

Management Accounting: Exploring Novel Pathways

On Thursday 19th April 2018 the London School of Economics hosted the 39th Annual Management Accounting Research Group (MARG) Conference. This meeting of the group addressed the rapidly changing business environment and how management accounting practice might respond with speed as well as business models and cultures. This year the focus was on exploring “novel pathways”. 135 delegates from practice and research attended the event held in the Hong Kong Theatre of LSE’s Clement House.

Professor Al Bhimani opened the day with a warm welcome to us all. He also thanked the long term sponsors of MARG: CIMA, ICAEW and the LSE Accounting Department

One of the important themes of the conference was that management accountants have to understand information technology including artificial intelligence (AI). Four of the presenters Rick Payne, David Lyford-Smith, Steve Morgan and Anthony Pember were clearly championing the use of IT by management accountants, talking about the importance of them being understood and used in their work. Rick was encouraging understanding by experimenting with simple AI and robotic process automation software which can often be tried for free. David explained the basics of blockchain (universal entry bookkeeping) which has three key features, propagation, permanence and programmability as well as some of the examples where it is being used including the Swedish Land Registry. Steve included live demonstrations using both Machine Learning and Chatbots from his work as Enterprise Controller at Microsoft UK. Anthony talked about Technology Business Management which requires a shared taxonomy to allow both cost and performance information to be captured. Its aim is to facilitate an activity based costing approach to make transparent both the value the IT provides as well as the cost.

The groups involved in the development of these capabilities was a theme discussed by Julia Heberle, Anthony Pember, Steve Morgan and Jan Bouwens. Julia talked of the need to develop the capability of the Australian Health Boards, as well as matching work to the skills of the staff which also led to improved job satisfaction; Anthony has been and is an active board member of CAM-I (the Consortium for Advanced Management International) working with them had led to the development of the common framework which is necessary to integrate cost and performance measures; Steve talked of having been part of a Microsoft financial controller development group of 20 from around the world who had spent six months developing the new IT processes; Jan talked of the success of a single performance measure in Continental Airlines as it had mutual monitoring by the staff, and the measure had momentum, the staff felt they were in it together and they could make progress as a team.

Performance measurement was another important theme being discussed by Jan Bouwens, Julia Heberle, Elaine Harris, Anthony Pember, Julia Mundy, Gordon Potter and Michael Bromwich. Jan was extolling the virtues of a single performance measure, namely on time arrival of flights whereas, Julia Heberle’s health authority team developed a value based performance measure drawing on four aspects, namely volume and process, patient experience, patient outcomes, and quality of life. Elaine found the similarities between health and education interesting in that both rely on multiple measures, which may be aggregated. However when both improve performance they get no increase in government funding! Anthony reported that by including cost and carbon footprint in a single ABC framework facilitated an analysis of the cost and value that environmental measures have both within the organization and with customers. Julia Mundy believes an important issue for

management accounting is the risk of losing ownership of the solutions if we do not embrace the use of qualitative data which is in high demand to support board level decision-making. Gordon Potter made the point that not all aspects need to be included in a bonus related performance measure, managers will attend to measures that they believe drive profit whether or not they are included in their incentive plan. Michael expressed his fear that accountants need to be more strategic and include more data about an organisation's competitors.

Professor Jan Bouwens of the Judge Business School, University of Cambridge was our first speaker and he had two items as his agenda in the opening slide, namely that motivation requires acknowledgement of both skill and performance and that motivation is best achieved with one measure of performance. Jan started with a dramatic clip of Jordan Belfort from the Wolf of Wall Street (who was portrayed by Leonardo Di Caprio) and we saw him motivating his team to go out and sell. Next, members of the audience were invited to attempt one of Jan's tasks yet when they handed in their sheet, he destroyed the first attempt submitted; the second he treated with neglect; and the third he acknowledged. Jan was demonstrating the powerful effect of a manager's behaviour on an employee's motivation.

Then Jan related how Continental Airlines was facing bankruptcy when it adopted one performance measure, namely on time arrival and the objective of being in the top five in the industry. This measure could suffer from the free rider problem however it was saved for four reasons:

- Firstly, it was the right performance measure as it is independently measured and reported;
- Secondly, it had mutual monitoring;
- Thirdly, there were visible rewards, all employees were given \$65 in cash by their manager when the target was met;
- Fourth and finally the measure had momentum, the staff felt they were in it together and that they could make progress as a team.

