

ANNUAL REPORT

2014/2015



SAINSBURY MANAGEMENT FELLOWS



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REVIEW OF THE YEAR

We are pleased to report that by the end of the year, our matched donations have exceeded the £1million mark.



David Falzani, President

I am pleased to report that the Sainsbury Management Fellows have made significant progress towards our charitable objects this past year and in so doing we have achieved the engagement of more Fellows than ever before.

PRESIDENT'S REVIEW OF 2014/2015

Key to the momentum which we have maintained is our fundraising campaign. Last year we developed a plan to raise an initial capital target of £5 million. The objective of the fundraising activity is to build an endowment fund which will enable the SMF Scholarships to be self-funded, and to therefore allow the scheme to continue indefinitely.

Initially the campaign is being aimed at Fellows, and a number of SMFs have already generously supported us. The Fundraising Committee chaired by SMF Simon Bonini and aided by Vice Chairman and former SMF President Mike Gansser-Potts has worked very hard indeed and I would like to acknowledge their efforts by thanking: Imoni Akpofure, Alpesh Amin, Paul Dolan, Laurence Knight, Adam Locke, James Raby, Richard Smith and Mark Spence. I am also a member of the Fundraising Committee, and I know from personal experience it is not always easy to approach colleagues to discuss potential donations. Our initial activities have focused on simply contacting Fellows and asking whether we can highlight our objectives and offer explanations of the various mechanisms involved. There are many ways to make a contribution, whether large or small, through a one-off donation, planned giving over time, or by leaving a legacy gift. We are grateful to Lord Sainsbury and the Gatsby Charitable Foundation who have agreed to match all cash donations for the next five years.

FUNDRAISING REACHES THE £1 MILLION MILESTONE

We are pleased to report that by the end of the year, our matched donations have exceeded the £1 million mark. This is the first step on the road to self-sufficiency. We anticipate that the current level of scholarships will be sustainable at today's costs when the fund reaches a minimum of £10 million. There will be a two-way taper on funds for scholarships as income from this fund ramps up and as the Gatsby funding winds down. We are very grateful to the SMFs who have supported us; a full list of donors can be found on page 18.



The Annual Dinner May 2014

INVOLVING MORE FELLOWS IN ACTIVITIES

An added benefit in reaching out to many SMFs through fundraising efforts is that we have rekindled a great deal of goodwill and support for networking activities.

USA Fundraising committee member Laurence Knight, based on the East Coast, aided by Alpesh Amin on the West Coast have actively sought to strengthen ties in North America where we have 33 SMFs in USA and five in Canada. There is a great deal of interest amongst this group about how they can support the wider SMF network. In September Laurence kicked off this initiative by arranging and hosting a New York networking event at Grand Central Station. This was attended by Evaristus Mainsah, Gavin McMahon, David Crosbie and Cathy Breeze, who was on holiday in New York at the time. Laurence has met up with several SMFs, and along with Evaristus Mainsah and Gavin McMahon, will continue with the outreach in the US and Canada. If any SMFs located outside North America plan to travel there, you will find SMFs in New York, San Francisco, Central US and Vancouver, Canada who would love to meet up!

The *Annual Dinner* in May continues to be the networking highlight of the year, with over 150 Fellows and invited guests. We were pleased to hear that our Patron, Lord Sainsbury, feels that we as a group are moving in the right direction. In his address to Fellows and guests he said: "It gives me great pleasure to see the way the Sainsbury Management Fellows are contributing to the economy and society, and I hope that you in turn are proud of what you are achieving".

This autumn's *Welcome New Members'* dinner featured a discussion on Bitcoin involving experts from banking and other stakeholder groups, which highlighted the benefit of engineering disciplines being applied to finance. The debate explored whether Bitcoin is a serious challenger to commodity currency. The event was chaired by SMF Michael Hill, Vice Chairman at Barclays Bank PLC and expert guests included Adam Cleary, Director of the UK Digital Currency Association and Founder of Bullion Bitcoin Limited, David Bevan, Non-executive Director of Oxford Policy Management and Tom Robinson, CEO of Elliptic. Our thanks go to Michael Hill for chairing the Bitcoin Debate and SMF Henning von Spreckelsen, CEO of Shere Investment for participating on the panel. For more information on what transpired at this event, see pages 21-37.

The calendar year ended with the *SMF Christmas Curry*. Our annual informal networking Christmas dinner at Millbank Spice Restaurant was attended by SMFs from all year groups and was, as always, a great start to the festive season.

PROMOTING CONTINUING BUSINESS EDUCATION AND DEVELOPMENT

SMF continues to help and guide young engineers in their careers and to support industry activities. We are frequently approached by students and young engineers to provide mentoring assistance, which we are pleased to provide. Our *Engineering New Horizons* book which showcases the careers of 25 SMFs continues to be requested by individuals, schools, universities and engineering institutions. For more information about this publication, please see page 20.

Our partnership with the Royal Academy of Engineering flourishes. In addition to mentoring *Engineering Leadership Award Winners*, SMF participated in the following events:

- RAEng Engineering Leadership Advanced Awards Selection Events in April 2014 and March 2015 – SMFs Mike Astell, Adam Bazire, Chris Berridge, John Callaghan, Sam Cockerill, Andrew Jones, Nick Laird, Andy Layton, Ian Peerless, James Raby, Mark Spence and I supported this event. We wish to thank all of these SMFs who helped to select 70 ELAs.
- The Enterprise Hub was created to help bring about a step change in the success of UK-based, entrepreneurial technology businesses and the contribution they make to economic growth. Some of the UK's most successful entrepreneurs and business leaders are helping to identify and support the most promising and innovative entrepreneurs. Several SMFs attended the Annual Showcase of the Enterprise Hub in May and the Launchpad Competition Final in September with guest of honour, the Duke of York. The competition was aimed at budding young technology entrepreneurs in the UK between the ages of 16-25.
- Mike Astell, Adam Bazire, Sam Cockerill, Ed Snow, James Raby and I led seminars and discussions at the RAEng ELAA Weekend in Birmingham in October. James Raby's business game proved to be a great hit with the participants and the SMF-led sessions left participants wanting more!
- Our sincere thanks must go to James Raby, who has been the key organiser for all RAEng educational courses involving SMFs. James masterminded the RAEng Executive Engineers' Programme in Birmingham in September with the help of Robert Rasbach and participated in all other RAEng activities throughout the year.

PROMOTING CONTINUING BUSINESS EDUCATION AND DEVELOPMENT (continued)

EIBF sponsored a new competition as part of the Entrepreneurship and Business module for students at Nottingham University Business School (NUBS). The NUBS/ EIBF competition challenged engineering students to create a novel product concept that meets a real need in society and participants also had to demonstrate use of engineering skills in the creative process. This was well received and we will repeat the competition at NUBS this coming year and hopefully spin out this competition to other universities. To read more about the competition and the winners, see page 19.

This year a total of 11 SMF Awards were made and I would like to thank Paul Dolan, Henning von Spreckelsen, Mike Astell and Nick Laird for helping out with the interviews in September and March. To find out about our exceptional new SMFs awardees currently at business school, please see page 10.

We are pleased to acknowledge the efforts of the many individual SMFs who are making their own contribution to promoting business education and development. SMF Michael Hughes, co-CEO of LoopUp launched the *Silicon Valley Internship Programme (SVIP)*, an initiative to inspire entrepreneurialism in the UK in 2013. The SVIP aims to give new UK software engineering graduates the unique experience of working at a Silicon Valley start-up through a one-year internship, in the hopes that this experience will bring a little of the Silicon Valley attitude back to the entrepreneurial community in the UK. Over 30 young people have been through the programme and Mike and his team are now selecting the third cohort. SVIP has been augmented by a modest funding vehicle that can help the SVIPs take their ideas, generated in monthly “hackathons”, into proto companies.

It is with great pleasure that we congratulate SMF Anne Richards, Chief Investment Officer at Aberdeen Asset Management, who was named CBE in the New Year Honours List. This is in recognition of her outstanding work in the financial services sector as well as her voluntary work. Anne created *Backroom to Boardroom* in 2011. This is a series of events aimed at highlighting the benefits of more diversified boards and encouraging more women to put themselves forward for key senior roles. The events are cross-sectoral, including women from the financial, corporate, public and not for profit world, and explore different themes: women in the media, women in sport; Anne is particularly passionate about women in STEM (Science, Technology, Engineering and Mathematics).

SMF HARD HAT INDEX

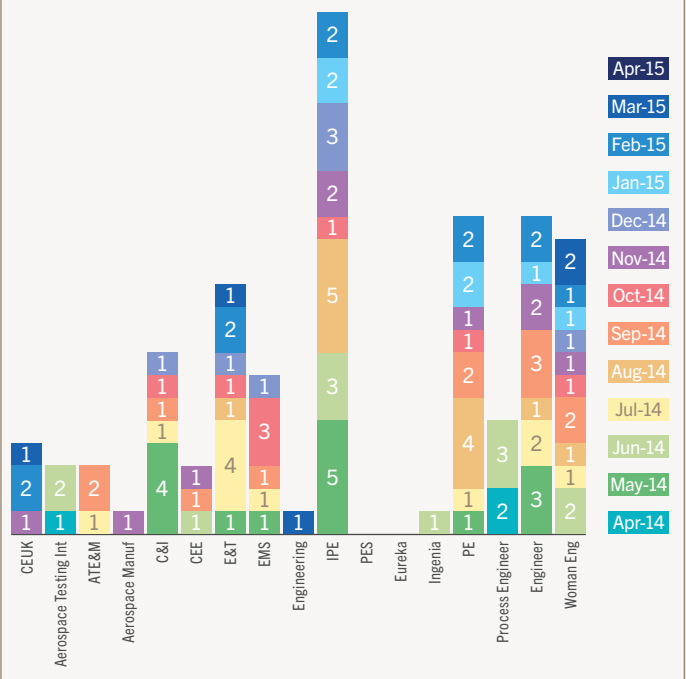
Over the last twelve months, we have seen an increasing number of articles on the importance of changing the image of engineering to attract recruits into the profession. We would like to think that the SMF Hard Hat Index, launched back in 2013, has played a part in bringing the debate to public attention.

