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Tailoring your Strategy Function for Success

Fintech: a Force for Disrupting and Democratising Financial Services

The E-Car will change human behaviour

Sound Business: Improving Your Audio ROI

Exclusive Interview

Allan Dow
PRESIDENT, LOGILITY

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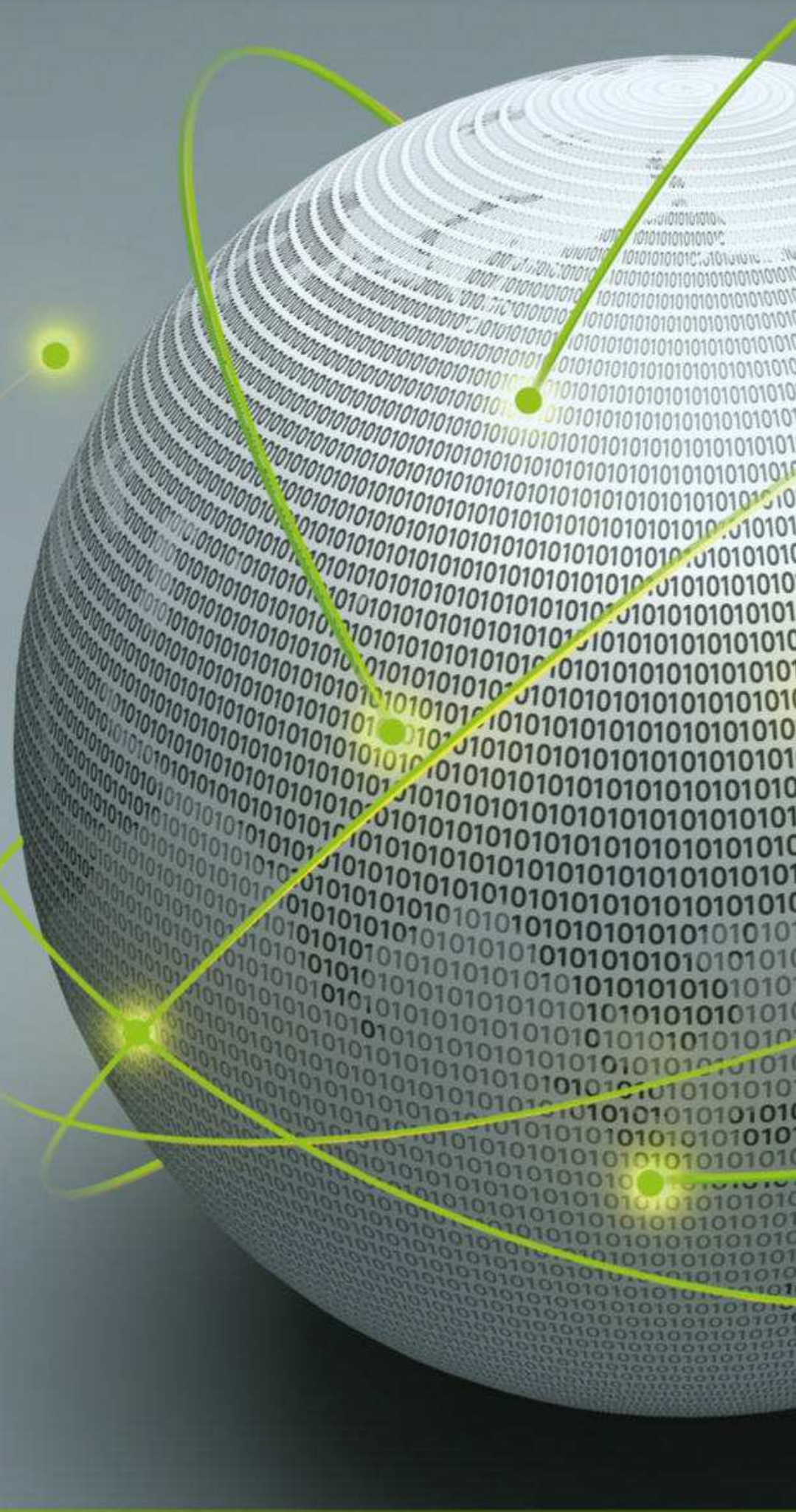

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Portugieser Automatic. Ref. 5007: Virtually no other form of sport bonds us so closely with nature and technology as sailing. Gliding over the waves on a sailboat, you experience the elements full on. You need to read the wind correctly to make the right manoeuvres. For Portuguese seafarers like Ferdinand Magellan and Vasco da Gama, sailing ships were the key to the discovery of hitherto unknown sea routes and whole new worlds. For the explorers and discoverers of our era, sailing is simply the most stylish way to travel on water. The fact that individualists like these are equally uncompromising when it comes to their choice of wristwatch goes without saying. The Portugieser Automatic in 18-carat red gold has a stunning, iconic design that combines classical elegance with a timeless aesthetic. And because this watch captures the ethos of the Portuguese mariners of old, it succeeds in creating something extraordinary: namely, a connection between the explorers and discoverers of today with kindred spirits of a bygone age. **IWC. ENGINEERED FOR MEN.**

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From the Editors

Being **CUSTOMER-FOCUSSED** IS THE ANSWER

In this digitally-enhanced business world, one of the key differentiators among brands is customer centricity. It's a word that we've been using for ages and a strategy that has been at the heart of organisations.

Customer centricity, in its very essence, is about putting customers first and involving them at the core of business; it's about brand's alignment of their operations, production and talent in order to meet changing customer needs. By embracing this approach, brands have seen significant value and sustained success for their business.

Allan Dow
PRESIDENT, LOGILITY

Our cover story for this edition is inspired by the concept of customer centricity. Recently, we had the pleasure of speaking with **Allan Dow, President of Logility**, a leading provider of collaborative supply chain optimisation and advanced retail planning solutions.

In our interview with Mr. Dow, we were reminded of the importance of doing business in a way that addresses the exact needs and demands of customers, of delivering products and services beyond their expectations, and of building good relationships with customers.

In addition to the concept of customer centricity, we also put emphasis on some of today's most influential and trending topics across industries.

In this issue, you will find the article **Tailoring your Strategy Function for Success** by Jo Whitehead, Felix Barber and Rebecca Homkes, presenting a clear step-by-step approach to getting the best value from the strategy function; a feature highlighting Viktor Prokopenya's insights on how **Fintech serves as a Force for Disrupting and Democratising Financial Services**; and a piece by E. Sakellariou, K. Goffinin and A. Mariakaki introducing Storytelling Workshop as an effective - but little known - approach to new product development.

Further, you will discover articles looking at various facets of the impact of Data on business, including an exploration of freemium business models' real potential in the article **Nothing is Free**; how Data supports the investment in female employees; and the policy implications in relation to the application of AI in business.

Lastly, we also present two important articles that aim to give you enhanced perspectives on the ever-changing business world: an in-depth article entitled **The E-Car Will Change Human Behaviour** by Boris Liedtke and Stefan Krause focussing on the electric vehicle industry; and an insightful piece highlighting the important role of Sound in Brand Management by Steve Keller **Sound Business: Improving Your Audio ROI**.

Indeed, our world has become more complex and industries are changing in ways that we often fail to foresee. May this edition of The European Business Review provide you with new insights that will help you be well on your way to becoming more flexible and successful in moving with the times and demands of your customer base.

Have a happy reading!

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FINTECH: a Force for Disrupting and Democratising Financial Services

INTERVIEW WITH VIKTOR PROKOPENYA

Fintech is like a snowball on a hill that is getting bigger and bigger and changing finance tremendously. London-based entrepreneur Viktor Prokopenya is well acquainted with this scene; particularly with fintech's ability to disrupt and democratise financial services. He believes that in the next five to 10 years, fintech and AI will profoundly alter the world in the same way as the advent of electricity.

From a niche concept to global buzzword, fintech has exploded over the past decade. In the span of just seven years, global investment has increased by a whopping 1,000%, topping $122 billion last year. And while some Luddites sought in the beginning to pour cold water on the disruptive potential of the technology, hardly a day passes without news that a new company – or government – unveils its own fintech product. For example, Bermuda's government recently announced the creation of a new class of banks to serve fintech and blockchain organisations, while Saudi Arabia granted its first fintech licenses in July.

IN THE SPAN OF JUST SEVEN YEARS, **GLOBAL INVESTMENT HAS INCREASED BY A WHOPPING 1,000%**, TOPPING $122 BILLION LAST YEAR.

But ever since the early days of fintech, London has emerged as a global hub, leaving in the dust other European rivals such as Paris and Berlin. A staggering 27 of this year's "FinTech50", the most game-changing fintech businesses in Europe, are headquartered in London. Despite initial worries that the looming threat of Brexit would cut into this lead, venture capital investment in London's fintech industry more than doubled in 2017 vis-à-vis the previous year.

It's a thriving scene that London-based entrepreneur Viktor Prokopenya, whom we recently sat down with, is well acquainted with. For Prokopenya, the "tech" part of fintech comes first. A former IT consultant, Prokopenya's first entrepreneurial forays were in the world of software development; developing Viaden Media, the largest mobile app developer in Central and Eastern Europe. Prokpenya then moved into the venture capital sphere in 2012, founding his own investment firm, VP Capital.

Bent on sussing out the disruptors of tomorrow, Prokopenya made a conscious decision not to restrict the firm's investments to specific industries, but rather to focus on what he saw as the essential elements of a successful business venture – a company with global reach and the potential to make a significant difference in the world, led by people who "have a deep understanding of their industry, who think about the world in unconventional ways".

Fintech firms are springing up to help people in emerging economies do everything from sending electronic remittances to applying for an emergency loan from a mobile device.

True to form, VP Capital's very first investment, back in 2012 was in a fintech start-up called exp(capital), a company developing software for banks to accurately predict market fluctuations. While at the time it seemed like an esoteric choice for a first investment, Prokopenya's bet paid off. Reflecting on what initially drew him to fintech, he remarked: "What is particularly exciting about fintech in my opinion is that it is using new technologies to democratise financial services, making them available to more people by lowering costs and barriers to access, which is having a positive impact on society at large. With smartphones becoming almost ubiquitous there is an opportunity to reinvent financial services by bringing them to people's mobiles."

The democratisation Prokopenya highlighted is one of the elements of fintech which investors and entrepreneurs are most excited about. As PayPal CEO Dan Schulman pointed out, two billion people around the world – including 70 million in the United States – live outside the mainstream financial system. Some of these people have no access to banking services at all; others rely on pawnshops or extortionate payday lenders, spending up to 10% of their disposable income on fees and interest rates.

As Prokopenya underscored, this gross inequality can be alleviated by the fintech innovations now flooding markets. In Kenya in 2006, for example, a paltry 27% of people had access to formal financial services. Thanks largely to the skyrocketing popularity of mobile money accounts, that figure has now increased to 75%, making Kenya the most financially inclusive country in Africa.

Fintech firms are springing up to help people in emerging economies do everything from sending electronic remittances to applying for an emergency loan from a mobile device. Some firms are particularly inventive – one, for example, uses satellite imagery of farmers' fields to grant them credit and insurance from a distance. It's exactly this sort of venture – at once a lucrative business opportunity and an initiative that disrupts the way people bank across the globe – that Prokopenya chooses to invest in.

But disrupting long-established industries cannot be done with just one project. True innovation comes from stitching together different technologies and services and creating new products altogether. Which is why, in his more recent projects, Prokopenya has set his eyes on blending fintech with artificial intelligence (AI). Capital.com, a financial trading platform which The European Magazine has named the most innovative and most transparent broker in Europe, is one such example. One of Capital.com's revolutionary features is its "Smart Feed" function, which detects traders' innate cognitive biases – such as overconfidence – and helps them learn to overcome these biases to make better investment decisions.

The innovation which netted Capital.com such an award include the free educational app, Investmate, which accompanies its trading platform. Investmate offers amateur traders interactive courses and articles to help them pick up the tricks of the trade, brush up on finance basics or learn how to predict market trends. The app's educational content is tailored to the traders' level of experience and individual goals, part of Prokopenya's mission to turn Capital.com into "the most personalised, user-friendly, easy-to-use, AI-backed trading platform."