During this period the senior management of Continental Airlines cared about what the rank and file employees accomplished. They gave meaning to the work of all the employees and made the work important to the individual employees. This led to Continental avoiding bankruptcy, indeed the following year the company made a profit in excess of \$300m; employee turnover reduced as did employee sick days. Just over ten years later Continental Airlines merged with United Airlines.

The problems with multiple measures include overconfidence as the supervisor then believes he knows better but this has been found not to be the case. Another problem is referred to as paternalism which leads to an attitude of the 'boss knows best'. Thirdly it creates a market for excuses and fourthly managers are only able to cope with between five and seven measures (at most seven). A firm could assign weights to each measure then the problem becomes determining what weighting to apply to each measure. So, in summary, work has to have meaning to employees and those around them. And meaning is achieved by giving responsibility and the appropriate amount of difficulty to each employee.

The second speaker, Julia Heberle, from New South Wales Ministry of Health Activity Based Management (ABM) Group gave a talk 'From Volume to Value: Changing the landscape of healthcare performance measurement. New South Wales has an area approximately three times the area of the UK and population of about 1/8 of the UK population. There are just over 220 hospitals in NSW, all of which submit patient level cost data to ABM Group.

Under the National Health Reform Agreement, signed by all Australian governments, Activity Based Funding (ABF) was introduced in 2012. ABF uses the National Weighted Activity Unit (NWAU) as the currency to allocate funds. The key objectives of NSW Ministry of Health is to keep the system safe and operating, while transparently using purchasing levers to manage the growth in demand within the available budget. Many of the existing performance measures are one dimensional which may have unintended consequences, e.g. the four hour wait target leads to staff focusing on the time targets. NSW Health is now moving from a volume-based ABF model to an evidence based Activity Based Management model. They aim to maximise the value of patient care by shifting the emphasis to paying for outcomes achieved rather than volume of procedures performed, i.e. shifting the paradigm.

The NSW Health definition of Value incorporates outcomes (that matter to patients), experience of care, as well as efficient and effective care (in relation to costs). The Value approach identifies four key priorities for action: safety and quality, new models of care (and less variation), system redesign (resulting in better value) and people and culture.

One case study of elective hips and knees operations improved the pre-admission clinic service and attendance, medication management, developed a multi-disciplinary care approach and achieved better pain management.

A value-based performance measurement draws on four metrics: volume and process measures, patient reported experience measures (PREMS), patient reported outcome measures (PROMS) and staff satisfaction.

The NSW ABM Group has partnered with the University of Technology Sydney to focus on three building blocks considered essential to achieve the financial and performance transformation required in health care in: thought leadership, capability building and detailed case studies.

Julia concluded saying that moving from 'volume to value' is a journey; that patients must be at the centre of any service delivery model – the whole patient journey; and that a simple, coherent, palatable formula is required. To achieve this it will need a major cultural shift, even a paradigm shift.

A thought provoking after lunch session on Artificial intelligence and automation; Blockchain; Cyber security and Data called The AB(C)D of New Technologies and Accounting. It was given jointly by David Lyford-Smith (Technical Manager, IT and the Profession, ICAEW) and Rick Payne (Finance Director Programme, ICAEW).

Data: Rick gave the detail of an SME case study of a butcher's shop being helped by their accountant and using some cheap sensors to monitor footfall; a few basic experiments; some external data; which all lead to the shop offering chorizo and pulled pork burgers on both a Friday and Saturday night which proved extremely successful at attracting the passing trade and now contributes half the profits of this butcher's shop.

Robotic Process Automation – Rick recommended two ICAEW publications, 'How do you audit a robot?' and 'The essential guide to Robotic Process Automation'.

AI Artificial Intelligence is sensing the environment, assessing and then comparing to the goal to determine the next action. AI appears human as it includes perceiving, learning, rationality and

interacting with the environment. Machine learning is also a part of AI and Rick gave a brief demonstration using Microsoft Azure Machine Learning Studio to produce time series forecasting.

Chatbot: Another short demonstration of a chatbot using Microsoft QnA Maker was also provided by Rick (*NB A Chatter robot is a computer programme aimed at simulating an intelligent conversation*).

Blockchain: David Lyford-Smith introduced us to blockchain which is often associated with cryptocurrencies especially bitcoin. David defined blockchain as universal entry bookkeeping having three key features, namely Propagation, Permanence and Programmability.