The Hard Hat Index is a whimsical study, akin to the Economist’s Big Max Index, however, it conveys a serious message about the almost universal use of unappealing images in engineering articles, advertising and company marketing – images which our YouGov research and focus group discussions with engineering graduates tell us are lacking in any prestige and do not communicate the values of engineering.

SMF has been monitoring the use of hard hats in selected media since 2012, initially analysing national and trade publications, but more recently has concentrated on engineering magazines because we believe that change must start within the engineering community.

The **2014-2015 Hard Hat Index** (11 months issues analysed thus far) recorded a total of 178 hard hats depicting engineering roles in advertising and articles in the targeted magazines. This compares with last year’s total of 185 such images in the same publications. This represents nearly 4% drop in the total number of hard hat images published in the targeted titles.

SMF Hard Hat Index: Trade Media Monitoring – Editorial May 2014 to March 2015 105 Hard Hat Articles

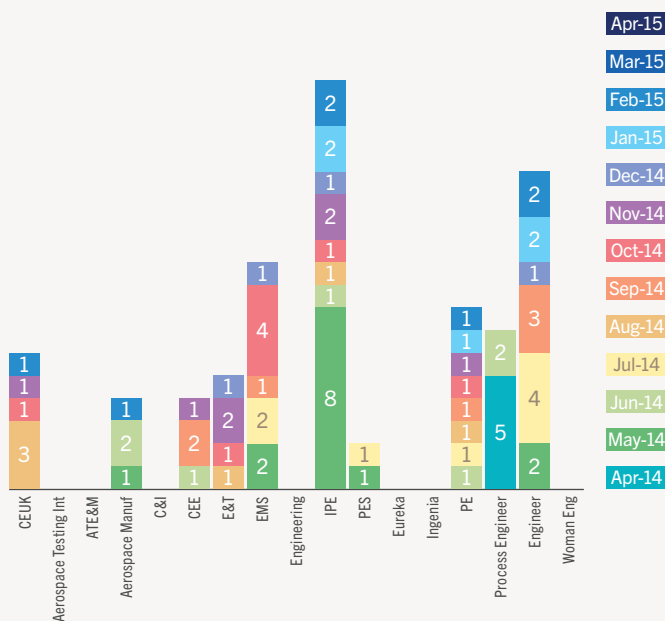


There is a marked difference between the advertising and editorial results in this year's report. The results to date show that companies and institutions have reduced the number of hard hats featured in advertising by a staggering 38%. Seventy-three advertisements featured hard hats compared to 118 in last year's Hard Hat Index. With only one month of analysis outstanding, this may be a promising indicator that the message about changing the image projected of engineers is getting through.

However, before we celebrate, we need to look at what is happening on the editorial front, where the decision on what images are used to represent engineers is in the hands of editors. Last year's targeted titles published 67 articles illustrated with engineers wearing/with hard hats. In this year's Hard Hat Index, the figure has leapt up 36% to 105 articles.

On the one hand, it appears that employers and engineering institutions are changing behaviour, but on the other hand change is not happening on the editorial side. SMF created the Hard Hat Index to demonstrate how pervasive of use of hard hat images are in influential media, to raise consciousness of the issue and try to stimulate change. The hard hat has become symbolic of engineers yet it projects a limited scope of engineering professions. This has far-reaching effects on employers' ability to inspire, recruit and retain engineering graduates because many do not relate to hard hat jobs. It is for this reason that SMF will continue to publish the Hard Hat Index and use it to raise awareness of the importance of changing the brand image of engineers.

SMF Hard Hat Index:
Trade Media Monitoring – Editorial
May 2014 to March 2015
73 Hard Hat Adverts



THE FUTURE OF SMF

We hope to increase the power of our network by engaging more SMFs in our activities. In the UK, we are planning a full programme of activities which will comprise, in addition to our *Annual Dinner*, a series of talks with expert speakers who will be of interest to SMFs and guests in all business sectors. Our next event will be in London on 24 June, and will feature an expert panel who will debate "How to Design a Tax System for the Future?". This event will be also be filmed so that it can be shared with the worldwide SMF network. In North America, a number of networking events are being planned as well. We will be revamping our website to make it more accessible and will be encouraging all of our members to join our LinkedIn group, Engineers in Business.

The Fundraising Committee will be reaching out to all SMFs. We are working to develop a "culture of giving" amongst SMFs. We have also established a means of enabling tax-efficient giving for US and Canadian tax payers and we will be setting up a similar facility for European tax payers outside the UK. The groundwork for this culture is now set out at SMF interviews where the policy of committing to the SMF Pledge has been introduced.

This coming year, we will also begin drafting our materials and plans to expand our fundraising campaign to external sources. This will be led by Nick Laird and we welcome additional support from other SMFs for this task or for our fundraising in general. We are looking for another SMF to join our Fundraising Investment Subcommittee which will be also assisted by Mr Nigel Thomas, the most recent Trustee to join the EIBF Board. Nigel is Executive Director, Education & Skills of the Gatsby Charitable Foundation; his addition to our Board will further strengthen our ties with Gatsby and potential external sources of funding.

We will continue to help and guide young engineers in their careers and to support industry activities. You may have noticed in our review of activities that several names keep re-appearing. We would welcome assistance from perhaps those SMFs who have never previously participated in a RAEng event or an SMF interview panel. It is always interesting and inspirational to meet the next generation of engineers in business.

We appreciate the work of our Trustees, and also the Fundraising Committee ably led by Simon Bonini. Simon relocated to Houston this past year but has continued to chair our fundraising efforts with enthusiasm and skill. Our thanks also go to Secretary Julian Morley who has recently stepped down from our Board of Trustees.

Finally, I would like to thank our Patron, Lord Sainsbury, for his continued support and encouragement, the Gatsby Trustees for their guidance and the Royal Academy of Engineering for its goodwill and hospitality.



Paul Dolan, Secretary

THE BUSINESS OF THE FELLOWSHIP

Engineers in Business Fellowship, Registered Charity Number 1147203, Company Registration Number 07807250 was formed from the unincorporated association of The Sainsbury Management Fellows' Society and continues to operate under that trading name.

MISSION

To promote and demonstrate the value of a combined business and engineering education to improve the performance of the UK economy

CHARITABLE OBJECTS

To advance education and training for the public benefit, in particular but not exclusively by:

- (a) promoting continuing business education for those in the engineering profession to develop their skills in innovation, better management and governance;
- (b) creating and operating a charitable fund for the support of their continuing education; and by
- (c) developing a network of engineers who are, or who have been, engaged in such education in order to identify and illustrate its merits for the public benefit.

Engineers in Business Fellowship is guided by the vision formulated by its patron, Lord Sainsbury of Turville, of a high calibre cadre of engineers with an international business education who occupy leadership positions in British industrial companies and who serve as examples to engineering students and young engineers.





MEMBERSHIP

Members of Engineers in Business Fellowship have each received a Sainsbury Management Fellowship Award, which helps them study for an MBA at a leading international business school. The awards began in 1987 and are administered by the Royal Academy of Engineering and are funded by the Gatsby Charitable Foundation.

BUSINESS PLAN

The Fellowship's mission and activities are collated in the business plan. This includes a fundraising campaign which began in FY2014.

TRUSTEES

The Fellowship is governed by the Board of Trustees which meets bi-monthly:

President

David Falzani BEng MTech MBA CEng FIMechE

Secretary

Eurling Paul Dolan BEng BSc MEng MBA CEng FICChemE Fiom3

Treasurer

James Raby MEng MBA CEng MIET

Julian Morley BA MBA CEng MIET, resigned in March 2015
 Henning von Spreckelsen MEng MBA CEng MIEE
 Nigel Thomas BSc MIOd, appointed March 2015

Director of Communications

Cathleen Breeze BA MBA

Officers and members receive no financial remuneration from the Society.

DISCLOSURE OF DIRECTORSHIPS

Several members of the Executive Committee and Board of Trustees hold directorships of British and foreign corporations, a list of which is available from the Director of Communications. None of the directorships are with companies which do business with EIBF.

STEERING COMMITTEE

The Fellowship liaises with the Royal Academy of Engineering via a Steering Committee which comprises Chris Earnshaw OBE FEng CEng FIET FRSA BSc, Ian Forristal and Jacqueline Clay (RAEng), SMFs Mike Astell, David Falzani, James Raby and Cathy Breeze. Strategy and management of the award scheme and links with other RAEng programmes and the activities of Engineers in Business Fellowship are reviewed on a regular basis.

SOURCES OF INCOME

Although funded to some extent by subscriptions from its members, the Fellowship has received the vast majority of its funding from The Gatsby Charitable Foundation. Gifts from members which have been received this year as part of the fundraising campaign are in a restricted funds account for Sainsbury Management Fellowship Awards.

The Society received no grants or awards from public bodies during the year.

