Canary team also built the camera itself rather than sourcing it from a third-party manufacturer. "That means we have everything from the image drivers to the motion sensor: we wanted the best product on the market and so rather than relying on others, we designed and built it from scratch," Sager adds.

When it comes to third-party tools, make sure you apply the what-could-possibly-go-wrong test. Sager explains how his team was considering using a start-up's analytics product but "found a number of gaps in it". "The product team was pushing for it, so we approached them about the gaps and said 'once you fill those, we will use you'. They did and we're now using the platform," he says.

Failing to ask what could possibly go wrong may well lie at the heart of the problems marketers are having with Facebook. It is a question worth asking yourself when you consider using someone else's tool — even if it is just considering the possibility of the coffee shop wifi going down. I stayed home to write this column after all. B

School's out

PHOTO: ANNA GORDON

We asked masters in management graduates to give their view on what the long-term impact of Brexit will be for business education in Europe? By Wai Kwen Chan

While mobility between countries may become a bit more difficult and bureaucratic in the long term, I don't believe Brexit will affect international education in the short term. A potential impact is on the UK's image. Will students from other countries want to study in the UK?
Recruitment manager

As a former business student in London, I believe that Europeans will keep on choosing London as a destination of choice for their business studies for two reasons: investment banking and Shoreditch [known as Tech City] — UK's answer to Silicon Valley.
Consultant

Switzerland, which is not a member of the EU, still has the best business university for masters in management (according to the FT ranking). Brexit will have neither a negative nor positive impact on business education in Europe. Having a weak pound will also allow students to afford good quality education in the UK.
Procurement manager

The single market was an attractive alternative for students, but I doubt it will remain so once it is fractured. As Europe loses its influence on the global market, the most ambitious students will begin to veer towards North America and Asia.
Anonymous

Business education will follow financial institutions, which will probably move part of their activities to Paris or Frankfurt. This will strengthen the business schools there. British schools will lose a lot from Brexit, especially the ones working with the City.
IT strategy consultant

European business schools may gradually exclude exchange programmes with UK schools or companies due to, potentially, increased paperwork, However, Europe will have an empirical example of the impact of an EU exit on the economy. It will be taught at schools and that may give ideas for tomorrow's leaders.
Finance controller

Could you write the next bestselling business book?

Are you under 35 and have a great idea for a business book? The Financial Times and McKinsey & Company are offering a £15,000 prize to encourage young authors to tackle emerging business themes.

The Bracken Bower Prize will be awarded to the best proposal for a book about the challenges and opportunities of growth.

Winners of the 2014 and 2015 prizes have struck book deals with publishers.

The main theme should be forward-looking and the proposed book should aim to provide a compelling and enjoyable insight into future trends in business, economics, finance or management.

The prize is named after Brendan Bracken, chairman of the FT from 1945 to 1958, and Marvin Bower, managing director of McKinsey from 1950 to 1967. The men were instrumental in laying the foundations for the present-day success of the two institutions, which organise the Business Book of the Year Award.

Proposals should be less than 5,000 words and entrants must be under 35 on November 22 2016. The closing date for entries is 5pm (BST) on September 30 2016. For details, visit: ft.com/brackenbower

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Shikhar Sethi
Unexpected lessons

I wanted to experience student life, relax a bit, but it is nothing like that. I have to push myself

A Bangalore masters has been anything but a quiet life. As told to Janina Conboye

Delhi and Mumbai are two cities that are incredibly different, especially when it comes to culture, food and language. It is in these two cities that I spent my formative years after living in Madhya Pradesh and Nagpur in Maharashtra.

I attended six different schools and have seen the struggles of life in the smaller towns and in a metropolis. This exposure to such a variety of cultures has made me quick to adapt to changing environments and has certainly influenced the way I see opportunities.