About the Interviewee

Viktor Prokopenya, a London-based technological entrepreneur, venture capitalist, and AI advocate, sheds light on what the public tend to get wrong about the implications of machine learning algorithms. In collaboration with Larnabel Ventures, Viktor Prokopenya's investment vehicle VP Capital announced that they would invest over $100 million in artificial intelligence startup businesses. They have already announced significant investments in a numbers of companies across a wide variety of industries.

Prokopenya is insistent that thanks to ongoing advances in computer power and machine learning, as well as the extent to which AI algorithms are more efficient than human processes, AI will continue to catalyse advances in fintech, drastically remaking the financial sector over the next couple of years. If Prokopenya's predictions about the future seem ambitious – he believes that in the next 5 to 10 years, fintech and AI will profoundly alter the world in the same way as the advent of electricity – the sheer amount of capital flowing into the sector suggests that many of his fellow investors share his optimism.

Thanks to ongoing advances in computer power and machine learning, as well as the extent to which AI algorithms are more efficient than human processes, **AI will continue to catalyse advances in fintech, drastically remaking the financial sector over the next couple of years.**

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Tailoring the Strategy Function FOR SUCCESS

BY JO WHITEHEAD, FELIX BARBER AND REBECCA HOMKES

Enterprises face a host of challenges today, including digital disruption and changing global trade patterns. In such an environment the need for a flexible strategy and a flexible strategy function is high. In this article, the authors present a clear step-by-step approach to getting the best value from the strategy function based on their research in over 50 companies with Heads of Strategy, CEOs, CFOs and advisors.

In recent years, companies have been creating high-powered strategy functions to help develop, communicate, and execute their strategies, and to track progress. Part of the value of the Head of Strategy – as we refer to the role in this article – is that there is no standard job description. Heads of Strategy typically have fewer routine responsibilities than do other functional heads. Although they manage the annual planning process, that isn't a full-time job usually; companies don't entirely overhaul their strategic plans every year. In the Head of Strategy, a CEO therefore has a skilled and seasoned resource on tap, which can be invaluable in an unpredictable and fast-changing world.

All the data show that there are wide variations in the work that Heads of Strategy perform. For instance, a 2008 Accenture survey found that the average Head of Strategy was responsible for as many as 10 different activities while 25% were responsible for 17, or more activities.[1] But precisely, because the Strategy role is so flexible, companies and their CEOs find it difficult to hire the right Head of Strategy and get full value from their strategy function. The Head of Strategy needs to be able to play so many roles that even talented executives find it difficult to do well across the board. The Head of Strategy must possess a difficult-to-find mix of strategy-related skills, industry knowhow and the ability to develop close relationships with senior executives. Defining the type of individual required up front is made more difficult because it evolves over time. CEOs load up Heads of Strategy with pressing tasks whenever necessary, so much of the Head of Strategy's work is opportunistic. Several of the CEOs and strategists we interviewed described how previously successful Heads of Strategy lost their job when the challenges facing the organisation shifted – for example from growth to margin improvement – something that Heads of Strategy have in common with CEOs and which distinguishes them from other senior executives.

Heads of Strategy studies, such as the annual survey conducted by the University of St. Gallen and Roland Berger since 2011, find that one in seven Heads of Strategy is, sooner or later, asked to quit – comparable to the one-in-six rate at which CEOs were

Because the Strategy role is so flexible, companies and their CEOs find it difficult to hire the right Head of Strategy and get full value from their strategy function.

Our research suggests that, to be successful, any Head of Strategy has to have the capabilities required to contribute to the particular corporate work to be done. **While this may seem obvious, this can mean that the best person for the job is someone who may not even have a background in strategy.**

forced out in 2016.[2] Only a third of them remain in office for over three years, and just one in ten stick around for over five years, so most Heads of Strategy don't stay long enough to see the results of their efforts. In our research, about one in five Heads of Strategy failed to have an impact on their companies or were rejected by top management teams.

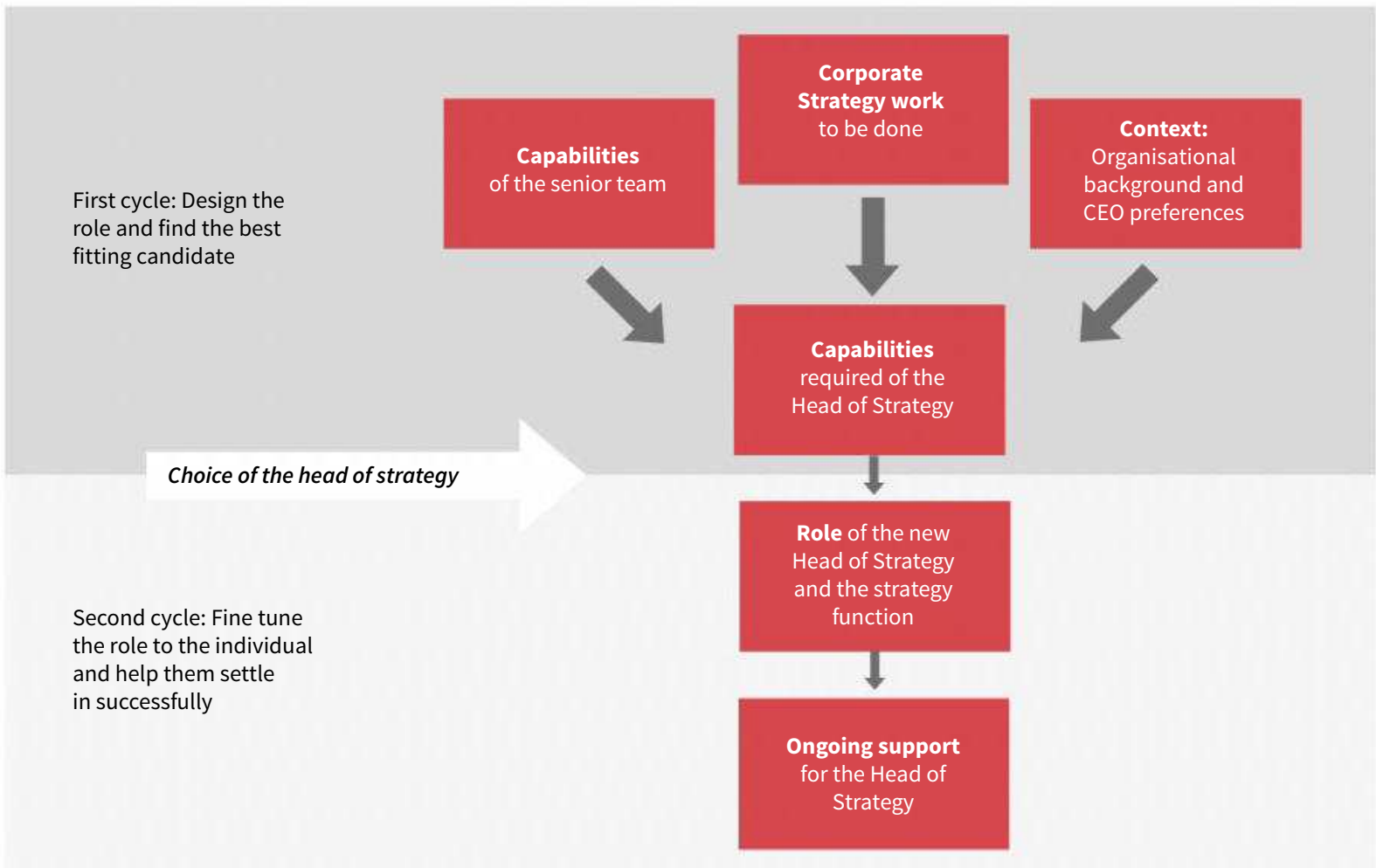
It seems logical that it would be particularly valuable for CEOs to have some guidance about how to pick the best individual for a role that varies so widely, for which a strong track record does not guarantee future success and for which the failure rate is high. However, to date there has been little clarity about how to do this. Prior studies even disagree on what are the possible roles.[3]

Our research begins to prize open that "black box", using 55 interviews with Heads of Strategy, CEOs, CFOs and advisors to understand what they thought made the role a success, and comparing examples of particularly successful and particularly unsuccessful Heads of Strategy.

How to get the best from your Head of Strategy

Our research demonstrates that success comes when the capabilities of the Head of Strategy are tailored to fit the situation. To achieve this, CEOs and Heads of Strategy can go through two cycles of tailoring (see Exhibit 1). The first cycle involves finding the individual whose capabilities best fit three factors: the corporate strategy work to be done, the capabilities of the rest of the senior team and the context. In the second cycle, the role is fine-tuned to get the best possible fit. Also, in the same way that a good tailor will support their client through further adjustments and repairs, a good CEO will find a way to provide a new Head of Strategy with ongoing support to help them

Exhibit 1: Designing the strategy function



settle in and evolve their role as the situation develops.

This tailoring process also suggests a prescriptive approach to defining the role of the Head of Strategy and getting the best value from the function.

The first cycle: Finding the best fitting candidate

The best way to start is by drawing up all the major tasks required to develop and execute the company's strategy. Our research suggests that, to be successful, any Head of Strategy has to have the capabilities required to contribute to the particular corporate work to be done.[4] While this may seem obvious, this can mean that the best person for the job is someone who may not even have a background in strategy. For instance, Vodafone's Head of Strategy between 2006 and 2016, Warren Finegold, led its charge into global markets through M&A. He worked, in his own words, "… on more than $300 billion in acquisitions and disposals that helped build Vodafone into one of the world's largest telecom groups spanning Europe, India, and Africa."[5] His background was not as a strategist but as an Investment banker at Goldman Sachs and UBS.

The work to be done. The range of possible work is very wide, as described in Exhibit 2 (a more detailed description of this and other parts of our research can be found in our extended report).[6]

Capabilities. In designing the role and the ideal candidate, the most important fit to think about is between the corporate work to be done and the capabilities of the Head of Strategy. Because the work varies widely between companies, so do the capabilities required. If the work required is primarily in corporate development, change management, or in business units developing better strategies, for instance, the ideal candidate should, respectively, have an M&A background (as Vodafone's Head of Strategy, Warren Finegold, did); senior line management experience (HP's Head of Strategy Mohamad Ali was a former CEO); or be able to set up an internal consulting function – several Heads of Strategy we interviewed were previously partners at global consulting firms.

A company may sometimes find itself with a Head of Strategy with unique capabilities, for whom it is worth creating a special role. If the candidate has a particular set of capabilities of great value to the company, it can be worth the company's while to fit the role to the candidate. For example, Walgreens Boots Alliance's Rick Mills has been the group strategy officer for 20 years. He was initially hired to work on the integration of Boots and

Exhibit 2: The Different Types of Corporate Strategy Work

Work to be done \ Stage in strategy process	Develop	Execute	Operate	Monitor
Corporate Development • M&A Disposals, JVs • Corporate Ventures • Alliance, Strategic partnering • …				
Influencing individual Business Units • Business unit strategy • Corporate initiatives • Allocation of people and capital • …				
Coordinating Business Units • Shared assets/ services • Central functions • New organisation • …				
Other strategic priorities • Review of overall corporate strategy • Board support • Investor relations • Government/ stakeholder relations • Environmental, Social and Corporate Governance • …				

A company may sometimes find itself with a Head of Strategy with unique capabilities, for whom it is worth creating a special role. If the candidate has a particular set of capabilities of great value to the company, it can be worth the company's while to fit the role to the candidate.

Alliance and worked together with Stefano Pessina, the company's executive chairman so well that gradually Mills become more and more of an integral member of the senior team. He has accumulated a unique mix of deep knowledge of the organisation, the industry, and how to work with Stefano Pessina, the company's executive chairman. These attributes have allowed Mills to develop his initial strategy "staff" role into becoming a critical member of the senior team, working closely with Pessina to identify and execute deals that have propelled Walgreens Boots Alliance forward on both sides of the Atlantic.