Paul Dolan
Secretary

OUR PEOPLE

SMF AWARD WINNERS

Nicholas Allan

MEng CEng MIMechE

Nicholas is currently attending IMD. He graduated from the University of Durham in 2007 and until starting his MBA in January this year worked at Alstom in Baden, Switzerland.

At Alstom, Nick worked in the development of steam turbines for power plants, starting out as a design engineer, then working as a technical project manager and latterly as the product manager for steam turbines. He also spent time at Alstom's HQ in Paris working on nuclear units. Outside of work Nick is an avid rower and prior to his MBA could be found in the Masters' VIII of Baden Rowing Club. Nick was born in Edinburgh and has been involved in the Royal Academy of Engineering since secondary school, where he had an Arkwright Scholarship, then took part in the Smallpeice Trust's Engineering Careers Foundation Year and most recently on the Academy's Executive Engineers' Programme.



Andrew Buckley

BEng (Hons)

Andrew joined the LBS MBA class of 2016 in August 2014. He has almost seven years of infrastructure planning and project management experience in Australia, and with dual British/Australian citizenship has relocated to London for his MBA and future career. Following graduation from the University of Sydney with a BEng (Hons) in Civil Engineering, majoring in Construction Management, Andrew worked with Australia's leading contractors on major transport infrastructure projects, before joining esteemed infrastructure advisory firm Evans & Peck (now Advisian). Through these roles Andrew has made contributions to many of Sydney's most highly recognised and influential infrastructure initiatives of the past decade. In parallel to his MBA, Andrew is providing management consulting services to construction industry recruiter Carmichael UK, and serves as VP (Events) within the LBS Infrastructure and Construction Society. Andrew is married with a two-year-old son, and lives in North London.



Jorgina Busquets

MEng MSc

Jorgina joined London Business School to pursue an MBA in 2014 because she wanted to expand her horizons. Prior to that, she worked for Airbus Defence and Space (Stevenage) as a Satellite Platform Project Manager.

Responsible for budgets of millions of pounds and a team of 150 people, she managed the end-to-end-process, from design to delivery, going through in-house manufacturing and procurement. Before establishing roots in the UK, she started her university education in Spain, where she did Aerospace Engineering. She spent three months at NASA Ames in Silicon Valley looking for space solutions to global problems and then went to Cranfield University, where she did an MSc in Astronautics and Space Engineering. Shortly after she joined Astrium in the UK where she worked as a mission systems engineer, serving customers like the European Space Agency. Basketball and writing are some of her other passions, although she says her true driver is people.

Kwok-Gam Ng

MEng CEng MIMechE

Kwok is currently at LBS as an MBA 2016 candidate and is the president of events for the infrastructure and construction society and president of marketing for the China Club.

Most recently Kwok worked for Bechtel, a world leading Engineering, Procurement and Construction Company. At Bechtel, he worked on several international mega-projects including Crossrail, Waad Al Shamal industrial city and Gatwick Airport, providing project management services, operational execution and consultancy advisory.

Senior management credit Kwok with an aptitude for corporate strategy and business development. Kwok graduated from the University of Bristol with an MEng (Hons) in Mechanical Engineering.



Chris Mannion

BEng MSc CEng MIET

Chris is a first year MBA candidate at MIT Sloan School of Management in Cambridge, USA. Prior to business school, he was an air engineer officer in the Royal Navy for seven years, completing tours of duty in the Middle East and throughout Europe on 820 Naval Air Squadron.

His final appointment was as a military adviser in the Defence Science and Technology Laboratory, where he developed future requirements in naval aviation and weapons research. Chris is hoping to transition into the high technology industry after graduation in 2016, with a particular interest in entrepreneurship, and will be interning with Amazon this summer. Chris graduated from the University of Liverpool with a BEng(Hons) in Aerospace Engineering before joining the Navy where he also earned a MSc in Guided Weapons Systems at Cranfield University. Chris is co-president of the Sloan Veteran's Club and the Hockey Club.



Philip Price

MEng

Phil is currently completing the first year of his MBA at LBS. Phil graduated from Imperial College London with a MEng in Civil Engineering in 2006.

From university he joined Alan Baxter & Associates, a leading structural engineering consultancy where he worked on a variety of projects. After 18 months at ABA Phil left to attend the Royal Military Academy Sandhurst, and was commissioned into the Royal Electrical & Mechanical Engineers in 2009. He served on exercises in Kenya and Cyprus and trained soldiers for deployment to theatre. Upon resigning his commission in 2012 Phil joined Price & Myers, an award winning structural engineering consultancy. There Phil worked on the structural design of major projects in Central London, including a £120m office building and a £12m school constructed from timber. After leaving P&M he joined Buro Happold Consulting Engineers, working on the structural design for the £800m redevelopment of Battersea Power Station. At LBS, Phil has been involved in the Real Estate and Private Equity Club committees. In his spare time he runs and has taken part in marathons and ultra-marathons. Phil grew up near Reading and in The Hague, Netherlands and now lives in West London with his wife, Tess and newborn son, Orson.

Nikhil Sachdeva

MEng AMRAeS

Nikhil started his MBA at Harvard Business School in August 2014. Prior to this he worked as a Team Leader on Trent 700 Naceless In-Service Modifications at Rolls-Royce in Berlin, and in Services and Innovation Strategy in Derby, Bristol and Boston (USA).

Nikhil also worked for Williams Formula One in aerodynamic design over the 2009-2010 F1 season. Nikhil graduated from Imperial College London with an MEng (First Class Hons) in Aeronautics with a specialism in aircraft design and propulsion. Following his passion for rural and education development, he also started the Uday Rural Education Program, an NGO supporting infrastructure projects in India.

Nikhil is a British Citizen and was born in New Delhi, India. He has lived and worked in the UK, India, Singapore, Germany and the USA.



Hersh Shah

MEng (Oxon) CF

Hersh commenced his MBA programme at IMD, Switzerland in January 2015. Prior to starting his MBA, he had eight years' experience in corporate development strategy, executing mergers and acquisitions and working with C-level executives across the aerospace, defence and industrial sectors. Recently he has advised Onex on the \$680m buyout of the world's leading liferaft manufacturer, BAE Systems on a \$233m cybersecurity acquisition in North America and the aborted \$48bn merger with EADS (Airbus), a European airline on its financial options and GKN on the \$1bn acquisition of Volvo Aerospace. Hersh graduated from St John's College, Oxford University with a MEng (Hons) degree in Engineering, Economics and Management and is a qualified corporate finance professional. In his spare time, Hersh gets involved with early-stage businesses, plays and watches cricket, football and golf and enjoys playing the piano. Hersh was born in Mumbai and grew up in North West London and Chelmsford, Essex.



Farid Singh

BEng MSc (Eng)

Farid is currently pursuing his MBA at INSEAD, and will graduate in July 2015. He has worked in Product Management, Business Development and Innovative Technology for the last seven years, developing wireless technology and integrated solutions for niche closed user groups.

He is interested in the creativity process of Insighting, Ideating and Iterating, to drive Innovation in an organisation. Farid has also co-founded a start-up 'Find A Deal' in the crowd sourced retail space and is looking to expand this into different territories. He was the President of the Rotarct Club of Caversham and Reading for two years. He did his MSc (Eng) in Wireless Communication from the University of Leeds from where he moved into the Knowledge Transfer Partnership fast track leadership program. He wants to stay in the technology space and make an impact on business and community going forward.

Charles Sudborough

MEng BSc CEng MIET RAF (Rtd)

Charles Sudborough is currently reading for an MBA at London Business School. Prior to this he was an Engineer Officer in the Royal Air Force.

During his Service Charlie led the deployment, procurement and exploitation of various military technology systems across Europe, the Middle East and the Falkland Islands. He graduated from the University of Bristol with an integrated MEng (Hons) in Aeronautical Engineering. Following this, he achieved a BSc (Hons) in Engineering Management at the University of Lincoln.

Charlie is a keen squash player and mentors students both as a UK STEMNet and Arkwright Ambassador. He was born in Boston, Lincolnshire and now lives in North London.



Mengyi Wu

MEng CEng MICE

Mengyi is currently pursuing her MBA studies at INSEAD in Singapore. Prior to INSEAD, she was a Senior Engineer with engineering consultancy firm Arup and worked in both the London and Hong Kong offices.

During this time, Mengyi delivered technical design and project management expertise to a wide range of mega infrastructure projects including London Olympics, Crossrail and Hong Kong Mass Transit Railway. Mengyi graduated with a First Class Honours degree in Civil Engineering from Imperial College London, where she was selected from 11 top universities to win the Cadzow Smith Engineering award for her outstanding initiative and leadership potential.

Mengyi is also passionate about social impact works and has supported charities in Cambodia to design and build schools.

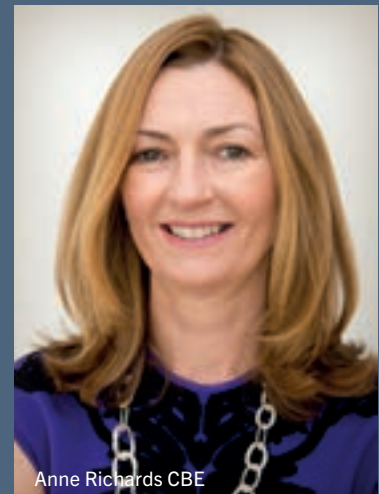
MEMBERS MAKING THE HEADLINES

Many of our Fellows have prospered in 2014/15 and here are a few of their stories which hit the headlines:

Anne Richards, Chief Investment Officer at Aberdeen Asset Management, was made a CBE in the New Year Honours List. This is in recognition of Anne’s outstanding work in the financial services sector as well as her voluntary work.