Propagation - as new transactions may be added by all users and it ensures that all users have an identical copy (so there is no “master ledger”).

Permanence - as each transaction is linked to the previous and it is tamper proof – there is no doubt as to who is the owner.

Programmability – the blocks allow business logic including transaction details, along with a time stamp to be built into them.

For more details see the ICAEW publication “Blockchain and the future of accountancy”.

Examples of three blockchain case studies were then presented, bitcoin, Supply chain integration and Land registry. With bitcoin all the transactions are public however the identity of those involved is not. As for supply chain three examples of organisations who are known to be developing blockchain (Maersk for shipping containers; Everledger for diamonds; and Provenance for food) to enable those involved to see the views of the other participants. This currently has a high start-up cost but is expected to become worthwhile if sufficient numbers join in. Since June 2017 Sweden has been testing recording all property transactions on a blockchain. The blockchain acts as a secure and transparent verification and storage service for property transactions.

If we are worried about job losses being caused by this new technology Rick and David strongly recommended that all accountants should engage with the new technology – “come on in the waters lovely”.

The fourth presentation was on Management Innovations and Costing Advances which was given by Anthony Pember (Senior Manager, Public Sector – Decision Analytics, Grant Thornton, US). Anthony is also an active participant and board member of CAM-I (the Consortium for Advanced Management International). There was one central theme to Anthony’s talk supported by four examples. Anthony’s key theme was that successful integration of cost and performance requires that both cost and performance be collected using a common framework or taxonomy. This underlying concept was expanded upon using four examples: Technology Business Management, Target Value, Value Analysis, and Environmental Sustainability modelling.

The first example, Technology Business Management (TBM), is a relatively recent innovation and is designed to support the management accounting needs of the CIO and IT organization. TBM provides the CIO with a common taxonomy by which both cost and performance can be captured. The concept appears to draw on an activity based costing approach by establishing cost pools and then mapping them to the main aspects of IT costs that consume resources, such as the data centre, storage, application software, supporting end users to these aspects (referred to as IT Towers). These IT Towers are then mapped to the services they provide which are then finally mapped onto the business units they support. This approach provides a consistent financial stakeholder view, IT stakeholder view, and business stakeholder view of the IT organization. The taxonomy and

framework also assumes that operational metrics are aligned to IT Towers (for benchmarking) and services (for performance measurement purposes). The ultimate aim is to provide cost and performance transparency to the end user of IT and to define the value IT provides to the organisation-

The second and third examples Anthony introduced were centred around understanding value. One value related concept was Target Value which he defined as “achieving the optimum balance of performance and cost”. This must be done while bearing in mind and satisfying the customer’s expectations. Again, this needs a detailed knowledge of the behaviour of costs and which resources will be required to satisfy customers’ expectations. It also requires that cost and performance can be aligned through use of a common framework or taxonomy. The other value related concept was Value Analysis which enables organisations to channel their development activities to the areas which provide the greatest customer value. Anthony outlined work currently being done at CAM-I that is investigating how to demonstrate value for organisational support functions like HR and Finance. The CAM-I working group has developed a draft “principles based framework” that outlines the enablers support functions need to ensure delivery of value to the customer. The framework also proposes some key value indicators (KVIs) that can be used by support areas to demonstrate value to customers. One of the key tenets behind value delivery within support functions is the concept that traditionally support functions “push” non-value added services to customers (e.g. compliance type services). A majority of services provided by many support functions are compliance related, some go beyond compliance but are often not viewed as value-added (referred to as “essential”), while very few services are considered value-added by the customer. Anthony proposed that the challenge for support functions is to invert that paradigm so that a majority of a support function’s resources are focused on value-adding activities and, where possible, non-value added, compliance-type activities are automated and therefore consume minimal resources and effort. Doing this requires an understanding that, over time, value added activities and services transition to the “essential” and “compliance” categories. Therefore, support functional areas need to continually work at identifying where value can be added based on customer needs and design their processes so as to address customer requirements. This is reminiscent of Target Costing which stipulates that it is at the design phase that cost management and planning is crucial. This is true of manufacturing organisations or support functional areas. As with TBM, the concepts of Target Value and Value Analysis require that cost information and performance information be collected in the same terms – reinforcing Anthony’s key theme.