Successful Heads of Strategy have capabilities that are not only particularly valuable but are also complementary to those of the rest of the senior team. This provides both challenges and opportunities. In terms of challenges, if the CEO believes that the senior team already contains individuals with adequate skills, there may be no role for even a well-qualified Head of Strategy. As described to us by Simon Bax, CFO for Steve Jobs when he led Pixar, Jobs did not employ a Head of Strategy, because he believed he had enough strategic capability as an individual and in his senior team. He believed that a Head of Strategy might not bring enough to the table. "Steve valued very specific knowledge – not analysis and consultant-type thinking. I could help him because I had worked in LA with (Fox) studios."

Context. A Head of Strategy is more likely to be successful if he fits in with the broader context. Several factors can have a bearing. Family businesses may want a member of the family to head the strategy function, for instance. The company may have a strong engineering culture where having an engineering background helps the Head of Strategy build relationships. The CEO may have personal preferences that have a significant impact on the Head of Strategy chosen.

A Head of Strategy is more likely to be successful if he fits in with the broader context.

The frameworks laid out in Exhibits 1 and 2 can be used to think through how to get the best out of a Head of Strategy, a thought process which is best illustrated by an example of how our thinking was applied in the case of a new head of strategy at a large B2B company (see sidebar).

AN EXAMPLE OF HOW TO GET THE BEST OUT OF THE HEAD OF STRATEGY

Consider a company in Europe, whose identity we have disguised, that manufactures and supplies several types of components to automotive manufacturers on the continent such as Volkswagen and Fiat. At this large multi-business organisation, the CEO, assisted by the CFO, had traditionally developed strategy.

Corporate Strategy Work to be Done. The key strategic issues perceived by the CEO related primarily to coordination. The various businesses, the central production function, and the national-level marketing and sales units all operated quite independently. But customer offers and prices needed to be harmonised across countries to improve negotiating positions with the company's increasingly centralised customers. Similarly, sales contracts needed to be written such that the batch sizes and delivery dates met the needs of not just customers, but also those of production. And investments in new manufacturing plants and plant upgrades had to be better coordinated, so they reflected long-term patterns of demand and ensured efficiency across the network of factories. Consequently, there was a crying need for greater coordination between the company's functions and thus, a new system of cross-country and cross-functional coordination would have to be created and executed across the company. This would be too much work for the CEO and the CFO to carry out alone, another senior executive would have to take responsibility for setting up and coordinating and monitoring the new system to ensure that it was effective and efficient (see Exhibit 3).

In addition, the CEO and the CFO believed that the corporate strategy could do with some blue-sky thinking beyond the issues of coordination; the global economy, Europe, and the automotive industry were all changing rapidly.

Capabilities of the senior team. As the next step, the CEO evaluated the company's top executives to see if any of them had the skills to deal with

the work that needed to be done. A well-respected internal candidate, who had experience in working across functions, would have been ideal for the Head of Strategy position given the nature of the task. However, after conducting an analysis, the CEO reluctantly concluded that the existing team didn't have the requisite skills.

Capabilities required of the Head of Strategy. The company needed to make a new hire with the skills to: understand customer needs and integrate them into marketing and sales strategies; update customer offers; develop new contracting approaches; and draw out the implications of all of this for manufacturing and capital expenditure. In addition to some experience in developing corporate strategy in industrial companies, and preferably in automotive, the new hire would have to be credible and persuasive. In the medium term, he or she would have to challenge the beliefs and practices of the production management team, which had been the dominant function in the company for decades. Crucially, the newcomer would need to earn the trust of the CEO and the CFO quickly, as well as the key players running business units and functions such as production.

After reviewing the list of potential candidates provided by an executive search firm, the CEO created a shortlist of two: a marketing specialist and a management consultant. The marketing specialist had worked in several industrial companies; operated in large, global organisations; and was used to coordinating customer-offer strategies across countries. He had spent his career focused on marketing, particularly on go-to-market issues in business-to-business settings. He was dynamic, able to make decisions rapidly, and promised to deliver results. However, he didn't have much experience with production-related issues, or in working with this company. Moreover, he was stronger in marketing than strategy.

By contrast, the management consultant was a partner at a major strategy firm. She had, coincidentally, worked with the company on a few assignments, and earned the respect of several executives in the business units and at the corporate center. However, although she had consulted with several companies on marketing-and sales-related issues, her go-to-market expertise was not as deep as that of the marketer.

Context: organisational background and CEO preferences. A new hire was likely to meet some resistance from the incumbent top management team. While the marketing specialist was an unknown quantity to them, the consultant had worked with the top team in the recent past.

Choice of the Head of Strategy. The CEO eventually appointed the consultant as his Head of Strategy. While the marketer would have brought more global go-to-market expertise, the CEO felt that he might be too focused on implementing customer-centric solutions that didn't reflect the production function's constraints. The CEO believed that the management consultant would take a broader view of how, for example, the selling effort and the customer offer should be coordinated with the production function to maximise the value created by the company. While any new hire was likely to meet resistance from the top management team, the consultant

Exhibit 3: The Corporate Strategy Work to be Done

Work to be done \ Stage in strategy process	Develop	Execute	Operate	Monitor
Coordination across country BUs and central Production				
• Customer offer (including prices)	✓	✓	BUs and Production	✓
• Sales contracts	✓	✓	✓	✓
• Capital allocation	✓	Finance		
Longer term corporate strategy	✓	TBD		

had worked with the company over the past few years, reducing the risk of friction. The CEO also felt that the consultant was better qualified to help develop the company's future strategy.

Fine tuning the role of the new Head of Strategy. The next step was to fine tune the role, and the strategy function, to fit the new hire. To compensate for the comparative lack of experience in customer relations, the new Head of Strategy was encouraged to hire managers with marketing expertise for her team. Those executives provided support in the specialized world of business-to-business marketing while the CEO helped the new hire grow into the role.

Ongoing support for the new Head of Strategy. The new appointee was first given oversight of a project to restructure the go-to-market strategy, a relatively self-contained and important effort. After its successful completion, she began discussions with the production function about how the company should make decisions in the short run about investments in existing and new facilities.

With the new hire settling in at the automotive components-maker, she told us that her next step would be to persuade the CFO and the CEO to give her a larger role in driving decisions about where, when, and how to invest in new production capacities in the long run. She believed that the company's production function evaluated investments using overly simplistic assumptions about the revenues from a new plant; they, typically, assumed that the product was a commodity that would return the same price per unit.

However, she believed that small changes in design, batch size, and delivery could boost the prices they could demand from manufacturers. If that was accounted for while evaluating investment decisions, it would favor the creation of a larger number of smaller, but more flexible manufacturing plants. That would entail higher investments, but the new factories would generate higher margins and shareholder returns. It was only after she had spent some time in the company that this fact had dawned on her, and she felt that she was getting to the point when she could challenge the CFO and the CEO about what was, all said and done, "their baby." When that happened, we felt, the CEO's choice of Head of Strategy would have been vindicated.

The reasons for success and failure

Our research suggests that failures often occur quickly, and such cases are caused by a misfit between the capabilities of the Head of Strategy and any one of, or a combination of, the work to be done, the capabilities of the senior team or the context. The most common problems were an unforeseen clash with the senior team, or not fitting in with the overall organisational context. Occasionally the capabilities required did not match the work to be done.

Some failures occurred after the Head of Strategy had been successfully in post for some years. These were largely due to a change in corporate strategy and the work to be done, for which the incumbent Head of Strategy was not well suited. Such changes were often concurrent with a change in CEO, and sometimes the preferences of the new CEO played a role.

In nine out of the ten examples of failure, a poor fit was the cause. In the other example, a capable individual fell out with an important joint venture partner and had to be fired.

Successes were universally the result of the individual having difficult-to-find and highly-valuable capabilities that made a significant contribution to the work to be done. This might not last long – for example, Mohamad Ali's successful tenure at HP lasted just 2 years 4 months. However, if the work to be done remains similar over a long period of time, or evolves slowly, then a valuable Head of Strategy may be in post for a very long time. For example, Hein Schreuder was in strategy roles for 20 years at DSM, a Dutch company active in health, nutrition and materials, including 15 years as Executive VP of Corporate Strategy & Acquisitions. During this time, he was involved in developing and driving five "Corporate Strategy Dialogues", a periodic process which reviewed and refreshed the corporate strategy, and which was

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useful for the company throughout his tenure. His capabilities remained relevant and deepened over time as he became more experienced.

The second cycle: Fine tuning the role to the individual

Referring back to Exhibit 1, choosing the candidate who best fits the situation is a major step, but only the first one. Typically, it is not possible to get a perfect fit and so the next step is to tailor the role, and the strategy department as a whole, to compensate for any weaknesses and utilise any unexpected capabilities that the new appointee might have.

A common issue is that the Head of Strategy lacks certain technical skills. She or he may be stronger in executing strategy than developing it, a common problem. One way out is to hire people for the strategy function that can plug the gaps. For instance, Vodafone's Head of Strategy, Warren Finegold, knew that his expertise was in M&A, so he hired a more process-focussed executive to handle the strategy planning process.

Another option is to juggle the roles of the executive team to compensate for the Head of Strategy's capability gaps. For example, when the Head of Strategy is inexperienced in handling acquisitions and disinvestments, that responsibility can be assigned to the CFO.[7] In some companies, the Head of Strategy plays a role in developing the strategy-related capabilities of the organisation; in others, the Human Resource head manages that task. If the Head of Strategy is good at analysis, but not at sparking debates, the CEO may need to get involved.

The first few months of a Head of Strategy's tenure is a critical time when the risk of failure is particularly high. Thoughtful CEOs (or whomever the Head of Strategy is reporting to) should have a clear view about where the fit might need a little more tailoring over time and look out for problems. Some Heads of Strategy need encouragement, whereas others need reigning in, or feedback about how their current approach is not working. To develop and retain them, CEOs look for opportunities to give successful Heads of Strategy more responsibilities.

When the strategy work changes enough, CEOs typically appoint a fresh Head of Strategy. Even incremental changes in priorities can demand personnel changes. For example, different kinds of Heads of Strategy were involved at Rolls Royce over the years. Miles Cowdry, its director of corporate development from 2008 was particularly good at challenging assumptions and perceived wisdom, valuable skills whatever the situation. He initially hired a director of strategy who was skilled at working with the CEO to peer into the future and generate creative ideas. As Rolls Royce's strategy changed from growth to extracting value from the businesses, a new director of corporate planning, who was particularly strong at project management, was brought in.

The most critical requirement to being a top strategist is to have hard-to-find capabilities that meet the current needs of the organisation.

What makes a strategist a great strategist?

In the course of our research, we came across many competent strategists who fitted the design principles described above. We also came across a few really special strategists who were more than that. They were a part of the leadership team, taking an active and pivotal role in driving the company forward. They came in two basic models.

The first is the "hired gun". A good example is Mohamad Ali who was Chief Strategy Officer at HP, reporting to Meg Whitman, HP's Chairman and CEO. He was only in post for 2 years and 4 months, but in that time his previous experience in corporate turnarounds and as CEO of a technology company allowed him to play a leading role in developing not just the strategy – but driving through a corporate transformation programme involving cutting a fifth of the workforce and splitting the company into two.[8]

Some strategists become "corporate assets", developing in post over a period of many years and acting as one of a very few executives supporting the CEO or Chairman. An example is Walgreens Boots Alliance's Rick Mills,

Whether they are looking for a super star or a competent analyst, to get the best value from the strategy function, the CEO needs to invest substantial time and effort in defining the role they want their Head of Strategy to fulfill, **finding a candidate with a good fit and then communicating the role to the top team and onboarding the Head of Strategy.**

described earlier, who has been the top strategist for over 20 years.