Anne was named one of the Financial News 100 Women in Finance in 2012, was Funds Europe Awards’ European Chief Investment Officer also in 2012 and is a member of the Board of Leaders of 2020 Women on Boards. She also holds a number of non-executive positions, including the insurance company esure, the University of Edinburgh and the CERN & Society Foundation.

Anne credits SMF as the key enabler to her journey from backroom to boardroom saying “I could not have made the transition to managing portfolios and global asset allocation without taking an MBA, which gave me the necessary management tools. The Sainsbury Management Fellows’ scheme facilitated that critical step up and gave me the confidence to lead.”



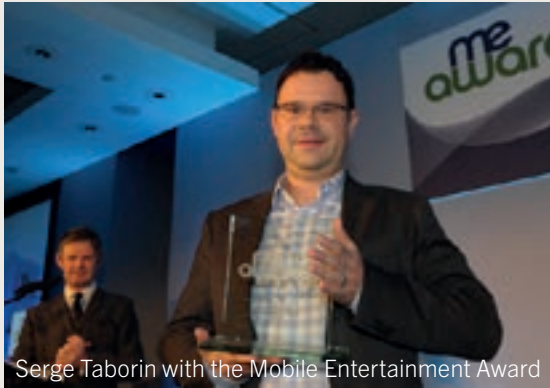
Anne Richards CBE



Sam Cockerill with the Cleantech Innovate Award

Sam Cockerill’s Libertine FPE won the €20,000 Climate-KIC cash prize at this year’s Cleantech Innovate in February, after pitching its free piston technology that increases efficiency for engines and small power generators.

Libertine FPE was also selected for the Clean & Cool Mission to San Francisco to connect with prospective investors, partners and customers. The week-long Clean and Cool Mission was organised by Innovate UK, The Long Run Venture, UK Trade and Investment (UKTI) and CoSpA (the Co-Sponsorship Agency). Past missions have proven extremely beneficial for the companies involved, with over half a billion pounds of investment flowing into the firms since they returned to the UK.



Serge Taborin with the Mobile Entertainment Award

Serge Taborin's Q App won the coveted title *Best Payment Service* at the annual Mobile Entertainment Awards in November.

One of the industry's biggest and most prestigious events, ME Awards celebrates achievements across the mobile industry and selects the leading companies across several categories. Q App was also named as one of UK's 50 most disruptive businesses in March.

Mecca Bingo, one of the UK's leading bingo operators has selected Q App, the UK's leading mobile ordering platform to trial mobile ordering and payments. The service is currently being tested at two large Mecca sites and has already driven in excess of 10% more orders. Hot on the heels of this major trial, Q App has also signed up Liverpool Football Club. This is in addition to a string of other high profile venues signing up for Q App, including Royal Albert Hall, Ministry of Sound and the Southbank Centre.



Chris Shelley (far right) explains Dymag technology to Deputy Prime Minister Nick Clegg (centre)

Chris Shelley, CEO of Dymag Performance Racing Wheels, hosted a visit by the Deputy Prime Minister Nick Clegg and local MP Duncan Hames in April 2015.

The Wiltshire based specialist wheel manufacturer is set to become the first British company to mass produce carbon composite car and motorcycle wheels for leading automotive brands after winning government funding of more than £7 million.

Dymag Performance Racing Wheels, which has an 18 year history of innovating in the carbon fibre and carbon composite racing wheel and luxury wheel aftermarket, has been awarded funding from The Advanced Manufacturing Supply Chain Initiative (AMSCI). The government investment announced by Business Secretary Vince Cable will enable Dymag to rapidly accelerate its product development programme and significantly reduce manufacturing process cycle times, enabling cost effective, high volume production of carbon composite wheels for the first time.



Free Green Energy's solar PV array installation in Cowley, Oxford.

Gordon Wylie's company Free Green Energy completed the largest roof-mounted solar PV array installation in Southern England in July.



The PV system is fully commissioned and has a generating capacity over 3 MW comprising 11,650 solar panels which are supported on the unused flat roof areas of the new bodyshop at BMW Group's MINI manufacturing plant in Cowley, Oxford.

The solar arrays were installed without the need for any roof-penetrating attachments on an innovative, lightweight, aerodynamic support framework and cover an area equivalent to approximately five football pitches (over 20,000 square metres). The installation will generate approximately 2,800,000 kWh per year of electricity. The solar PV electricity will enable BMW Group UK to reduce its carbon footprint by approximately 1,500 tonnes of CO₂ per year.

MEMBERS HIGHLIGHTS

2014

Nikhil Amin (INSEAD) is now working as Pathways Operations Manager for Amazon UK.

Max Fieguth (INSEAD) has been working as an Associate in the Capital Productivity practice for McKinsey & Company.

Adam Fudakowski (INSEAD) is now Technical Director at Finsen Technology, a small medical device company based in London.

Ali Korotana (LBS) has been working as an Associate with McKinsey & Company.

Russ MacMillan (INSEAD) is now Future Submarines – Supply Chain Deputy at the UK Ministry of Defence.

Michael Smales (LBS) is now an Associate at McKinsey & Company in London.

2013

Rafael Cepeda Lopez (RSM) has been working as Senior Manager at InterDigital.

Penny Cox (INSEAD) is Vice President, Commercial for Redmart based in Singapore.

Fang Fang (LBS) is now a Senior Gas and Energy Consultant for Shell based in the Netherlands.

Phillip Gales (Harvard) is now working in New York as CEO of SciPre Analytics.

Mahipal Ganeshmal (IMD) has been working as Finance Manager – EU Supply Chain for Amazon EU Sarl and lives in Luxembourg.

Ross Gordon (RSM) is now Business Director for High Voltage Water based in The Netherlands.

James Harding (LBS) has been working as Project Manager at Talisman Sinopec Energy UK Limited.

Thomas Koskella (Harvard) has been working as a consultant at McKinsey & Company.

Julia Nammuni (LBS) is now a consultant at The Boston Consulting Group in London.

Robin Northcott (LBS) has been working in Germany as Portfolio Manager for PIMCO.

Igor Marquis (HEC) is now an Associate at McKinsey & Company in Spain.

Oritsedere Ogbe (LBS) is now Senior Consultant – Corporate Strategy and Portfolio at Shell based in London.

Edward Sclater (Kellogg) has most recently been named Co-Founder, VP Design and Operations for Naked Labs based in California.

Avijit Singh (LBS) is now a consultant at The Boston Consulting Group in London.

Nikolaos Socratous (Columbia) is now working as Product Operations Manager at Google in New York

Ozan Yalniz (MIT) is based in New York and is working as a consultant for Bain & Company.

2012

Thomas Brinded (INSEAD) is now Engagement Manager at McKinsey & Company based in Australia.

Simon Fowles (Tuck) is now Head of Strategy, Group Customer Experience at BT.

David Parkin (MIT) joined National Grid in July 2014 as Network Strategy Director, Gas Distribution.

Gil Rabbie (LBS) is now Senior Manager, Healthcare Partnerships at Boston Scientific.

2011

James Lowery (LBS) is now Director at Leaffield, Management Consulting and Venture Development.

James McMicking (Kellogg) is now Chief Strategy Officer at Aerospace Technology Institute.

James Stewart (INSEAD) is Assistant Business Development Manager at George Weston Foods based in Australia.

Phil Westcott (IESE) is now back in the UK and working as European Ecosystem Leader – IBM Watson Group.

2010

Annette Claisse (INSEAD) is now Senior Manager, International Strategy and Operations for Etsy.

Pedro Serrajordia de Mello (INSEAD) is now Operational Safety Senior Manager at LATAM Airlines Group.

2008

Kaaren May (INSEAD) is now Business Development Manager at the University of British Columbia.

Brendon Moss (LBS) has been working as Development Director at Qatari Diar and is responsible for Chelsea Barracks development.



2007

Martyn Buttenshaw (LBS) is now Vice President at Pala Investments. He has also become a director of Sierra Rutile (AIM:SRX) and Melior Resources (TSXV:MLR).

Jack Woodhouse (LBS) is now a director at I-Kamata which produces energy saving light fittings as well as continuing to direct his company, Borel Woodhouse.

2005

Simon Bolton (IMD) is now Regional General Manager GE Oil and Gas based in Qatar.

2004

Richard Robinson (HEC) has recently become Chief Executive, Civil Infrastructure in AECOM for EMEAI (Europe, Middle East, Africa, India), with 9000 staff and \$1.3Billion turnover.

Elias Sakellis (INSEAD) is now a Director at Kenon Holdings in addition to being a Director of Pacific Drilling and Managing Director of Quantum Pacific.

2003

Leila Hoteit (INSEAD) is now a Partner and Managing Director at Boston Consulting Group and was selected as a Young Global Leader 2014 by the World Economic Forum in Abu Dhabi.

Paul Saunders (INSEAD) is now Head of Innovation and Special Investments at Ireland Strategic Investment Fund

Richard Wazacz (Columbia) is now Director at Octopus Investments.

2001

Will Myles (IMD) is now working as Regional Managing Director – Asia Pacific for RICS, based in Singapore.

2000

George Fowkes (INSEAD) is now a Director of BasePower Ltd, a company which develops fully-financed CHP schemes for the Food Prep, Chilled Logistics and Data Center sectors.

Bill Sneyd (INSEAD) is now Director of Generation Community Ventures Ltd.

1997

Tony Nolan (INSEAD) is now Cost PMO Executive at Vodafone.

1996

Chirag Shah (INSEAD) is now Executive Director – Procurement for Xchanging, the business process, procurement and technology services provider.