The fourth and final example was related to managing Environmental Sustainability which Anthony believes management accountants should have a very strong role in. Anthony outlined the concept of using activity based costing principles to manage environmental measures like carbon footprint or water footprint. Similar to allocating resource costs to activities and subsequently on to products/services, an environmental “ABC” model can also allocate carbon emissions (or similar environmental measures). Anthony outlined a model design that incorporated cost and carbon footprint into a single ABC framework. Using an activity based model to measure environmental factors means that it is possible to use the activity and cost object layers as a consistent means of measuring cost, performance and environmental impact. This leads to analysis and discussions on the cost and value impact environmental measures have within an organization and with customers.

Anthony also highlighted the problem of organizations needing to invest in the back end, the legacy systems, whereas most organisations usually focus on the front end, those facing the customer.

In answer to a question on value and the importance of costs being neglected by rapid growth organisations such as Amazon.

Anthony reminded us of the pharmaceutical industry having a similar attitude 20 years ago whereas now they are heavily into value.

In answer to a question on how to identify cost drivers, e.g. of a help desk?

Anthony replied by using trial and error, and it takes maturity over time. Anthony also referenced to Nancy Roberts "Good, better, best".

The fifth session was a panel of speakers addressing 'Is Management Accounting Ready for the Future?' On the panel were Elaine Harris, Professor of Management Accounting at the University of Roehampton; Gordon Potter, Associate Professor at Cornell University; Julia Mundy, Principal Lecturer, University of Greenwich; and Emeritus Professor of LSE, Michael Bromwich.

Elaine Harris

The first session was provocative, suggesting one measure is enough. This may be true at a particular time, e.g. when an organisation is in trouble, then focusing on one measure may pay off. In UK Higher Education, academic institutions are judged on a league table and the aggregate measure includes teaching and research quality. From Elaine's work as chair of the Management Control Association, we know that one of Simon's levers measures diagnostic information, it has a big role, but is only half the story. The first presentation suggested reducing measures right down to a single number; In contrast, the second presentation was about the Australian Health Sector, where there do seem to be some similarities between health and education, both rely on funding, both get less than they need; both have multiple measures that may be aggregated. However, even when we improve performance, we get no increase in government funding!

Interesting question is big data and is management accounting ready?

We have much work to do as was shown by Rick and David. How to harness big data? Or how to pick out what is useful from a vast pool of data? She found David's talk about how the blockchain principle is used by the Land Registry enlightening.

One area where management accounting is not ready is in strategic investment decision making and resource allocation ... this often follows a very dated process, so we have not made enough progress in what is often still called capital budgeting. It is an area both practitioners and academics should be working on.

Julia Mundy

Listening to the presentations today, it's clear that the problems that MA seeks to solve haven't changed and have arguably got worse - how to deal with complexity, how to measure and manage performance, how to motivate and reward individuals. Issue for future of MA is not that the problems will go away, but risk of losing ownership of the solutions.

Why might that happen?

1. Discussion today mostly supply side, use of old tools and new tech – less about demand, MAs support not an anonymous ‘business’ but the CEOs and Boards responsible for delivering the organisation’s strategic objectives and performance. Need to be joined up with risk management and corporate governance to be impactful in Board room. If MA does not do it, other groups will fill the gap.
2. One aspect of supply not covered – future workforce. Demographic group called Millenials is now at middle management level, and the first cohort of Gen Z has just started at university. Why important? Entrepreneurial, very risk averse, tech savvy, meaningful work, possibly poor at face to face interaction – different view of MA, and might not even want to be MA!

Does MA have a future?

Undoubtedly, but will rely on MAs remaining the stewards so that the Board has one single point of expertise. To do that:

1. Embrace the use of qualitative data in the same way that we have embraced NFM in the past 25 years or so. How many of you, before buying a product or service online, read the customer reviews? We read the reviews because they help us to evaluate the credibility of the scores. The organisations I work with have a high demand for qualitative information to support Board level decision-making, what actions are being taken to mitigate risk?
2. Seek to transfer learning from public to private - much higher level of complexity in giving equal weighting to different aspects of performance.
3. Actively fight to demonstrate that we (MAs with support from academics) have the expertise and knowledge to support CEOs and Boards. Most accountants tend to be very polite. Like to see them fight off the rapacious management consultants, either directly on their own or by bringing in not-for profit orgs.
4. Quite taken with David’s story of Long Island Iced Tea and how rebranding led to quadrupling of share price – same for MAs?