What these two examples illustrate is that the most critical requirement to being a top strategist is to have hard-to-find capabilities that meet the current needs of the organisation. There is also an interesting contrast between these two – illustrative of the importance of context. In Ali's words, "… even in a strategy role, you're not respected unless you've actually run operations or a business. Corporate strategy is not just about projections, market trends, cloud, mobility – well, at some companies it is, but at HP it's really about tying in operations to the strategy."[9] In contrast, Mills has been a strategist virtually all his working career, starting out in consulting and becoming Group Strategy Director in 1997 – the only change being that his title is now Chief Strategy Officer. His success is partly down to having developed a strong relationship with the Executive Chairman, Stefano Pessina. So, while having valuable capabilities is the key to success, a secondary requirement is to fit in. If the role involves a lot of work with the organisation, then fitting involves being a credible individual in eyes of the organisation, as with Ali. If the role involves more working with one or two key individuals, it is likely to be more about having and building strong personal relationships and trust with those key individuals, as with Mills.

Whether they are looking for a super star or a competent analyst, to get the best value from the strategy function, the CEO needs to invest substantial time and effort in defining the role they want their Head of Strategy to fulfill, finding a candidate with a good fit and then communicating the role to the top team and onboarding the Head of Strategy. Having a clear step-by-step approach, like the one we have laid out and illustrated with an example, can help to get this done successfully.

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Cover Story

Enhancing VALUE *through* Customer Centric SUPPLY CHAIN

An exclusive interview with **Allan Dow**, President, Logility

In today's fast-changing marketplace, Allan Dow, President of Logility, knows all too well that a customer centric approach to any business is the only holy grail to success. In this interview, he shares with us the critical role of innovative supply chain management in enabling companies to satisfy their customers' needs beyond their expectations, and how Logility has successfully helped companies to stay ahead of the competition across industries.

Q In today's fast-paced business environment, what do successful leaders such as yourself have top of mind each and every day?

A Today, the supply chain has evolved into a critical component of a company's ability to satisfy customers, drive profitable growth and deliver new innovations to the market. As the pace of business continues to accelerate, our customers look to Logility to help them stay prepared for new opportunities or risks that may emerge on the horizon. Cyber security, tariffs and changing political leadership are just a few examples of the challenges that are top of mind for me and the leadership team at Logility.

For example, the current escalation (and uncertainty) of tariffs around the world has a significant impact on supply chain operations and a company's ability to meet their financial and customer service goals. Our solutions help customers model and evaluate the most profitable course of action to minimise the impact of these added costs and uncertainties.

Another key challenge is the ability to attract and retain supply chain talent. Thirty years ago it was difficult, if not impossible, to find a supply chain programme at a university. Today, leading universities offer robust programmes and placement post-graduation is close to 100 percent. However, there is still a shortage of quality talent available. As a leading solution provider, Logility is developing innovative technologies and services to help bridge this gap, ensure supply chains run smoothly and get better leverage from available resources.

Q Prior to your current role, you were Logility's EVP worldwide sales and marketing. When you look back at the transition to president of Logility, what advice would you provide future leaders? What learnings were you able to bring to your current position?

When you look at the past 20 years one of the truly transformative technologies to impact business has been the adoption of cloud computing and the understanding that "cloud" is more than a buzzword.

A In my previous roles, I enjoyed the opportunity to get to know both our customers and members of the Logility global team. Through this, we formed lasting relationships that have helped me better understand what keeps them up at night, what excites them and how we can help each other. It is a top priority for me and the Logility executive leadership team to keep this level of contact with both customers and employees.

Q You have been with Logility for almost 18 years. In your long tenure, what's the most interesting and significant development/ transformation you have witnessed in business? Is there a significant transformation specific to your industry as well?

A When you look at the past 20 years one of the truly transformative technologies to impact business has been the adoption of cloud computing and the understanding that "cloud" is more than a buzzword. The speed at which business operates has exponentially accelerated because we are able to connect with our customers, suppliers and employees from anywhere at any time. Today's dynamic supply chains would not be possible if it weren't for the cloud. When you think about the speed of new product introductions, the ability to serve customers across multiple channels or the capacity to segment your business and prioritise customers, these all rely on large volumes of data delivered, and often analysed in the cloud.

Logility Voyager Solutions

Logility's collaborative supply chain optimisation and advanced retail planning solutions include:

Advanced Analytics

Integrated Business Planning

Demand Optimization

Inventory Optimisation

Supply Optimisation

Retail Optimisation

At the same time, cloud-based solutions have made the consumer smarter. They now have access to more information, are able to simultaneously compare products and services from multiple vendors to make more informed decisions. The power is in the customer's hands and this requires more focus on feature differentiation while increasing usability and flexibility.

Q How do your solutions enrich your customers? Discuss how Logility Voyager Solutions helps companies deliver a superior customer experience and achieve greater profitability.

A The supply chain has the potential to be a significant profit center with a direct impact on a company's ability to launch new products, deliver exceptional service and reduce working capital across the network. Today, companies from around the world rely on Logility to help drive efficiency, lower costs and improve customer service while uncovering new opportunities to drive profitable growth.

One of the big shifts in the market right now is the digital supply chain transformation and the focus to become more customer-centric. This requires a new approach to supply chain that focusses on understanding the sources of demand and building a plan that aligns the business with market needs. While this can be a significant change, the potential benefits are even greater. For example, in 2017 Gartner published research that shows a one percent improvement in forecast accuracy can reduce inventory obsolescence 3.9% and decrease order-to-delivery cycle time 2.4%. Whether you are a $300 million or a $15 billion company, these percentages translate to significant savings that pay for themselves in just months.

We have several published examples at www.logility.com that highlight customers achieving double digit improvements in forecast accuracy and service levels. The impact to the bottom line and overall profitability is significant which allows for greater shareholder value, new product innovation and the ability to invest in new processes that build a more agile and responsive business.

Q Companies around the world are focussed on better understanding how to mitigate risks such as volatile customer demand, transparency and cyber threats. Many leading companies are also in the midst of a digital transformation. How do you work with companies to help them understand these challenges and uncover opportunities for growth amid all of these complexities?

A This is what we do every day; work with companies to help them uncover new opportunities and evaluate and mitigate potential risks. It is important for us to remain connected with our customers, understand their businesses and industries to anticipate the challenges that concern them. Risks including a sudden plant shutdown or an unforeseen event that causes a spike in demand are just two of the thousands of possibilities that can alter the course of business. The goal is to model some of these scenarios before they happen. For example, creating a Digital Twin of the business provides a platform to simulate hundreds and thousands of potential scenarios and manipulate multiple factors to develop the optimal plan for the business that aligns with corporate goals. Every day, our research and development organisation is dedicated to uncovering new approaches to solve the challenges our customers face. In every solution update, we deliver on our promise to stay at the forefront and deliver the innovations our customers need to collaboratively plan for and identify the right course of action to take.

Q Today's leaders want to capitalize on their strengths and turn weaknesses into new opportunities. As the president of Logility, how do you turn potential weaknesses into strengths and grow your team's capabilities to stay ahead of your industry peers?

A First, we have to recognise new opportunities in the market. This means we have to keep our finger on the pulse of the industry to identify and understand

One of the big shifts in the market right now is the digital supply chain transformation and the focus to become more customer-centric. This requires a new approach to supply chain that focusses on understanding the sources of demand and building a plan that aligns the business with market needs.

LOGILITY
PLANNING OPTIMIZED

With more than 1,300 customers worldwide, **Logility** is a leading provider of collaborative supply chain optimisation and advanced retail planning solutions that help small, medium, large, and Fortune 500 companies realise substantial bottom-line results in record time. Logility Voyager Solutions™ is a complete supply chain management and retail optimisation solution that features advanced analytics and provides supply chain visibility; demand, inventory and replenishment planning; Sales and Operations Planning (S&OP); Integrated Business Planning (IBP); supply and inventory optimisation; manufacturing planning and scheduling; and retail merchandise planning and allocation. Logility customers include Big Lots, Fender Musical Instruments, Husqvarna Group, Parker Hannifin, Verizon Wireless, and VF Corporation.

our customers' challenges and their vision for the future. We then hone and build our skills through a combination of continuous education and the infusion of new team members to execute that future vision. We have been in the supply chain space for more than 45 years and are able to bring a balance of deep domain expertise and fresh, new ideas to help our customers transform their operations to improve service, cut costs and deliver on their stated goals.

Q What's the most significant impact your solutions have brought to companies across industries? What have been the remarkable achievements and best feedback you have received?

A What gets us excited every day is helping our customers be more successful. Logility delivers tangible business value to help our customers align inventory and operational assets and compete more effectively in today's hyper-competitive marketplace. We have helped companies grow their business, launch new products and radically transform their operations all while reducing inventory, decreasing risk and increasing service to their customers. The opportunity to serve our customers and be a part of their success story is one of the most rewarding aspects of our job.

Q Companies face new challenges all the time while the complexity of doing business increases. This requires technology companies to stay at the forefront of innovation to solve these challenges. What are the areas Logility will focus on in the coming months and years to help your customers succeed?

A For us as well as our customers, time is money. At Logility, we deliver solutions that help automate routine planning and replenishment activities and provide engaging analytics to help every resource gain new insights and make smarter decisions faster. Through advanced technologies such as machine learning, artificial intelligence and algorithmic planning, we are able to augment current business processes and direct attention to the activities that will impact the bottom line.

Q What should organisations focus on as they look to improve their business and drive bottom-line results?

A First, it is important to keep the customer at the forefront of any discussion. For many the primary question is: How are we going to serve our customers better, help them reduce costs and grow their businesses? The second question is: Do we have the people, process and technology in place to execute towards our goals?

Often, these questions spark a variety of new questions. Reach out to your solution provider to determine what additional services they can bring that support your efforts. At Logility, our Optimization Services and Logility University programs provide a platform to help our customers

Allan Dow

PRESIDENT, LOGILITY

He serves as President of Logility, the largest subsidiary and growth engine within the American Software portfolio of companies. With a keen focus on customer success, Mr. Dow is known for helping customers deploy Logility Voyager Solutions quickly to increase revenues and reduce costs while improving product availability and customer service. Mr. Dow brings more than 30 years of experience in strategic planning, sales development, implementation services, and product innovation to streamline, accelerate and optimise supply chain and retail planning enterprises. After joining Logility in 2000, Mr. Dow has been instrumental in shaping the company's overall strategy development including the transition to delivering a higher mix of SaaS deployments and innovative cloud services. Mr. Dow holds a Bachelor of Science degree in Chemical Engineering from the University of Maine.

> "The best measure of Logility's success is the success our customers achieve. **Business is about relationships, understanding your customers and serving them beyond their expectations.**"

At Logility, we hire smart, talented people that develop software solutions to solve a multitude of complex business planning problems and serve our customers. **When everyone operates towards the same goal, we are able to empower each other to make better decisions that align with these principles.**

continually mature their supply chain operations. Our internal resources become an extension of their team and guide them along to embrace more advanced processes and techniques.

Talent is another area companies must focus on. To be successful you must attract and retain the right people which can be challenging in today's market. Often referred to as "digital natives," the younger generations realise their best contributions can't be made just sitting in front of spreadsheets all day moving numbers around. Instead, they want to interact with a system that automates the routine and directs them towards more strategic activities; that allows them to interact with people across the enterprise and with your partners.

Q All companies have a fair share of disappointments and shortcomings, how do you deal with those and make sure your entire team is heading to same directions? How do you empower your team?

A At Logility we have developed a set of core principles that establish our purpose, values and mission. Regardless of the size of your organisation or team, you influence those around you most by your behaviours. Encourage an open and healthy debate on topics and opportunities because every team member approaches a challenge with different experiences – the collective thinking is stronger than the vision of one. At Logility, we hire smart, talented people that develop software solutions to solve a multitude of complex business planning problems and serve our customers. When everyone operates towards the same goal, we are able to empower each other to make better decisions that align with these principles.

Q As the world and businesses advance, there are changes in leadership style and focus. What do you think are the features of a remarkable leader today? What's your advice for the people who want to catapult their career forward in the software and technology sector?

A There are two elements I find to be critical. The first is the openness to continually learn and be on top of emerging trends. The technology sector moves quickly with new innovation after new innovation brought to the market. You have to be aware of these and understand how to apply these developments to solve your customer's business challenges.