1995

Sarados Miliotis (IMD) is now living in the USA and working for United States Steel Corporation as Vice President in charge of their International Energy business.

Piers Copham (INSEAD) is now a Director at Armstrong Associates, a “strategy boutique”.

Paul Dolan (EAP) is now a Fellow of IOM3.

Graham Hastie (INSEAD) has accepted the role of Assistant Dean of Degree Programmes at INSEAD. Graham is based in Singapore but regularly travels to the Fontainebleau campus.

1994

Imoni Akpofure (INSEAD) was recently appointed Regional Director for Africa at CDC. Based in Lagos, Imoni will primarily focus on working with CDC’s investment teams in London to ensure that capital is being invested to support growing companies in Anglophone and Francophone West Africa.

Henning von Spreckelsen (IMD) is now a Non-Executive Director at Cachebox TV, in addition to his position as Chairman of Shere Investment and Square Rig Ltd.

1992

Toby Mace (INSEAD) is now Business Development Manager for X-on, a company providing cloud telecoms and notification services via hosted fixed and mobile telephony integrating voice, data and messaging.

1989

William Burton (INSEAD) is now a Non-Executive Director at Martin Randall Travel.

1988

Tony Walters (IMD) is now Principal Consultant at London Bridge Associates Ltd.

OUR THANKS TO ALL OUR DONORS!

Engineers in Business Fellowship is delighted to recognise the Sainsbury Management Fellows whose cumulative giving has reached specific levels:

**PLATINUM
£200,000**

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Mark Spence
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Adrian Gibb
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Richard Smith

All recognition levels are pre gift aid (or any other taxation benefit) and pre matching by Lord Sainsbury and are based on the funds actually received by the EIBF but do include legacy gifts.

INITIATIVES

EIBF launches a new competition to encourage entrepreneurship



EIBF sponsored a new competition as part of the Entrepreneurship and Business module for students at Nottingham University Business School (NUBS).

The NUBS/EIBF competition challenged students to create a novel product concept that meets a real need in society and participants also had to demonstrate use of engineering skills in the creative process.

The winner was a prototype of a glove that alerts blind people of the proximity of objects. The SenSei Glove uses ultrasonic sensor technology to provide vibration cues on the distance from objects. The winners shared a £1,000 cash prize and SMFs have offered to mentor the five team members.

Coming a close second in the competition was a team of international students who addressed the problem of feeling unsafe when walking in unfamiliar places. The team developed GPSafe, an impressive mobile app solution.

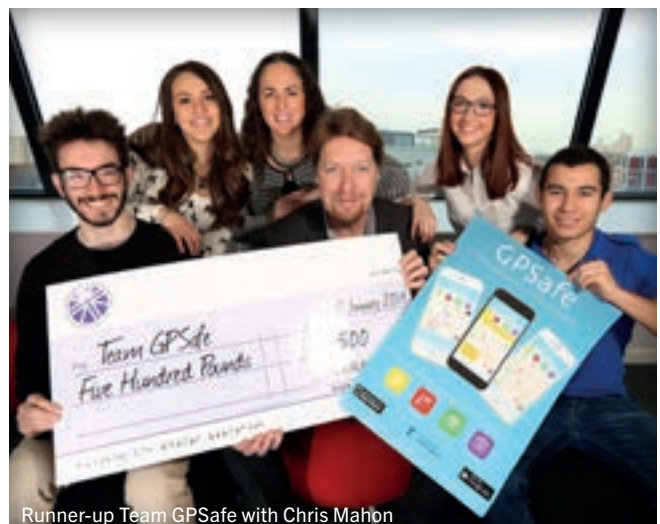
Whereas most GPS apps provide users with the shortest route, GPSafe combines GPS technology with readily available public safety data to give users information on the safest walking route.

Chris Mahon, Deputy Director of MBA Programmes at Nottingham University Business School said: "We are pleased that SMF has sponsored and supported this new competition as part of the Entrepreneurship and Business module. Engineering skills are incredibly important in business and the competition is a great incentive for engineering students to develop entrepreneurial skills."

This competition is being repeated this year and eventually we hope to roll it out to other universities.



Winning team SenSei with Chris Mahon



Runner-up Team GPSafe with Chris Mahon

ENGINEERING NEW HORIZONS



This unique book shatters any illusion that engineers do purely technical jobs, like building bridges.


Engineering New Horizons is packed with real life stories of men and women who have combined engineering and business education/skills and carved out exciting new careers that are creating jobs, growth and wealth for the UK and global economy and even helping to address international humanitarian challenges.

Engineering New Horizons shows how these individuals have pioneered ideas and technologies that are being applied in every sphere of life including science, medicine, business, e-commerce, energy and the environment.

This book has been distributed to over 300 universities, engineering institutions, schools and individuals.

THE BITCOIN DEBATE

SMF GETS THE BIT BETWEEN ITS TEETH



Is Bitcoin a serious challenger
to commodity currency?

Is it an engineer's naive solution,
conspiracy theorists' cause or
a truly global currency?

SAINSBURY MANAGEMENT FELLOWS



ATTENDEES

Bitcoin Members Networking Dinner | Thursday 18 September 2014 | Sofitel Hotel London

Mr David Bevan
Non-Executive Director
Oxford Policy Management

Mrs Cathy Breeze
Director of Communications
Sainsbury Management Fellows

Mr Adam Cleary
Director
Founder of Bullion Bitcoin Ltd

Mr Paul Dolan
Process Manager
Mustang Engineering

Mr Chris Earnshaw
Chairman
BRE Group

Mr David Falzani
CEO
Polaris Associates Ltd

Mr Peter Hanley
Systems and Safety Assurance
Engineer Real Safety Today

Mr Michael Hill
Vice Chairman
Barclays Bank PLC

Mr Andrew Hogwood
Innovation Director
independent

Mr Ali Korotana
Sainsbury Management Fellows
MBA Candidate – London Business School

Mr Nick Laird
Head of Sales and Marketing
Ceridian

Mr Alastair Light
Head of Strategic Planning
BT

Mr Toby Mace
Business Development Manager
X-on

Mr Daniel Neal
Programmer
EvoEnergy

Mr David Rickwood
Sainsbury Management Fellows
LBS

Dr Tom Robinson
Chief Operating Officer
Elliptic

Mr Chirag Shah
Executive Director – Procurement
Xchanging

Mr Christopher Shepherd
Sainsbury Management Fellows
MBA Candidate – London Business School

Mr Mike Sotirakos
CEO
Watershed

Ms Althea Taylor-Salmon
Managing Director
Fortune PR

Mr Peter Varnish OBE
Non-Executive Director
BlueStar Capital Ltd

Mr Henning von Spreckelsen
Chairman
Shere Investment

Ms Nicola Winn
Global COO Finance-Infrastructure
Deutsche Bank

Mr Andrew Layton
Director
Kanmore



AN INTRODUCTION TO BITCOIN

Adam Cleary, Director of the
UK Digital Currency Association
and Founder of Bullion Bitcoin

Bitcoin is an internet currency. It is a protocol that enables the transfer of value directly from person to person on a decentralised trust-less basis. There is no central authority or issuer. The code – the protocol – is open source; it can be viewed by anybody and is maintained by a community of mostly volunteers.

Bitcoin is held in a wallet that is controlled by the user on a personal device, or on a web wallet on the internet and is secured by cryptography. Each address has a public key and a private key – the public key is published and the private key is kept secure. Putting the two keys together unlocks the Bitcoin and permits access and transmission to the holder of the private key.

The genius of Bitcoin is that by design it is decentralised allowing for trust to be distributed. You don't have to trust any central authority and if one or several nodes in the system breaks, this will not bring down the whole system.

This distributed trust idea is achieved by the introduction of a blockchain, a public ledger where transactions and holdings are recorded, and new transactions are confirmed independently and continuously by network participants known as miners.

Continued

The genius of Bitcoin is that by design it is decentralised allowing for trust to be distributed



Miners are seeking to harvest newly created Bitcoins by a mining process that involves verifying Bitcoin transactions in the network while at the same time seeking to solve a mathematical algorithm to find a specified value. Finding this value unlocks the current block and releases the newly created Bitcoins. The protocol releases Bitcoins at a predefined rate which adjusts automatically depending on the amount of mining participants on the network. If there are a lot of miners, the difficulty rises and if there are fewer it falls. The total number of Bitcoins is capped at 21 million and to date some 13 million have been mined. The rate at which they are to be issued is scheduled to fall progressively over time until they reach the cap, sometime in 2140. Bitcoin is deliberately designed to be deflationary as well as decentralised and trust-less.



In scientific terms the invention of Bitcoin and the blockchain has provided a solution to the Byzantine Generals' Problem, which is an agreement problem in decentralised systems. The problem is that transactions or instructions which originate remotely cannot be independently verified without reference to a central authority.

To overcome this, Bitcoin miners work in parallel to generate a chain of pieces of data that are costly and difficult to produce. Generating a piece of data, which is known as the proof of work, is difficult – even with all participants working at once it takes ten minutes before one of them finds a solution and broadcasts it to the network. Once a solution is found and broadcast, everyone adjusts their computations to include the winning solution so that when they find the next proof of work, it chains after the previous winning solution. Anyone who is working on a different chain, or plan, will switch to this one because the proof of chain is longer.

This proof of chain work – the blockchain – is the key to overcome Byzantine failures, and to reach a coherent global consensus of the system state without any central authority and without trust between participants. A consequential element of it being distributed and decentralised is that it is intended to be immune to plenary power shut down and strong enough to sustain an attack of outside computational power.