Professor Gordon Potter of Cornell University commented on having enjoyed the four presentations that preceded the panel. They all dealt with difficult problems faced by our profession. Considering Jan Bouwen’s talk on the use of a single performance measure, Gordon commented on prior studies he had conducted looking at bonus plans that included both financial and nonfinancial measures. He noted that it is unclear why managers need to be compensated on multiple nonfinancial measures. For instance, if managers know that customer satisfaction and other nonfinancial measures drive profit, it seems that these managers will attend to these measures even if their incentive compensation is solely based on profits. Thus nonfinancial can be useful if provided for guidance, but does not necessarily have to be incorporated as a performance measure in an incentive plan.

As to whether management accounting is Ready For The Future, Gordon’s experience is based on his teaching undergraduates in a hospitality program and also in a undergraduate business minor

program. At the undergraduate level it is very difficult to attract excellent students to management accounting. Most of the undergraduate students he is involved with have a strong preference for financial accounting and finance, and most seek jobs in New York City in investment banking. Cornell's college of business also has trouble filling advanced courses in management accounting. In addition to the problem of attracting strong students, the academic profession has difficulty retaining top notch empirical researchers. Many empirical researchers trained in management accounting gravitate to financial accounting due to data availability and publishing opportunities.

A second area to consider regarding Ready For The Future is the content in basic management accounting courses. Most of the presentations we heard today involved topics other than product costing. There is still too much of a focus on manufacturing and product costing in most introductory management accounting texts. There needs to be more focus on costing other objects such as customers, suppliers, services and departments. Moreover, an exciting area of cost management and cost behaviour is asymmetric cost behaviour and the relationships between labour, operating risks and costs.

Michael Bromwich

Challenges, some are around the corner and some are here now. Two points:

1st Accountants are not on their own, e.g. strategy, we do not own it, those who do will keep it, accountants need to be more strategic;

2nd Missing about the rivals in the world; there is another firm, they were next door, now maybe the other side of the world; how much we know about our rivals? Either nothing or everything. Budgets should be relative to your rivals. The competition is out there.

Also, a bit worried about value. Slippery alignment of cost and value, economics rely on market price as a minimum value.

With Target Costing, the Japanese ask the consumer what they like in their company product. If it is too expensive, they will not produce? Now it is about costs and targets not value. The focus on value is very cyclical.

The sixth session, the MARG 2018 Distinguished Practitioner Lecture was a presentation by Steve Morgan (UK Enterprise Controller, Microsoft) on Finance Innovations at Microsoft: Machine Learning (ML) and Artificial Intelligence (AI). Steve kindly included live demonstrations based upon the Microsoft cloud platform.

Firstly the use of Azure ML to dramatically improve Microsoft's revenue forecasts in terms of both accuracy and reducing the number of people engaged. The traditional bottoms-up process of forecasting for Microsoft including hundreds of analysts forecasting revenue for +80 geographies, 8 customer segments and dozens of product skews. Now using ML, Microsoft revenue forecasting provides real time global views, managed by a small team that drill down to subsidiary, business and product. This helps Microsoft Finance triangulate internal forecasting and provide more confidence for forward looking ranges. Steve compared 3 quarters during FY16 using the ML outlook vs traditional bottoms up forecasting resulting in an improved average forecast accuracy of more than 1%.

Some of the further use cases of ML in Microsoft were discussed including integration with Microsoft Pulse on Cortana Intelligence Suite to improve greater accuracy in game volume forecasts by better understanding customer sentiment analysis for Microsoft's Xbox platform.

Steve also demonstrated a use case of AI with two uses of chatbots at Microsoft. Compy, a compliance chatbot was used to demonstrate training materials, compliance policies and answers to questions from Microsoft employees in the UK. Steve also presented Edward, Microsoft's credit services chatbot and how the chatbot was used to facilitate the retrieving of relevant information on outstanding Accounts Receivable balances by customers using natural language

Steve discussed using the bot while mobile and commuting to the office. After hearing news of a customer entering administration, Steve was able to engage with Edward on Microsoft Teams to ensure the customer was on credit hold and understand the risk profile for outstanding invoices. Within minutes of receiving the information he had sent communications to relevant colleagues recommending possible courses of action. Thus the work of the Controller has not necessarily changed however the speed of reaction has, and that more time is available for analysing the data as opposed to gathering it.

The conference closed with a well-attended buffet reception. The conference organisers are very grateful to ICAEW and CIMA as sponsors.

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