The second element is to remember we are really in the business of relationships. From your employees to customers and shareholders, it is important to remain connected and know the factors that serve each audience. Your customers know their business and their customers. Your team knows their domains. Work together to augment each group's expertise to make smarter decisions faster.

Q Leaders atop a company naturally have a lot on their plate. What are your favourite routines to keep yourself focussed and healthy at and off work?

A I believe you should only invest time in the activities that are important to you and those around you. With a strong focus on what matters most you can quickly remove the distractions, empower those around you and lead a more healthy business. On a more personal note, the routine I hold most valuable is spending quality time with my family.

Q What does success mean to you? Any message you wish to share with our readers?

A The best measure of Logility's success is the success our customers achieve. Business is about relationships, understanding your customers and serving them beyond their expectations. If you and your team are focused on customer success and the ability to balance that with profitable growth, you too will be successful.

Q Thank you very much, Mr. Dow. A pleasure speaking with you.

Storytelling Workshops:

A Tool for Breakthrough Product Innovation

BY EVY SAKELLARIOU, KEITH GOFFIN, AND AGNES MARIAKAKI

New product development (NPD) is essential to companies and it is an area where our research shows that stories can be a tool to boost creativity. The *Storytelling Workshop* is an effective but little-known approach used by marketing and innovation practitioners in NPD. Drawing upon their own research, and practical experience working with companies, the authors detail the factors to consider in designing and running storytelling workshops to generate breakthrough product ideas.

"Once upon a time…"

We all remember how stories had the power to delight us as children. Stories touched our emotions, sparked our imagination, and enabled us to make sense of the world, be it "good" or "evil". In our business lives, stories are somewhat neglected, however, even though they can move us in ways that spreadsheets and powerpoints never will. Too often, stories are perceived to be not useful, invalid, or even not a serious-enough tool for managers.

New product development (NPD) is essential to companies and it is an area where our research shows that stories can be a tool to boost creativity. Innovation is a resource-intensive process but much of the value of NPD investment is lost because more than 75% of new products fail. In some industries, such as food and beverages, the figure is even over 90%. Many studies have shown that the activities that take place at the beginning of new product development are crucial to the success of new products and services. However, this stage where the ideas for new products are generated is perceived as so difficult to manage that it has consequently become known as the *fuzzy front-end*. The challenge for NPD teams is to design breakthrough products, which offer unique features and provide solutions to customers' real problems. This requires the generation of new customer insights. So, at the front-end, NPD teams need productive tools for generating insights. Storytelling workshops are an effective but little-known approach.

In this article, we explain how storytelling workshops can be used in NPD. Drawing upon our own research, and practical experience working with companies, we detail the factors to consider in designing and running storytelling workshops to generate breakthrough product ideas.

Storytelling Workshops

Storytelling workshops are a specific form of *co-creation workshops*, where NPD team members and customers co-create new product ideas, by sharing experiences and perspectives. The key difference between a storytelling workshop and a conventional co-creation workshop is that the former focusses on generating new knowledge on the problems that customers face with existing products.

New knowledge generation depends on the interplay between *explicit knowledge* (which is easy to express and document) and *tacit knowledge*. Therefore, customers are often unable to articulate their needs and are often unaware of the problems they face. Tacit knowledge is difficult to access because it is difficult to express, and linked to individuals' experiences and unarticulated mental models. Research has shown that the main way in which people share their tacit knowledge is through the use of *stories* and *metaphors*. Ironically, a study of new product development teams at leading companies showed that they did not consider stories a worthy way of capturing and sharing knowledge. In contrast, we have found that stories tap the tacit knowledge of our customers (and make managing the front-end less fuzzy).

Storytelling workshops encourage customers and managers to share their experiences of using products as a story, rather than asking them directly to articulate their needs. Analysing the stories which emerge leads to previously unknown customer needs. So, the storytelling idea workshops leverage the rich hidden knowledge that managers and customers have about a particular product or service category. Our research identified six factors to consider in running effective storytelling workshops.

1 Participants and Setting

Relatively small groups of up to six customers and six NPD managers work best, as they allow enough time for everyone to share their stories and interact. Care should be taken when selecting the workshop participants; they should have extensive experience of the product or service category under investigation (either professionally or as a regular user), and they should be willing and capable of sharing experiences and perspectives with others. Customers with in-depth experience of products are more inclined to generate breakthrough ideas than those with less experience.

The choice of the venue is also important. A relaxed environment, rather than a standard conference room, allows the participants to feel at ease, to express themselves without fear of criticism. Plenty of pens, post-its and flipcharts are essential, as is enough wall space to display all of the flipcharts generated in the discussions. Whenever possible, the whole proceeding should be video-recorded using a camera with a wide-angle lens and a good microphone.

Sometimes having an area similar to the customer's own environment helps. For example, Mölnlycke Heath Care, a leading manufacturer of hospital sterile disposables, has a lock operating theatre at its headquarters which is used for workshops. It is also very useful to have a designer present, who can sketch out product ideas and solutions at the end of the workshop.

2 Facilitation

An experienced and effective facilitator is crucial to storytelling workshops. He or she will need to encourage participants to narrate stories about their experiences with products, particularly unexpected incidents, or ways to resolve product-related problems. The facilitator will need to urge participants to co-create stories and to remind participants that

Storytelling workshops encourage customers and managers **to share their experiences of using products as a story, rather than asking them directly to articulate their needs.** Analysing the stories which emerge leads to previously unknown customer needs.

all good stories have a beginning, a plot, and an end but are concise.

Once stories have been told, the facilitator needs to encourage participants to consider what in the story is original thinking (knowledge), particularly where the story identifies previously unknown problems with existing products. Once such problems have been identified, the facilitator can prompt participants to think of metaphors related to how the problems can be solved.

3 Workshop Phases

The main phases of a storytelling workshop are: a) Introductions; b) Sharing stories about using products (capturing notes of each of the stories on a flipchart; c) Discussion of the new thinking that the stories illustrate, with a focus on customers' problems; d) Group brainstorming of solutions to customers' problems (using metaphors); e) Initial screening of ideas; f) Crystallisation of ideas to solve customers' problems and development of new product concepts (with illustrations).

4 Using Stories

In storytelling workshops, customers and NPD managers are encouraged to become narrators. However, our research shows that not all stories are effective. *Trigger stories* are those that rivet the attention of all participants. They uncover new problems in specific contexts, have condensed plots with engaging and unexpected incidents, and focus on the need to resolve a product-related problem as it is described in the Case study of Eurobank (see Case Study: *Storytelling Best Practices at Eurobank*). Trigger stories may inspire a sequel and participants to become co-creators. For example, in a storytelling workshop on cleaning products, one mother talked about the problems with how cleaning every time it rains and other participants related to this story strongly.

On the other hand, non-trigger stories lack product-related problems engaging incidents. Consequently, non-trigger stories seldom lead to sequels, co-creation, or breakthrough ideas. Good facilitators can recognise the more mundane stories and focus participants on the more inspiring ones. For example, a story about the (known) problems with a bleach cleaner did not create interest amongst workshop participants.

Our research indicates that stories are the more effective mechanism for identifying problems, **whereas metaphors are very useful in stimulating ideas for solving problems.**

5 Using Metaphors

Creativity research has stressed the importance of novel thinking, new perspectives, and defining problems and has recommended the use of metaphors. Our research indicates that stories are the more effective mechanism for identifying problems, whereas metaphors are very useful in stimulating ideas for solving problems. Therefore, in storytelling workshops, metaphors are used as part of the brainstorming of solutions to customers' problems. In response to metaphors, NPD managers can share their technical knowledge on how problems could be solved. Within the context of stories and by linking a product to an unrelated or unfamiliar concept, metaphors help participants to clarify vague or complex problems and new ideas or trigger new stories.

For example, in a storytelling workshop on cleaning products, one participant used the metaphor of a cleaning fluid being like Sherlock Holmes – a detective searching out (and eliminating) germs. This led in the discussion to the idea of a cleaner that changes colour to indicate that germs have been found and eliminated. At this point, a technical expert in the workshop was able to describe a suitable chemical process that would link germ eradication with a change in colour, and the designer quickly sketched a suitable product packaging.

6 Data Analysis

Storytelling workshops produce rich data: multiple flipcharts summarising the stories and the problems they identify; metaphors and ideas of how to solve customers' problems (including designers' sketches); and video recordings. The analysis consists of documenting each story including key quotes based on the video recording and flipchart summary; analysing which stories and discussions were only connected with known customer issues and which identified completely new issues. Finally, for the stories connected

Case Study: Storytelling Best Practices at Eurobank

Eurobank is a Greek financial services provider that operates successfully in seven countries. In 2014, Eurobank acquired the New TT Hellenic Postbank SA and the New Proton Bank SA. In an effort to understand its customer base and to develop ideas for new digital services, Eurobank held a series of storytelling workshops with customers. Storytelling has enabled Eurobank's management to hear the authentic voice of its customers and to gather valuable and rich, first-hand customer experiences.

Eurobank's tin piggy bank promotional gift used consistently over several decades was mentioned repeatedly in the stories told by the bank's customers. Its value as a symbol of prudence was mentioned so often and with such affection that the bank recognised that the piggy bank had become a rite of passage over three generations, used by parents to teach the value of money and saving.

So Eurobank decided to capitalise on the traditional piggy bank (in Greek "Koubaras") as a vehicle to reinforce the Bank's image as a savings bank. So it took the piggy bank forward to the new digital era through an engaging digital customer experience, which is a tool for parents to teach their children about not only saving but up-to-date financial literacy skills. Eurobank's Innovation Center initiated the creation of "Koubaroupoli" (city of piggy banks), a mobile app with all the visual elements based on the old tin piggy bank while incorporating interaction with the traditional "koubaras" via Augmented Reality (AR) technology. This service is creating goodwill among customers who are parents and is creating a strong bond with future customers who get to know the value of saving.

to known customer issues, the discussions are likely to lead to incremental innovation. In contrast, the stories and metaphors which are linked to previously unknown problems will give ideas for breakthrough innovation.

Too often, new product development teams restrict their thinking to known customer problems and explicit customer requests. This misses the potential to tap customers' tacit knowledge. Therefore, innovation practitioners need to use storytelling workshops to stimulate the identification of previously unknown customer needs. The stories that customers tell can be shared, as they are an ideal device to share the voice of the customer within companies and are invaluable in new product and new service development. Storytelling workshops can enable executives to challenge existing paradigms, stimulate their creative thinking and take their understanding of customer needs into a fresher and richer perspective.

Note

This article was based on material from the recently published research paper: "Telling tales": Stories, metaphors and tacit knowledge at the fuzzy front-end of NPD" by Evy Sakellariou, Kalipso Karantinou, Keith Goffin. First published: 22 November 2017 by the *Creativity and Innovation Management journal DOI: 10.1111/caim.12237*

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Sound Business: Improving Your Audio ROI

BY STEVE KELLER

"What does your brand sound like?" The rise of smart speakers and voice interactive technology is forcing brands to answer that question. Though resolute in their belief that audio (and more broadly, audio branding) plays a fundamental role in shaping consumer perceptions and communicating brand intent, many brands wrestle with turning these beliefs into actionable strategies that produce measurable results. In this article, we offer five suggestions to help you maximise – and measure – your brand's "audio ROI".

In today's media rich environment, where audio-enabled touch points are increasingly available to consumers, there is no question that sound can have a significant impact on brand messaging and identity. The rapid adoption of smart speakers and voice assistants has made marketing less visible and more audible, forcing brands to consider how they differentiate themselves in a world where they can be heard, but not seen.

The rapid adoption of smart speakers and voice assistants has made marketing less visible and more audible, **forcing brands to consider how they differentiate themselves in a world where they can be heard, but not seen.**

No one denies the fundamental role music and sound play in shaping our perception and driving emotional connections. There are hundreds of empirical studies that demonstrate the power of sound to increase attention, facilitate brand/message recall, improve brand perception, drive purchase intent, elicit physiological responses, increase likability, build positive associations, prime implicit responses, and produce chemical reactions in our brains.[1] Yet in spite of this evidence, questions regarding how to measure returns on audio related investments remain.