If one believes in the inherent superiority of fiat currency, we have to consider that 99% of fiat currency claims are actually digital or virtual money tokens just like Bitcoin. It's just that fiat currency balances are listed in a centralised ledger of a bank, rather than being held as Bitcoin balances on a decentralised ledger like the blockchain. The amount of fiat currency with an actual physical representation is extremely small and represents a paper receipt representing an irredeemable digital balance at a central bank. Fiat currency derives its superiority/value from nothing more elevated than centralised legal tender laws that enforce its acceptance.

By contrast Bitcoin derives its value from the network consensus that it has value, there is no compulsion. The more people conclude that Bitcoin has value, the larger the network effect and the higher the value – there is no dictat.

David Falzani, President of Sainsbury Management Fellows welcomed guests and opened the Bitcoin Debate



Bitcoin is the most radical currency development in the modern age, but is it an engineer's naive solution, conspiracy theorists' cause or a truly global currency? At first glance, Bitcoin may not seem a natural debating topic for a charity that awards MBA scholarships. However, being advocates for combining human endeavour with technology and business skills to bring about advances and economic growth in society, Bitcoin epitomises our ethos.

Why has this revolutionary currency been devised and become popular? To a certain extent, it is because people have lost faith in governments and financial institutions. In response, entrepreneurial engineers have used their ingenuity and skills to invent a standalone, parallel financial system.

Whilst Bitcoin is an exciting development, the advent of a new technology in itself does not mean that the underlying problem that led to its birth has been solved. It could be said that the fundamental problems that inspired Bitcoin are deep rooted weaknesses in the financial industry – none of which are intrinsically linked to technology.

The global financial failures we have seen are linked to regulation and human behaviour, the latter of which has involved malfeasance and fraud.

To appreciate and maximise the potential of Bitcoin, we need to look at it holistically, not purely technologically. An analytical response demands that we go beyond entrenched positions and look dispassionately at how this new technology fits within the context of regulation, people's behaviour, benefits to society and the risk of crime. These things are all interconnected, so we need to understand what we are trying to fix and what else may be in the system that needs to be discovered and tackled.

Bitcoin presents a unique opportunity to explore what needs to be fixed in the current financial system. But, is Bitcoin itself sufficiently robust to resist the vagaries of the established system and become a mainstream currency? Only time will tell.

The SMF debate set out to explore the different views on Bitcoin held by a wide spectrum of people, ranging from an enthusiast and entrepreneur to an economist and professionals working with Bitcoin. Whatever your position, we hope you enjoy the discussion and we welcome your feedback.

Is Bitcoin sufficiently robust to become a mainstream currency?



THE SMF BITCOIN DEBATE

Chair's Opening Statement



Sainsbury Management Fellows combined its recent Members' Dinner with a sparkling debate on Bitcoin, the world's first decentralised digital currency.

Chaired by Michael Hill, Vice Chairman at Barclays Bank PLC, the distinguished speakers tackled the question *Is Bitcoin an engineer's naive solution, conspiracy theorists cause or a truly global currency?* giving their insight and take on the pros, cons and prospects for Bitcoin in the future.

The speakers were Adam Cleary, Director of the UK Digital Currency Association and Founder of Bullion Bitcoin; Dr Tom Robinson, Chief Operating Officer of Elliptic; academic/economist, David Bevan who is a Non-Executive Director at Oxford Policy Management; entrepreneur and Sainsbury Management Fellow Henning von Spreckelsen; and Daniel Neal, a software developer at EvoEnergy and a Bitcoin enthusiast.

Banking is ripe
for significant
technology
change

Before opening the debate to the speakers, the Chair briefly touched on the topic *What is Bitcoin?* and followed with a swift journey through the history of currency, from bartering to gold and silver coins, then notes that represented the value of gold to our existing paper currency. Bitcoin, he said, is a natural extension of the currency evolution.

The Chair continued, *"Banking is ripe for significant technology change. It has lots of legacy systems; is highly fragmented and highly regulated. Because of this, technology is beginning to be applied across many aspects of the business, from internet banking to payment apps on mobile phones and Barclay's Pingit system to Bitcoin."*

"On the plus side Bitcoin is fast, easy and inexpensive to operate; it is a very efficient system. It is secure and not influenced by central bank policy. On the downside, Bitcoin has no intrinsic value like paper currency and has seen large volatility in observed value – in any one day it can move a large amount and unlike paper currency, Bitcoin has not had a real test of confidence."

"Paper currency is seen as valuable because we believe we can spend it today and tomorrow, hence we have a lot of confidence in it. Even though it has been through significant stresses, including two world wars and hyper inflation in some countries, still we have complete confidence in paper currency."

"Bitcoin has not yet had a major test, where for example, someone works out how to replicate them. There's no such thing as a perfectly secure system. What if a huge volume of Bitcoins were stolen or someone figures out how to abuse the mining system that generates Bitcoins? We don't know where the risks may come from and no one really knows what will happen if such a test occurs. The other key issue is that currently Bitcoin is unregulated – if the currency becomes big, it will have to be regulated, which will increase costs."

The Chair then invited the first speaker, David Bevan, to give his perspective on Bitcoin and respond to the debate question.



Academic and economist David Bevan kicked off the debate with his view on Bitcoin versus fiat money

Economists' usual approach is to list three functions of money; as a widely accepted medium of exchange (to make payments), as a low-risk store of value (to bridge over time), and as a unit of account (to measure value).

Bitcoin goes some way to satisfy the first, and is an efficient means of exchange amongst the currently very limited number of partners willing to accept it. However, its credentials for the other two functions are very weak. What determines the worth of a Bitcoin? It's what people think it's worth! This self-referential character has made its value extremely volatile in the past and prone to collapse in the future.

This is in contrast to fiat money created by government, which is underpinned by central banks' obligations to maintain the value of currency, as well as by the fact that it can be used to pay taxes. Many Bitcoin enthusiasts hanker after a return to the gold standard, but gold at least has alternative uses, which place a floor on its value; there is no parallel with Bitcoins.

While the usual approach is accurate as far as it goes, it fails to stress the real importance of money, which is that it is a crucial social invention, the technology of transferable credit – a system of generalised IOUs which underpins the credit system. The rest is just a system of tokens, to keep track of the underlying credit and debt relationships.

The overwhelming bulk (97% as at end 2013) of the money supply is in the form of bank deposits. There is a widespread misapprehension as to how this system works; it is commonly believed that deposits placed with the banks permit them to extend credit. In fact, the converse is true; when banks see fit to extend credit that creates deposits.

Bitcoin functions very differently; it is not part of the credit mechanism, and it is very hard to see how it could become so without losing the special features, such as decentralised anonymity, prized by its proponents.

Much of the debate around Bitcoin has been driven by distrust of government, and the dangers of allowing it discretion. Hence the enthusiasm for automatic, non-discretionary creation of Bitcoins. However, while it is true that there are dangers in unbridled discretion, there are also dangers in rigid and unresponsive mechanisms. The sensible answer has to be for what has been called 'constrained discretion', where discretion is delegated but bounded, and that has been the thrust of institutional developments in recent decades. It is very important not to confuse the payments mechanism, which is not in bad shape, with all the baggage from the financial crisis, where much remains unresolved. From the perspective of the payments mechanism, Bitcoin is an irrelevance, though on its past record, it seems plausible that central banks may steal some of its very clever and innovative technical clothes.

What determines the worth of a Bitcoin? It's what people think it's worth!

**Adam Cleary**

Director of the UK Digital Currency Association and Founder of Bullion Bitcoin

I suggest that Bitcoin can be understood as a reaction against hierarchy, the highly unsatisfactory international monetary system, sub-optimal financial system and centralisation of power. This is perhaps counter intuitive for an internet currency protocol centred on mathematics and internet cryptography but I think the emergence of Bitcoin and its associated technologies represents a desire to return to a more human, more decentralised world.

Why would we need a new currency for the internet – aren't the existing ones satisfactory? They work advantageously if you are a highly leveraged borrower, a financial institution or a government, but not generally otherwise.

The current system, I believe, rewards leveraged speculation in assets at the expense of work, debt at the expense of thrift, consumption at the expense of saving, the old at the expense of the young and large centralised organisations at the expense of small businesses. There is a plethora of regulatory obstacles to prevent the emergence of challenges in financial markets and to prevent the decentralisation of power. What is most destructive about the existing system is the international monetary system, which has exponential debt creation and money printing coded into its DNA.

In discussing the international monetary system, it's helpful to retreat a little in time and recall the monetary system we once had in the 19th century and in various forms up until 1971. Once we had a system where gold was money and all issued money was redeemable into gold at the fixed ratio, this was generally known as the gold standard. The gold standard in its various forms was designed to prevent the abuse inherent in monetary arrangements that had no numerical restraint on the amount of debt promises that could be issued by the financial system. This system was overturned in 1971 and replaced with the fiat system where currencies have no intrinsic backing.

Bitcoin represents a desire to return to a more human, more decentralised world



Adam Cleary
Director of the UK Digital Currency
Association and Founder of Bullion Bitcoin

Bitcoin is known as digital gold and its creator had in mind the advantageous features of gold, intending that the monetary system centred on Bitcoin and the blockchain would avoid the exploitative relationships that characterise the existing debt-based financial system. For example, Bitcoin is coded so as to be scarce, its stock increases through mining at a progressively slower rate and then stops entirely, it has high marginal utility (so a Bitcoin mined five years ago is identical to one mined today), it is easily divisible and is no one's liability as there is no central authority issuing irredeemable promises.