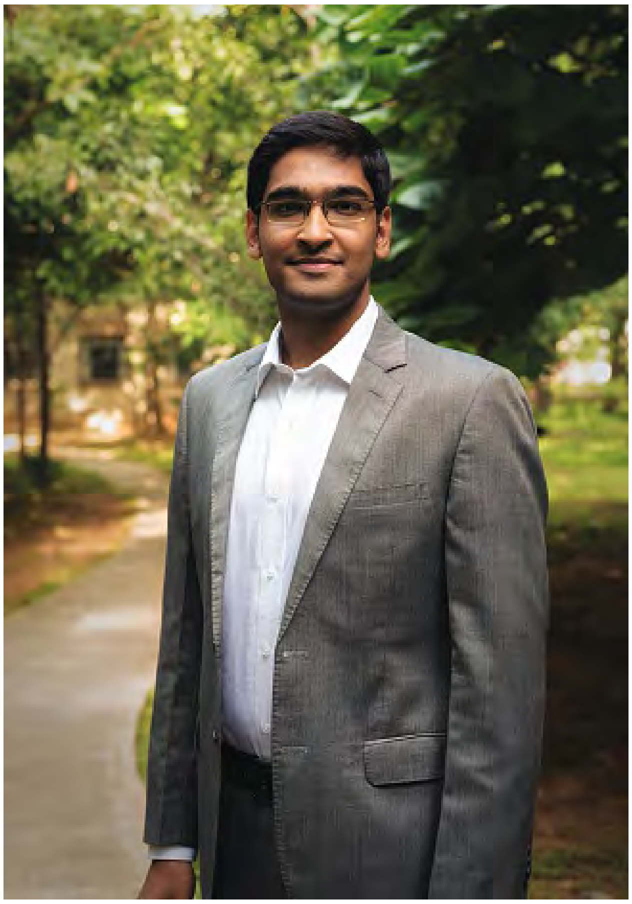
Now in Bangalore — known as India's Silicon Valley and notorious for its bustling streets — I will soon start my second year of a masters in management course at the city's Indian Institute of Management, having completed a 10-week internship at the Mumbai office of private equity firm Blackstone Group.

While on my placement, I was pleasantly surprised that even as an intern I was involved in all the activities a typical analyst would be expected to do. My first year of the masters prepared me well for this.

First, the course taught me how to prioritise and manage effectively my time as I had to juggle several assignments and practical activities outside the classroom.

Second, as part of my programme I pursued advanced courses in finance to help me make the best use of the internship. I also took part in the Asia private equity investment leveraged buyout case challenge. A competition in which my team of four won first prize. So, my experience at Blackstone helped me put into practice all the things I had learnt in the classroom and during the competition.

My internship also taught me something else that is very important: enjoy your work, have fun with people and everything else will fall in place. It took me time to realise this during my internship, but it has been the most valuable lesson for me.



Shikhar Sethi studied engineering at the Indian Institute of Technology Bombay from 2009 to 2013. He then worked on, and headed, client projects at Indus Insights, an analytical project consultancy in finance and e-commerce, before deciding to pursue a masters in management course at the Indian Institute of Management Bangalore.

I initially trained and worked as an engineer, but decided to pursue a masters in management because I wanted to diversify and give myself a wider range of career options. I needed to develop my soft skills and communicate better with people. There is real market demand for people who have both technical knowledge and management skills.

One of the best elements of the course is its flexibility. In the first year we choose our elective courses and then decide if we want to specialise in them. Another plus point is the international exchange programme that allows us to work abroad.

The theory is well balanced with practical case studies and there are plenty of chances to get involved in competitions, such as the Asia private equity challenge that we won, which means we get to network with lots of different people and work on practical subjects such as public policy and business strategy.

On the flipside, I did not anticipate the level of dedication that a masters in management would require. I wanted to experience some student life, take a break from work and relax a bit. But it is nothing like that. I have had to push myself and in retrospect it has really prepared me for the corporate world.

Another downside is that competition among students is extreme. Everyone wants to be the best, which does help a lot of students succeed. But collaboration is important, so it can be difficult to get the balance right, particularly in group projects where you really need to work together, not compete against one another.

A career in finance seems to be the most exciting prospect at the moment, so I hope to pursue this path after graduation — I would not want to be a Wall Street trader, though. In the long term I would like to be in a senior management position.

With a couple of years of engineering experience and a year into graduate management studies, I find myself worrying about time constraints. I have learnt a lot about myself and make sure not to take on too much, but I do worry about meeting expectations.

I also have a fear of life stagnating. So far there have been constant changes that have kept the spark alive, but I worry that as life continues it will become a bigger wardrobe but with a limited variety of clothes to try on.

Yet I am very positive about the future, for India in particular. The coming few decades are a great time for me to join the workforce here and I hope to play a part in India's growth story. B

PHOTO: AYUSH RANKA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