A study conducted by the Stockholm-based brand communication agency *Heartbeats International* found that 76% of the top global brands surveyed used music actively in their marketing. A full 97% thought that music could strengthen their brand and 74% predicted that music would become even more important to their marketing in the future.[2]

However, when asked about budgets, only 30% of these same brands spent more than 5% of their marketing budgets on music and 60% had no definitive auditory profile of their brand.

If these brand managers believed that audio was a key element in strengthening and building their brands, why weren't they investing more time and resources into the strategic development and implementation of audio initiatives and assets?

When asked to explain this gap between perceived value and actual spending, the largest obstacle cited

Gaining insights into the way different combinations of voice talent, music, and sound design impacts recall, brand fit, purchase intent, and willingness to pay can help us optimise our audio choices.

by respondents was the difficulty in measuring the value of their investment.

In our work as an audio consultancy, we're often tasked with closing this "value perception gap". It should come as no surprise that strategy and measurement are essential to capturing value, managing costs, and maximising returns. Very little has been written to help brands move towards a more definitive approach to managing and measuring their "audio ROI". We'd like to change that. Based on years of experience in designing, creating, testing, and managing audio strategies for a wide range of global agencies and brands, we offer these five suggestions on how to improve the return on your brand's audio investments:

1. **Change the way decisions about music and sound are made.** Historically, decisions about sound and music have been relegated to the realm of the agency creative director. In this context, there is a preoccupation with execution: write a brief, gather demos or tracks from third party vendors or artists, have editors throw something against picture, then pick a winner. Approached this way, choices about audio often become last-minute considerations, suffering from the constraints of time and budget. It's viewed as the icing on the cake, rather than a driver of a language through which brand essence and meaning can be conveyed. If we're ever going to develop actionable strategies around sound that produce measurable results, we need to start by revolutionising our approach to how we make audio choices, moving away from the preoccupation with creative execution (which perpetuates a high degree of subjectivity) and moving towards an understanding of sound from a process perspective. The process we've developed moves through stages of discovery, design, creation, evaluation, implementation, and management. It allows us to build an entire audio identity system for the brand, rather than simply generating a few audio assets. Such an approach facilities a more intentional use of music and sound, based on clearly defined strategies that help align brand intent with consumer perception.

2. **Adopt more robust testing methodologies.** When it comes to measuring the impact of audio on brand communications, most agencies and brands limit their exploration to likability/preference metrics. Likability should certainly be a consideration, but it tells us nothing about other important audio parameters like congruency, brand linkage, consensus meaning, recall, or explicit/implicit emotional drivers. In the case of certain audio identity assets (e.g., audio logos or brand themes), obtaining baseline data can provide benchmarks and offer opportunities to measure their performance over time. Gaining insights into the way different combinations of voice talent, music, and sound design impacts recall, brand fit, purchase intent, and willingness to pay can help us optimise our audio choices. The good news is that all these testing methodologies

exist. Yet it's difficult to shake our personal preferences when evaluating music. In a recent study by *The Economist*, 90% of the executives surveyed said they based their decisions on data analysis, testing, and collaborative discussion. Yet in the same survey, 9 out of 10 of these executives would find a way to disregard the data if it disagreed with their intuition.[3] Bottom line: Beware of confirmation bias. Research is useless if we don't incorporate the findings into our decision-making process.

3. **Define the meaning of "ROI" in the context of audio expenditures.** When it comes to quant-based assurances of value, one of the most popular metrics marketers invoke is "ROI". Trouble is, in the context of marketing, ROI quickly becomes a "fuzzy" metric, incorporating everything from a return on advertising expenditures, increased market share, customer conversion rates, and any number of other performance measures. If we drill down even further into specific audio related expenditures, there exists little to no research dedicated to applied econometrics and/or predictive analytics that help us determine the value of audio in the context of branding and advertising. As a result, brands and agencies are at a loss as to how they could best determine costs or measure returns for music and sound assets. So how do they begin? One suggestion is to consider attaching KPIs to audio initiatives and expenditures. What's the objective for using a particular piece of music to a campaign? Are there particular cost savings you're hoping to achieve short/long term? How does audio play a role in communicating brand meaning and values? In our experience, the use of audio related KPIs helps to further integrate music and sound into the brand manager's scope of work. This is particularly important with audio branding initiates, where standards, consistency, and copyrights offer opportunities for measurement and value capture over time.

4. **Move beyond "engagement" and focus on behavioural outcomes.** With the advent of digital marketing channels, consumer engagement became a driving force in measuring marketing effectiveness and ROI. *Marketing Week* conducted a survey of readers in 2016, which revealed that 78% use brand engagement as a return on investment metric and 57% use engagement to prove the worth of marketing activity to business leaders or the board.[4] Yet when asked to define engagement, the survey responses where all over the map. In the absence of a clear definition of the value that engagement offers (and how it ties in with overall brand objectives), engagement as a metric can become useless. We know that audio can engage consumers emotionally, but brands often ignore how audio can function as a *behavioural* driver. We've found that a meaningful engagement metric for audio is one that is tied to specific behavioural outcomes. Behavioural outcomes are particularly important in a digitised world, where audio can function as part of the user experience and/or user interface (UX/UI) of brand applications or systems. Brands and their agencies should view the development and implementation of UX/UI sounds through the lens of behavioural economics and habit formation. If the sonification of a digital interface can increase engagement and generate behavioural responses, those responses can be captured and analysed, helping to further optimise and personalise brand offerings and services.

5. As brands and agencies rush to enter a "voice first" future, the temptation is to focus on the development of tactical executions rather than overarching audio strategies. We shouldn't limit the conversation to voice technology and smart speakers. Instead, consider how to develop a congruent, distinct, flexible, recognisable, and ownable audio identity that can be communicated across every audio touchpoint available to the brand. We're fond of saying, "Audio branding doesn't start with your ears. It starts with what's between them." We believe that brands can be educated on audio branding best practices and given the tools they need to manage, measure, and maintain their sonic identity. Far too often,

We shouldn't limit the conversation to voice technology and smart speakers. Instead, consider how to develop a congruent, distinct, flexible, recognisable, and ownable audio identity that can be communicated across every audio touchpoint available to the brand.

these sonic responsibilities are either abdicated to, or co-opted by, advertising agencies. Unfortunately, advertising agencies are often no better equipped for the task. To further complicate matters, brands often engage multiple agencies to manage their marketing needs – which can mean multiple (and sometimes conflicting) approaches to the development and use of audio within the brand ecosystem. Discipline in consistently applying audio standards can be a challenge, particularly within corporate structures where key decision makers, agency partners and brand managers may all have varying opinions, preferences, and goals. Audio branding practitioners, while sensitive to the creative and strategic input of a brand's agencies, should always operate with the best interests of the brand at heart. Their goal should be to empower the brand to develop centralised, efficient systems designed to build audio brand equity and maximise returns for audio investments. Finally, brands should be just as vigilant about protecting their audio identity as they are in protecting their visual identity – or any other intellectual property for that matter. Many audio assets can be registered as trademarks and copyrights, opening up potential revenue streams through performance royalties and/or collateralisation, further offsetting costs and capturing more value over time.

Answering the question, "What does your brand sound like?" isn't just about sound branding. It's about sound business as well. Maximising and measuring the returns on audio investments is possible. With strategy and discipline, you'll not only help your brand find a voice – you'll teach it how to sing.

About the Author

Steve Keller is CEO of iV, an audio consultancy dedicated to exploring the power of sound to shape perceptions and influence behaviour. He blends art and science into award-winning audio branding strategies and content for a long list of global agencies and brands. Recognised as a leader in the field of sonic branding, Steve shares his insights and research at international conferences, professional organisations, and universities around the world. In addition to his degree in psychology, Steve has over 25 years of experience in the music and advertising industries. Forever the student, he is the 2017 recipient of the iHeartMedia Scholarship for Leadership in Audio Innovation, and is currently completing an Executive MBA through the Berlin School of Creative Leadership.

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How Organisations Can **OVERCOME** Conflicting Identity and Reputation

BY WILLIAM HARVEY, TIM MORRIS AND MILENA SANTOS

Based on their examination of how an organisation responds when its identity is substantially misaligned with the experience and perceptions of external stakeholders that form the basis of reputational judgments, the authors outline in this article the strategic ways for successfully managing reputation and identity conflict through a set of remedial actions that shift the focus away from the organisational level to individual-level identities with clients.

It is generally argued that it is difficult for clients to judge the quality of management consultancy work ex ante and ex post because of the intangible nature of professional services and because of information asymmetries where consultants have more information about their expertise than clients. At the same time, many clients are now very experienced buyers of management consultancy and many clients have previously worked in the sector. Therefore, they are likely to be informed judges of consultants' reputations. And identity is said to drive the reputation, because our actions reflect "who we are". So, as consulting firms evolve and adapt to different market challenges, this raises the possibility of a conflict between the identity claims of management consultancies (who they are and what they do – their expertise claims) and their reputation (what relevant others actually think their expertise is).

We recognise that all organisations face some disconnect between their identity claims and

Reputation is an important means to reduce client uncertainty and vulnerability about the quality of work they are purchasing. At the same time, how management consultancies perceive themselves in terms of their expertise is often not aligned with how clients perceive their expertise.

reputation but for management consultancies this is very important because of the centrality of reputation to their competitive position in client and labour markets. Disconnects undermine consulting firms' capacity to engage effectively with clients and retain valuable professional talent. We show that the distinct loosely coupled structure typical of management consultancies and the knowledge-based nature of the service require distinct reputation-building strategies, which we explain in more detail in the next section.

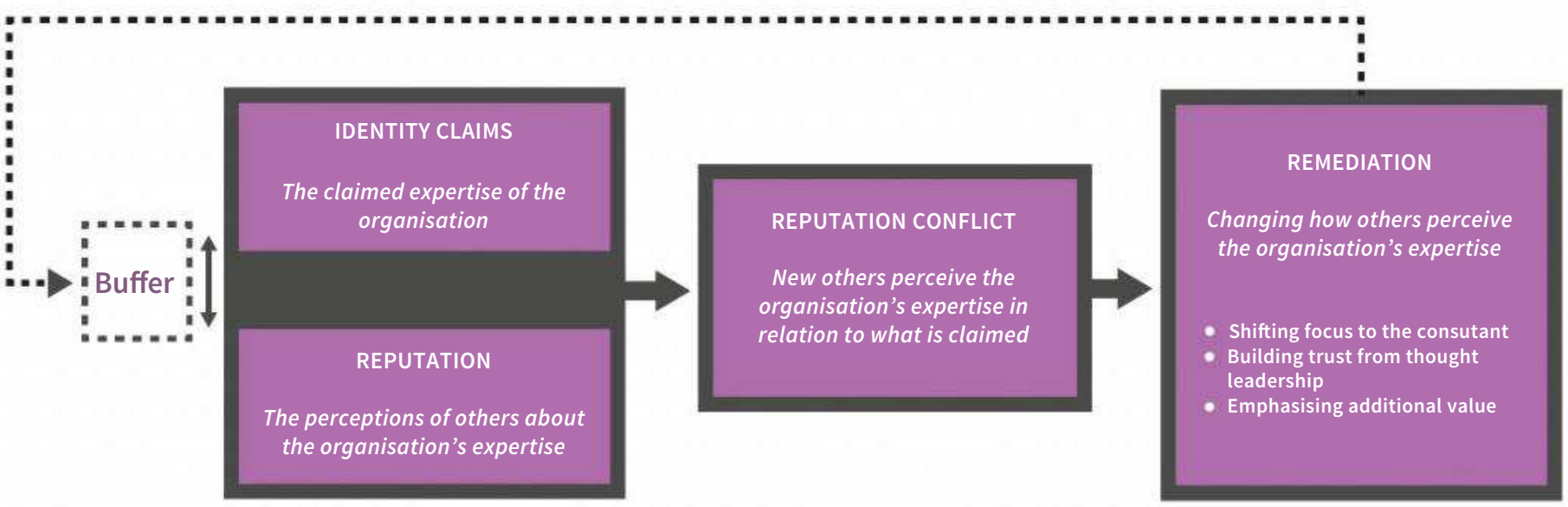
This project involved primary research with 116 partners, consultants, clients, non-clients, competitors, alumni and potential employees of a highly prominent global management consultancy across eight countries. We also conducted focus groups, three partner workshops and non-participant observations. All of this provided us with a very rich and unique insight and account into management consultancy.