Like gold, Bitcoin is decentralised free market money. In this view, Bitcoin is both complementary and similar to gold. Both are a representation of a human desire to have sound money, a yardstick in which value can be stored over time and space and can be freely exchanged with other human beings free from control by a central authority.

The reason that gold was considered desirable is that it was felt that otherwise private banks would monopolise the issue of money and everything would be debt based, currencies would be permanently debased in real terms, assets would flow into the richest segments of the population and there would be huge speculative bubbles throughout the financial system.

It wasn't until 1971 that we managed to free ourselves from these ideas and since then financial systems have not been an enlightened oasis of stability untouched by roller coaster speculative bubbles. There has been a roll call of crises under the current system.

As far as I can discern the vast majority of economic commentary is a discussion around who should print more money faster. There are no schools of economic thought arguing that money printing is undesirable or damaging – the entire argument is about the form and speed of money printing – fast, exponential, parabolic.

Do we want inflation or not? Our answer is no, we do not, but it is apparently universal consensus that deflation is a bad thing. But I and Bitcoin advocates generally believe this is wrong. The inflationist view is always advocated by people who represent the government and the banks.

The government loves inflation because it reduces the real value of government debt and allows government to tax increases in wages, rents and prices. Financial institutions like inflation because they are similarly highly leveraged. Inflation encourages debt over consumption and rewards speculation.





By contrast, deflation:

- raises the real value of the wages of most of the population
- reduces the prices of the average consumer goods basket
- encourages savings, prudence and thrift

Most people should welcome deflation, only banks and governments should fear it, that is why there are no public calls for deflation. Instead we have central banks preserving the inflationary dynamic at any cost. Bitcoin was deliberately designed to be deflationary to counter the narrative of inflation, to restore purchasing power to 90% of the population who cannot successfully day trade.

The question is why has money printing not resulted in hyper inflation at retail price level, since there is certainly hyper inflation in asset prices? I think this is because rather than printing currency, we now recycle debt claims into gigantic financial markets that live in a parallel monetary plane almost entirely divorced from real economic activity carried out by real human beings.

Financial claims are trapped into a closed circular icecap from which only the privileged few can extract serious money. Gold has been demonetised so that response is closed to us, instead we are compelled to trade in debt. The pyramid of accumulated paper promises that has built up is now so large that it could never be repaid from human effort or even serviced because there are not enough income generating assets in the world to service the interest burden at any interest rate above zero. Instead this growing burden

of debt must be relentlessly and forcefully monetised at ever lower interest rates. Now we are at the lower bound, this will soon be unsustainable.

Bitcoin is a reaction to all other reasonable alternatives having been closed off by the remorseless logic of the existing self-imposed system. It is an attempt to design an alternative monetary and financial system based on sound money.

Concurrently, the emergence of Bitcoin is also driven by the fear that the financial system is so centralised, yet so fragile that if it were to implode there would be nowhere to hide, nowhere to express economic calculation or transfer value through established payment systems. This fragility can be identified in the balance sheets of the largest too-big-to-fall banks. It is unthinkable to consider that these banks could go bankrupt, but remember that Lehman Brothers and Bear Stearns went bankrupt just six years ago.

Every time we cover up the inherent inbuilt insolvency in the system, with more printing, we compound the risk of a devastating crisis that will result in a disorderly unwinding of the existing international monetary system. The societal problem is that these manifestly overly leveraged entities are in control of the payment system that control transfers between real people who hold current and deposit accounts. Because of this it is argued that it is essential to support the banks regardless of societal costs.

Bitcoin was created to provide a solution to this. By enabling peer-to-peer payments directly from human being to human being, there is no longer any need for chains of intermediaries to provide and control the payments and clearing network. The central function that banks provided as centralised trust repositories is no longer necessary, accordingly it is of paramount importance to re-design national and international payment networks to take account of this reality and to exclude the danger of payment networks being disrupted as a result of the insolvency of its main participants should there be a repetition of the 2008 financial crisis.



Dr Tom Robinson
Chief Operating Officer of Elliptic

Elliptic bridges the gap between traditional finance and digital currencies, transforming the way that money is used. Elliptic provides enterprise-grade insured storage for Bitcoin holdings

Bitcoin cannot be thought of or used in the same way as a currency

First to answer the questions posed – yes Bitcoin is an alternative to fiat currency, is indeed an engineer's naive solution, yes it is or has been a conspiracy theorists' cause (although it is breaking into the mainstream), and no it probably isn't going to be a global currency in the traditional sense of the word. But I think that Bitcoin is all the better for each of these being the case!

As you know, Bitcoin has received widespread attention as a revolutionary way of transferring value over arbitrary distance without the need for a trusted intermediary. It is for the transfer of value what the internet is for the transfer of information. There is huge scope to reduce the cost of cross-border payments, increase access to financial services in developing countries and enable such things as machine-to-machine payments and micropayments.

Even then we are only just scratching the surface – Bitcoin can be programmed using its own scripting language, so that transactions depend on external factors. So for example you could have complex derivatives hard coded directly within a Bitcoin transaction which are settled automatically, without the need for an intermediary.

However, I think that we have to recognise that when Bitcoin is used in this way it is not a currency. I think that the biggest mistake Satoshi Nakamoto made when he invented this technology was to call it Bitcoin. And that's because users, regulators, businesses and economists are thinking about it within the narrow definition of a currency and are trying to fit it within frameworks that do not suit its unique properties.

Bitcoin does have some properties of a currency – it is a reasonable store of value and medium of exchange. But it is also a fixed supply and importantly it is not fungible. Every unit of Bitcoin has a history, made available for everyone to see in the blockchain ledger. Every pound coin in my pocket (assuming it's not counterfeit) has the same value. The same cannot be said about every Bitcoin.



For these reasons Bitcoin cannot be thought of or used in the same way as a currency. But that's not a bad thing – it just has different properties – it's a different way of transferring value that will suit different applications. And it's also much more than just a means of transferring value.

If you look at the core technology what you have is a distributed digital asset register, together with a protocol for transferring ownership of those assets in a secure, transparent way, without the need for a trusted intermediary. Those assets could be anything – shares in a company, bonds, property, commodities. This opens up enormous scope to transform and streamline the way we transfer ownership of and manage these assets.

For instance take the example of a company issuing shares. The company could make a legal link between a share and a particular unit of Bitcoin. The ownership of these shares can then be transferred in an efficient, low cost and transparent way. If you have that unit of Bitcoin in your Bitcoin wallet, you own that share. If dividends are payable, this could be processed by simply sending the appropriate number of Bitcoins to those wallets that contain shares.

Now as someone running a Bitcoin business, the regulatory response to this technology is of great concern. Appropriate regulation could bring legitimacy and mainstream adoption to our industry, but if it oversteps the mark it could stifle innovation.

What I hope is clear from the breadth of potential applications is that the technology itself should not be regulated. Each application of the technology will have different risks and it's still too early to know what applications will arise. In 10 years time will I be using Bitcoin to pay an employee or to represent my mortgage?

This is a real risk – the European Banking authority has suggested that Bitcoin itself should be regulated, with a legal entity controlling it and responsible for it. This would defeat the entire point of the decentralisation that defines Bitcoin!

However, there are areas where regulation is appropriate and could be very beneficial. At Elliptic we provide services that bridge the gap between traditional finance and digital currencies – our Elliptic Vault product is the world's first insured Bitcoin storage service. As custodians of digital assets, we believe that we should be subject to similar regulations and controls as other financial services firms – such as capital requirements and client asset controls. As things currently stand, companies such as ours are completely unregulated, which is extremely risky, as illustrated by the collapse of Mt Gox and the loss of nearly half a billion dollars of customer assets. There is a real need for consumer protection measures. However, other digital currency services do not have direct analogues in the traditional financial world – here bespoke regulations will be needed, which will take significant time to implement.

As a stop-gap measure I hope to see the UK government bring gateway Bitcoin businesses such as exchanges and vendors, within the remit of the money laundering regulations. This would give much needed legitimacy to Bitcoin and also help to mitigate a real risk.

It could be claimed that Bitcoin is a UK invention. The public key cryptography that underpins it was first developed at GCHQ in the 1970s, and Satoshi Nakamoto, its anonymous creator, is rumoured to be British. The UK has a regrettable track-record of failing to exploit its inventions – from CT scanners to the World Wide Web. But with its Fintech talent and standing in traditional finance the UK has a fantastic opportunity to establish itself as a global hub for Bitcoin, as long as it gets the regulation right.



THE ENTREPRENEUR'S VIEW

Henning von Spreckelsen Chief Executive, Shere Investment and Non-Executive Director, Square Rig covered three key points:

First, the historical perspective of 1920s Germany where fiat currency became worthless as Germany printed money to pay for reparations:

The stock market boomed due to rampant inflation (like now) and there was no real store of wealth. As soon as the printing of money stopped (temporarily) this led to a collapse in stock market to be reignited when printing of money restarted.

- This rings a bell with what is happening now with quantitative easing
- Cigarettes became currency post war in the refugee camps
- Could Bitcoin be the new cigarettes or external currency that has a value due to governments not being able to print it?

Second, from a tax collection point of view – with a wildly oscillating exchange rate:

If transactions for companies are done in Bitcoins and at some point tax is charged, you need to determine the point at which the Bitcoin is re-valued to local currency to pay taxes – this is an extreme problem for governments to collect taxes in this form.

Finally, there will need to be a defacto standard or some verification process – maybe itself open to abuse, that the Bitcoin owned by a company is valid:

At the moment you get some sort of guarantee from the bank/government for fiat currency. If someone steals your Bitcoins (Mt Gox), how do you get them back?