Reputation is an important means to reduce client uncertainty and vulnerability about the quality of work they are purchasing. At the same time, how management consultancies perceive themselves in terms of their expertise is often not aligned with how clients perceive their expertise. Our study provides practical insights into how reputation and identity conflict can be successfully managed in the industry. We show how organisations can effectively buffer their identity when threatened by reputational judgments through a set of remedial actions that shift the focus away from the organisational level to individual-level identities with clients. We found that there were three different remedial actions that were frequently adopted: first, shifting the focus of attention to the consultant and consulting team; second, building trust from thought leadership; and third, emphasising additional value (see diagram below). We now explore these remedial actions in a little more depth.

First, management consultancies shift the focus of reputation to the consultant rather than the firm. This strategy involves partners reassuring clients of their own credentials, through for example their past experience and reputation for particular types of expertise and experience, during the pitch by providing testimonials, outlining their track record with other high status clients and by inviting previous clients to present with the pitch team.

Second, consultants build trust with clients through acting as a disinterested broker of useful knowledge about sector or market developments. This strategy does not involve explicit selling: the partner offers his or her expert information and insight to demonstrate competence or thought leadership. Partners can implement this, for instance, by organising meetings with clients and non-clients in their sector where they discuss the latest trends and sector-models of innovation or competition. Other options are

Diagram 1. Remediating reputation conflict.



Emphasising value through the experience of a project team and through *going the extra mile for the client* is to some extent valued, **but in extreme cases can be perceived as management consultancies desperate to please clients to win work.**

to send communications to clients about recent or upcoming events and news with their own perspective on the general implications for the dynamics of the sector such as sales, pricing or areas of innovation.

Third, firms emphasise additional value, which relates to its claims to be pragmatic and entrepreneurial in their engagement work, as a form of differentiation from other management consultancies. Emphasis on value can be displayed in two ways. One is to load consulting teams more heavily with senior consultants including partners so that there is greater experience in the consulting project than might normally be offered by other competing firms. For clients, loading on experience is meant to be insurance that they will obtain high quality, practical results. Second is to put additional effort on client projects. The intention is to provide extra value via the delivery of non-contracted services to signal over-delivery. The aim is to demonstrate that the firm is deeply committed to the client's goals although this remedial action can be problematic. This can have positive reputational implications and for consultants it demonstrates a deep commitment to the client's goals which reinforces a sense of identification with them. However, this strategy risks implying the firm would do anything, and is therefore not distinctive.

There are several take-home messages from the above remedial steps for how other management consultancies can demonstrate value for clients. First, clients value corporate, team and individual reputation and therefore signalling all of these forms of reputation in a coherent and complementary way is important. Second, providing evidence of expertise through supplementary information, either directly for the client or through broader thought leadership outlets, is valuable tangible evidence for clients to evaluate the quality of management consultancy work. Third, emphasising value through the experience of a project team and through going the extra mile for the client is to some extent valued, but in extreme cases can be perceived as management consultancies desperate to please clients to win work.

This article is the summarised version of the paper "Reputation and identity conflict in management consulting" that was first published in SAGE Journals, May 5, 2016.

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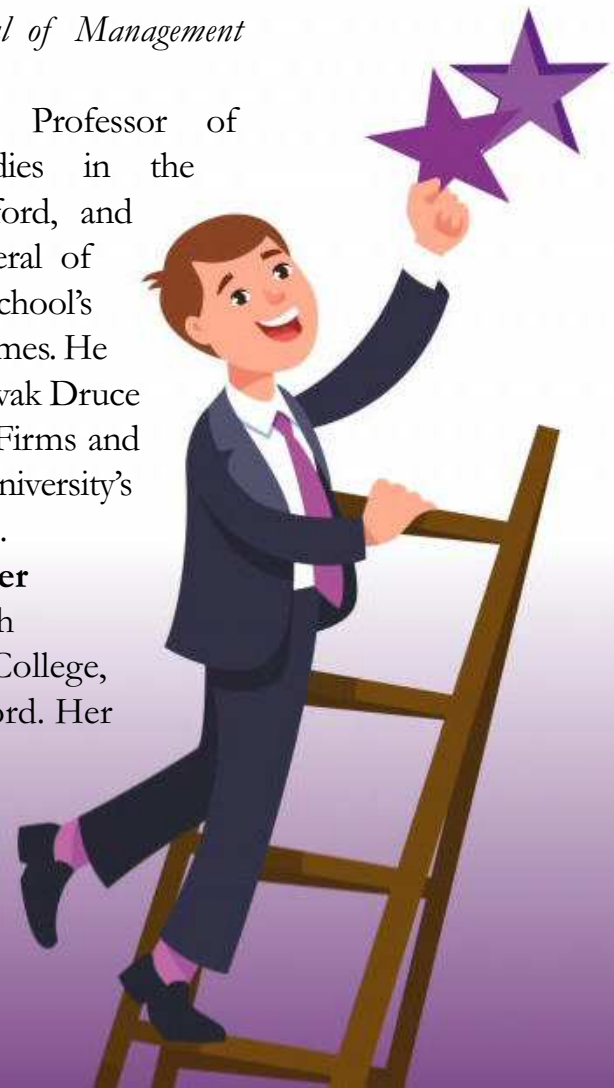


Integrative Intelligence for a TRUST-BASED Worldview for Business

BY SHARDA NANDRAM, PUNEET BINDLISH AND NAVIN KEIZER

Trust forms the bedrock of any business and can be seen as the fundamental currency of all human activity. The nurturing of trust is key to risk management, innovativeness and economic progress. Businesses benefit from several types of intelligence, especially those that give them power owing to an asymmetry of knowledge. However, firms often lack Integrative Intelligence, a key ability that creates new opportunities to incorporate both technology and soft human factors in order to harmoniously nurture trust.

The word *trust* forms an integral part of our lives at different levels, such as emotional, psychological, sociological and economic. Researchers have demonstrated that humans have an innate propensity to be trusting,[1] and that trust has a moderating impact on our behaviour and interrelational activities, especially economic activities.[2] The level of trust indicates the amount of risk that entities can take, especially in complex situations where rational reasoning is either impossible or unpragmatic. Furthermore, as technologies and formal institutions rapidly spread, we require an understanding of their impact on different aspects of trust, including *nurturing, evaluation and expression*. To date, a great deal of effort has been spent on evaluating (or measuring) trust with the hope of pushing entities towards nurturing and expressing a greater degree of trust. Numerous institutions measure explicit or tacit expressions of trust at various levels. For instance, the Trust Barometer[3] measures trust in relation to countries' willingness to accept innovations (as an expression of trust). Based on data from the Trust Barometer report 2015, *countries' trust rankings show movement of United Arab Emirates (UAE), China, India and Indonesia towards the top with several European nations including Germany, France and Spain plus Japan and Korea towards the bottom.*

However, evaluations of trust alone cannot lead us through the various problems related to distrust.

The level of trust indicates the amount of risk that entities can take, especially in complex situations where rational reasoning is either impossible or unpragmatic.

We must develop a holistic understanding of trust if we are to incorporate it into our activities, and integratively and sustainably nurture and express it. Clearly, businesses and their stakeholders cannot afford to ignore trust.

Trust: the currency of business

Trust forms the bedrock of any business and can be seen as the fundamental currency of any inter-relational activity among a businesses' stakeholders. Trust's importance, as well as the ways of evaluating and expressing it, varies with the nature of the business and the interrelations among stakeholders in various sub-contexts. For instance, consumer trust plays a role in consumer-product and customer-company interrelations. Trust also plays a role in workforce-company interrelations in the context of motivation,[4] and it enhances coherence in the workforce (as a diverse workforce may not have a common background or similarities on which to rely). In company-stakeholder interrelations, trust is seen as a means for managing risk and can serve as an alternative to control systems.[6]

Trust has been defined in numerous ways[7] and it has even more connotations in different contexts. Given our aim of taking a holistic view on trust, we endeavour to bring out the key elements of trust and their connotations in relation to the modern business context. Regardless of the context, trust is largely seen as an aspect of a relationship between two or more entities: a *trustor* and the *trustees*. An integrative definition of trust is the following:

> The **willingness** of an **entity** (***trustor***) to be **vulnerable** to another entity's (***trustee***) actions based on the **trustor's expectation** that the trustee will perform a particular action regardless of the **trustor's ability** (or **power**) to monitor or control the trustee or enforce that action or evaluate the outcome.

This definition schema has several key elements:

1. ***Entity.*** The trustor and the trustees can be living (e.g., individuals, communities) or non-living entities (e.g., technologies, organisations, companies, formal or informal institutions).
2. ***Expectations.*** Expectations encompass outcomes, desires and expected actions
3. ***Willingness.*** This can be an intent to delegate the actor's role to a trustee with the aim of fulfilling the expectation. In cases involving human entities, the intent involves belief in the trustee's honesty, fairness and benevolence towards the trustor in the context of the expected action.

4. ***Risk.*** Risk is articulated in several ways (e.g., vulnerability, uncertainty, failure, betrayal). By being vulnerable, the individual takes certain risks, especially the risks of failure of an expected action and betrayal.
5. ***Ability*** (or ***power***) ***to influence***. This encompasses all kinds of influence: monitoring, controlling, enforcing and evaluating. After the expected action, some of these abilities will be exercised, after which trust is either established or eroded.

Evaluations of trust alone cannot lead us through the various problems related to distrust. We must develop a holistic understanding of trust if we are to incorporate it into our activities, and integratively and sustainably nurture and express it.

Trust involving human and non-living entities, such as technologies, seems to follow this integrative definition schema of trust. However, upon deeper philosophical investigation, we may realise that by trust we actually mean "confidence" or "reliance", which refer to the trustee's or trustor's expectations of predictability, certainty or reliability. These two meanings differ in terms of the risk element – human entities run the risk of betrayal, while the risk in the case of non-human entities is one of potential failure. Psychologically, a human trustor can be suspicious about a human trustee (distrust).[8] However, in relation to a non-human trustee, the feeling would be an anxiety or uncertainty.

Consider, for example, an investor (*trustor*) who meets with a bank-fund manager (*trustee*, a human who represents the bank for the trustor) with an expectation that the fund manager will work towards the maximisation of returns on any invested funds in a fair and benevolent manner. This trustor runs the risk of being betrayed (through, e.g., unethical investment practices or if the fund manager's interests conflict with the trustor's expectation) as well as the risk of sub-optimal returns. Clearly, however,

Due to various scandals and incidents involving unethical behaviour, especially in the last two decades, there has been growing scepticism about bankers, which has led to a sharp decline in trust.

the investor has some ability to monitor, control, enforce or evaluate the investment returns.

In contrast, consider a bank customer (*trustor*) using a blockchain-based banking platform (*trustee*, a technology) with an expectation that records will be accurately and consistently kept, and that the system will be available for transactions when needed. The customer runs the risk of a system malfunction due to technical glitches or hacking. In this case, the customer has a limited ability to *monitor, control, enforce or evaluate* the technology. In relation to the technology, the word trust can be interchanged with the words reliance or confidence. However, if the customer believes that the technology holder can manipulate the system for its own best interests, then trust is the suitable term.