THE FINAL WORD

Software Developer at EvoEnergy and Bitcoin Enthusiast Daniel Neal

Bitcoin is a reaction to the 2008/9 financial crisis – it is not just a currency but a solution to a problem in the banking system.

Bitcoin is an engineer's solution: while lots of work is being done on monetary reform and changes in regulation are being made, these tend to be complex and legalistic. Also, just because something is against the law doesn't mean it won't happen. Commercial banks handle trillions of pounds every day. They have the power to create money. There is huge potential for abuse of trust there.

It is not just about the odd scandal (like LIBOR). While incentive and means remain, it will keep occurring. It is systemic.

Bitcoin is different. Bitcoin builds the trust aspect right into the core code so everyone can see how it works. We can see the way money is created and transferred because it is completely transparent. We do not have to rely on the law, but mathematics.

An engineer's naive solution? Yes.

Though it sounds like an insult, I believe naivety is the exact quality that allowed Bitcoin to be created in the first place.

The scope of Bitcoin is so epic – a modern day Noah's Ark for the financial system – that if the creators had the wisdom of experience; if they were realistic about how much work it would be to create and how unlikely it would be to succeed, it would have been easier to give up than to do something so radical.

Naivety is part of Bitcoin. It is part of the solution. It allows us to attempt the impossible.

Bitcoin builds the trust aspect right into the core code so everyone can see how it works



MORE ABOUT OUR DEBATERS



Chair

Sainsbury Management Fellow, **Michael Hill** is Vice Chairman at Barclays Bank PLC, where amongst other things he is involved in developing and delivering the bank's community investment strategy.



Academic/Economist

David Bevan, NED at Oxford Policy Management and a Fellow of St John's College, Oxford. David has worked for the British government on energy, in Kenya as an ODI Fellow and was a founder and Deputy Director of the Centre for the Study of African Economies at Oxford. He has been a visiting scholar at the IMF and is a member of the Fiscal Affairs Department's panel of fiscal experts. David's main research interests are in public economic and macroeconomic policy analysis.



Serial Entrepreneur

A Sainsbury Management Fellow and successful serial entrepreneur, **Henning von Spreckelsen** is Chief Executive of Shere Investment and a Non-Executive Director at Square Rig.

Views expressed in this publication are those personally held by the speakers.

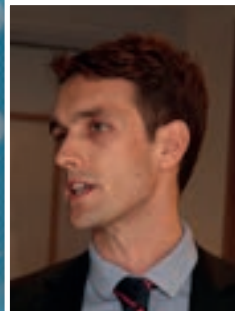
Sources of further information on Bitcoin:

- History of Bitcoin
- CoinDesk
- UK Digital Currency Association
- Bitcoin Foundation



Bitcoin Expert

Adam Cleary, Director of the UK Digital Currency Association (UKDCA) and Founder of Bullion Bitcoin. The UKDCA is a non-profit organisation established by a diverse range of individuals and businesses that are united by a vision that digital currencies ultimately represent an opportunity for profound improvement within society as a whole. Bullion Bitcoin operates bullionbitcoin.com, a web based gold to Bitcoin exchange for professional investors. Bullion Bitcoin enables direct exchange of physical gold bullion and Bitcoin between professional investors.



Bitcoin Business

Dr Tom Robinson, Chief Operating Officer of Elliptic. Elliptic bridges the gap between traditional finance and digital currencies, making it easier for enterprises and financial institutions to store and manage their digital assets. Elliptic Vault is the world's first insured Bitcoin storage service.



Bitcoin Enthusiast

Daniel Neal is a Programmer at EvoEnergy. One of Daniel's passions is learning about new technologies and he is fascinated that Bitcoin has been able to create a digital currency that is both secure and decentralised. His second passion is sustainability, hence his decision to work for EvoEnergy. He is interested in exploring the bias in the world towards unsustainable things such as fossil fuels, mass production, planned obsolescence, the relentless focus on GDP growth, which led him to the International Movement for Monetary Reform. Daniel believes that these issues are not isolated, but are symptoms of how money is created in the current system and if we can change how money is created, we can address issues in a powerful way.

FINANCIALS

ENGINEERS IN BUSINESS FELLOWSHIP TREASURER'S REPORT FOR 2014/2015



James Raby, Treasurer

SUMMARY

The Charity ended the year with a surplus of income over expenditure of £58,997 (2014: 161,298). Net Assets at the end of the year were £243,588 (2014: 184,590) of which £211,040 (2014: 136,183) are included in an endowment.

INCOME

Income sources were donations, subscriptions and dinner fees. Networking event fees are netted off with the cost of the venue hire.

DONATIONS

The major source of our income continues to be our patron, Lord Sainsbury of Turville who contributed £140,000 in donations this year.

This year we received further donations amounting to £109,200, resulting in total donations for the year of £249,200 (2014: 334,726).

EXPENDITURE

During the year expenditure increased from £176,470 to £197,415, with the main increase being in the printing cost of the Engineering New Horizons book (25 years of SMF careers – profile book) which has now been distributed to hundreds of young people through school career advisers, universities and engineering institutions.

OTHER

The accounts will be subject to an Independent Examination rather than an Accountants Report due to its charity status and income level, which will in due course be submitted to Companies House and to the Charity Commission.

NEXT YEAR

We hope to continue our successful capital fundraising campaign in the coming year and would welcome support from our worldwide community of members. We will also be expanding the reach to our campaign to include external sources of funding.

James Raby
Treasurer

INCOME AND EXPENDITURE ACCOUNT

FOR THE PERIOD ENDED 31 MARCH 2015

	Notes	2015	2014
INCOME		£	£
Donations		249,200	334,726
Subscriptions		6,555	2,938
Other Income	2	657	104
		256,412	337,768
EXPENDITURE			
Bank Charges		15	-
Continuing Professional Development		223	966
Event and Venue Hire		25,171	16,960
Insurance		938	757
Internet		15,881	15,598
Pension Contributions		2,733	2,670
Photography		1,362	1,441
Printing, Photocopying and Postage		29,483	3,226
Projects and Initiatives		17,701	15,120
Professional Fees		15,960	23,182
Public Relations		13,075	12,963
Refreshments		712	371
Industry Research		10,080	12,399
Staff Costs		59,126	59,346
Stationery		300	797
Software		869	7,221
Telephone and Fax		1,777	584
Travel		2,009	2,700
Depreciation		-	169
		197,415	176,470
Surplus for the year		58,997	161,298

BALANCE SHEET

AS AT 31 MARCH 2015

	Notes	2015	2014
CURRENT ASSETS		£	£
Investments		211,040	136,183
Bank Accounts		19,978	34,008
Debtors	3	17,679	19,557
		248,697	189,748
CURRENT LIABILITIES			
Creditors – Due within One Year	4	5,109	5,158
NET CURRENT ASSETS		<u>243,588</u>	<u>184,590</u>
NET ASSETS		<u>243,588</u>	<u>184,590</u>
FUNDS			
Unrestricted funds		32,548	48,407
Endowment funds		<u>211,040</u>	<u>136,183</u>
Accumulated Fund Carried Forward		<u>243,588</u>	<u>184,590</u>

NOTES TO THE ACCOUNTS

FOR THE YEAR ENDED 31 MARCH 2015

1. ACCOUNTING POLICIES

The accounts have been prepared under the historical cost convention

Donations, subscriptions and bank interest are credited to the income and expenditure account on receipt.

2. OTHER INCOME	2015	2014
	£	£
Bank Interest Received	657	91
Corporation tax refund from prior period	-	13
	657	104

3. DEBTORS – Due within One Year	2015	2014
	£	£
PAYE Refund Due	2,991	10,432
Prepayments	389	375
Gift aid	8,750	8,750
Wages	5,549	-
	17,679	19,557

4. CREDITORS – Due within One Year	2015	2014
	£	£
Accountancy and Independent Examination Fees	4,685	4,685
Other Professional Fees	424	473
	5,109	5,158

FUTURE EVENTS

Many SMFs believe that networking is the most valuable asset of becoming part of the SMF Group. To make the most of being an SMF, please join us for our exciting events which are scheduled in 2015:



SMFs networking at the Annual Dinner in London, 2014



Mopesola Ogunsulire and Simon Bonini at the Annual Dinner



Cathy Breeze, Laurence Knight, Gavin McMahon, David Crosbie and Evaristus Mainsah at the NY Networking Event, September 2014

“Re-engineering the Tax System” SMF Networking Event

Wednesday 24 June 2015, 6:30 PM

**The Sofitel Hotel, 6 Waterloo Place
London SW1Y 4AN**

Join us for a fascinating evening – drinks, followed by a round table discussion led by guest experts on the tax system, focusing on corporation tax.

Welcome New Members’ Dinner and Networking Event

Thursday 3 September 2015, 6:30 PM

**The Sofitel Hotel, 6 Waterloo Place
London SW1Y 4AN**

What Makes a Board Successful?
Join us to hear a panel of experts give their views.

SMF Annual Christmas Curry and Networking Evening

Wednesday 9 December 2015, 7PM

**34-38 Vauxhall Bridge Road
London, SW1V 2RY**

Join us to usher in the holiday season and network with the growing numbers of SMFs who attend every year.

E-mail cathy.breeze@smf.org.uk to book your place in advance for any of the events above

SAINSBURY MANAGEMENT FELLOWS



Chris Shelley at his company Dymag Performance Racing Wheels with the Young Brunels.

We celebrate the success of our people and acknowledge the efforts of the many SMFs who are making their own contribution to promoting business education and development.

ANNUAL REPORT



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