Integrative Worldview and Integrative Intelligence (II)

As the concept of trust involves more than one entity, it becomes necessary to contemplate the worldviews (i.e., the perspectives and purposes) of the entities involved. A "worldview" is an understanding of reality that is derived by examining where things come from, what they lead to, what they are, what is right or wrong, how much is truly understood and how to put ideas into practice. In the absence of such contemplation, a worldview may lead to one-sided understandings or expectations, and related actions. The most prominent example in business is the increase in unethical behaviour and corporate scandals due to leadership's pursuit of its own interests, which has led to an erosion of trust among stakeholders. This calls for a holistic treatment of trust.

The need for an integrative worldview: the financial-services crisis

One of the economic sectors in which people have historically relied on trust is the financial sector, which is arguably one of the most influential sectors in modern society. Due to various scandals and incidents involving unethical behaviour, especially in the last two decades, there has been growing scepticism about bankers, which has led to a sharp decline in trust. Bankers are increasingly portrayed as the exploitative faces of capitalism. Even their legitimate contributions to society are being undermined. The consequence is a feeling of hostility between the financial sector and public stakeholders.

THE CRISIS IN THE FINANCIAL SECTOR

In 2008, an event occurred that many had not anticipated – people lost faith in bankers. Many years prior to that event, the Fed reduced interest rates to a level so low that the housing market soared and people began buying houses with money they did not have. Bad subprime mortgages were approved and a false illusion of trust was created when banks bought the risk in the form of CDOs with AAA ratings. Trust in the housing market was high. However, when the housing bubble burst, the banks' risk-assessment models did not hold up. The general ignorance and the bank's poor risk assessments had created not only a banking crisis but also a global economic crisis that took numerous banks, including Lehman Brothers, down. As a result of the financial sector's optimism and negligence, which led to the banking crisis and the global economic crisis (Amadeo 2016a, 2016b), people seem to lose all trust in bankers. Bankers were no longer viewed as smart or ethical enough to have so much economic power, and their disproportionate bonuses (and, at times, somewhat questionable practices) were seen as the underlying reasons for the sector's problems.

As capitalism is a product of widespread, linear worldviews (i.e., anthropocentric and scientific), it is not surprising that the financial sector falls under the same worldviews. The belief that all humans can try to work themselves up in the world, even if they hurt or fiscally damage others in the process, manifested itself in the 2008 recession. The optimistic belief that humans can do anything, which is also typical of the scientific worldview, was evident in the housing bubble. People thought that the housing market would only grow and this optimism proved fatal. In the years prior to the crisis, the banks took on too many unnecessary risks and loans in order to make money.

The ambition to keep growing, to continue increasing revenue, and to constantly be more successful is central to the anthropocentric worldview. The belief that predictive methods and statistics can be used to model everything is a manifestation of the scientific worldview, which also encompasses an expectation that the world develops in a linear manner without any unexpected occurrences, and the

view that models offer a near perfect approximation of the real world. The idea that man is central and "owns" nature is often clear in the financial sector. This is also linked to the view that as the world is linear and predictable, it is acceptable to take huge risks if there is high potential reward, even if doing so hurts others. This hints at a need to explore non-linear, integrative worldviews to uncover possible solutions and stem further erosion of trust.

An integrative worldview

Intentionally discarding other worldviews is a conscious choice that influences the level of trust among entities in one's adopted context. Businesses and stakeholders can avoid this worldview fallacy by adopting an *integrative worldview*, which aims to bring coherent inferences together in order to build a trust-based image and relationships. This worldview can illuminate blind spots or provide new insights, as it enriches our understanding of the different perspectives and purposes of the stakeholders involved.

An integrative worldview follows five philosophical principles. The first is an underlying belief in the possibility of multiple manifestations of the same integral truth. The second encompasses the holistic attainment of life goals (i.e., self-responsibility, self-interest, self-reliance and self-freedom). This means incorporating all aspects, perspectives and purposes to achieve these goals. The third principle is embodied knowing, which creates space for several ways of knowing, especially experiential.

The fourth principle involves doing without "doership". This principle underplays the fact that the entity is a conscious doer. The fifth refers to a belief in the existence of a natural connectedness among everyone and everything. Non-linear worldviews usually follow these principles.

Integrative Intelligence

This integrative worldview allows for the application of intelligence in an integrative manner, which we have termed *Integrative Intelligence*. Integrative Intelligence can be defined as:

> An *entity's ability* to apply oneself in order to *holistically interrelate* all *aspects*, all *perspectives* and all purposes of other entities in one's *adopted context* with an *a priori intention* to achieve a *coherent view* (without discarding any aspect, perspective and purpose in that adopted context).

In other words, Integrative Intelligence is the ability to pursue a holistic approach with the aim of realising a coherent view driven by an inherent need for self-freedom. Here, the adopted context is the context that the trustor consciously or wilfully adopts. This ability to understand interrelationships and the goal of coherence give rise to an ability to nurture and exercise trust in a holistic way.

The road ahead

We can observe Integrative Intelligence in varying degrees across all formal and informal human institutions. This offers hope that Integrative Intelligence is already intrinsically present – it just needs to be nurtured in order to enhance trust among all stakeholders. There are several notable examples of trust-based organisations thriving with Integrative Intelligence. Here, we share two of them, which were intentionally chosen from two very different contexts: Buurtzorg Nederland and Mumbai Dabbawalas. Both organisations have self-organised or self-managed organisational designs with a high degree of trust among all stakeholders. That trust drastically reduces the need for formal operational and quality-assurance procedures.

Figure 1. Concept of integrative worldview[10]

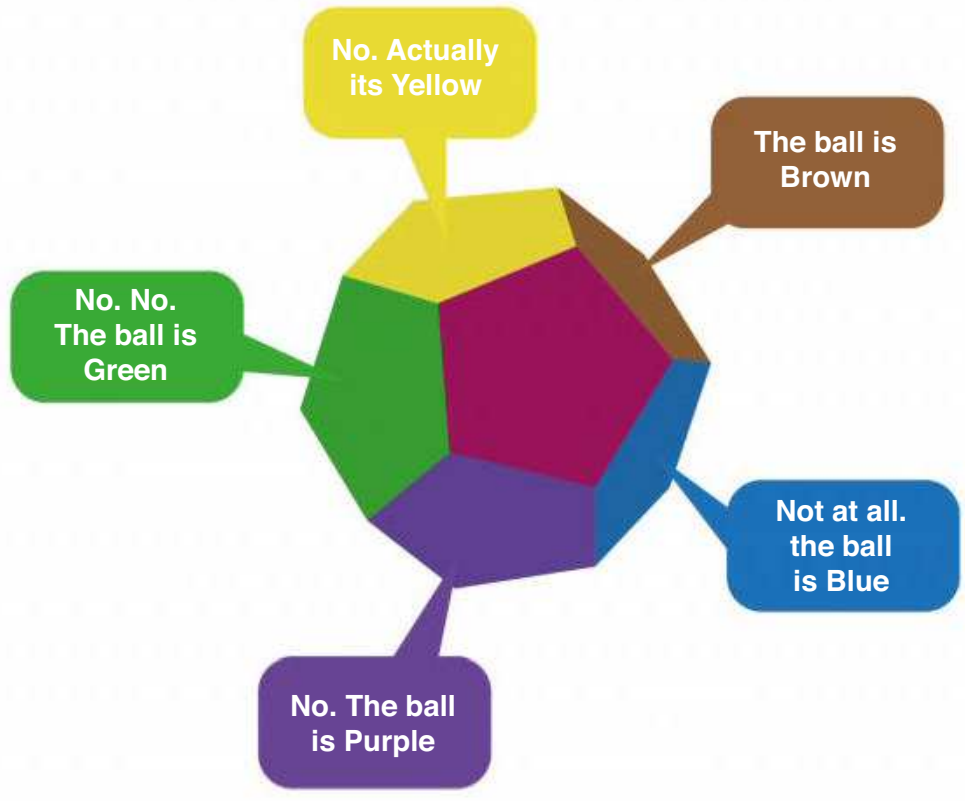
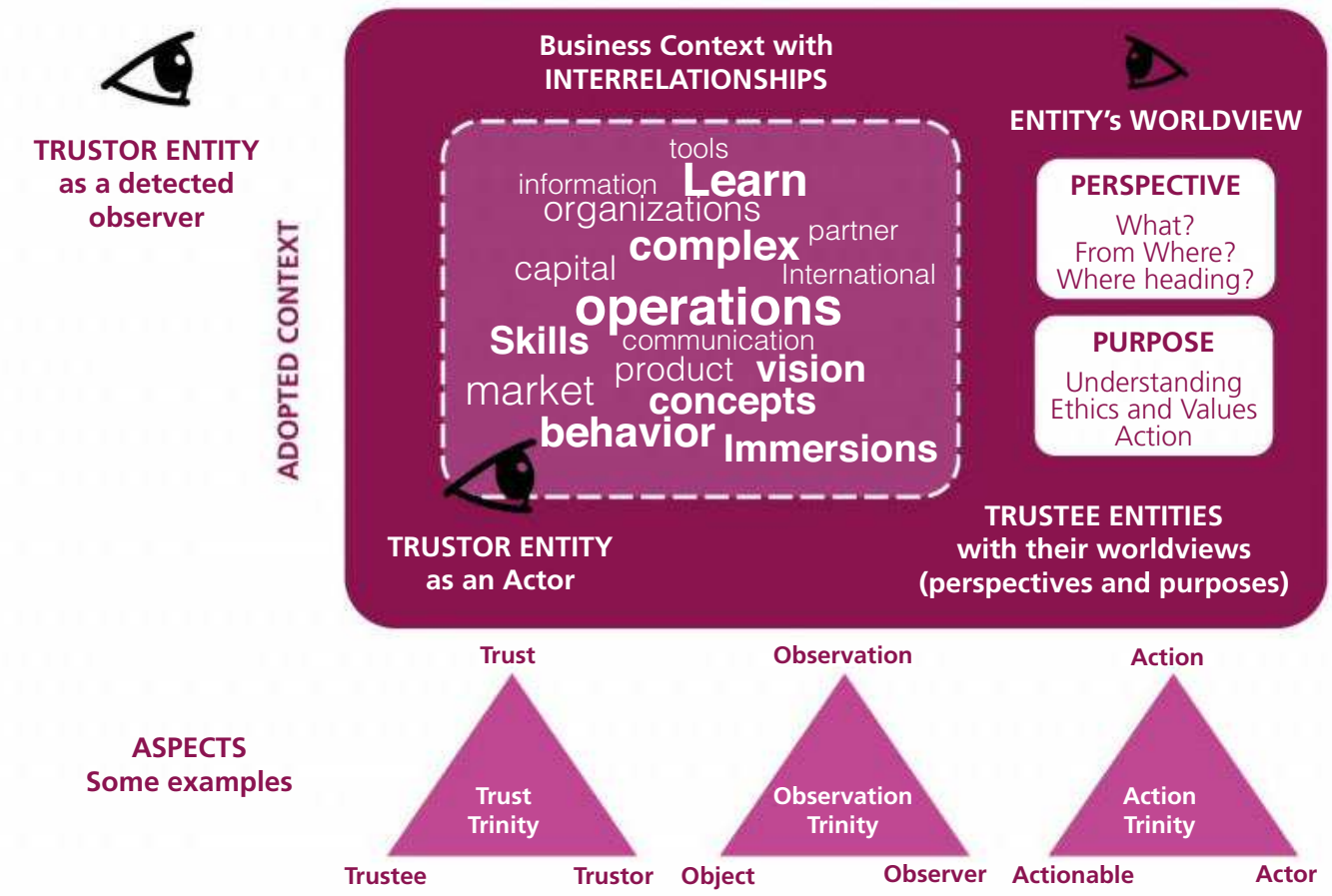


Figure 2. Illustration of trust in the business context in the framework of Integrative Intelligence[11]



A TRUST-BASED SUPPLY CHAIN: THE MUMBAI DABBAWALAS

Based in: Mumbai
Founder: Maadeo Havaji Bachche
Established: 1890
Headcount: 5,000
Clients served: 200,000

What they do: *Dabbawalas* move cooked food in tiffin carriers (*dabbas*) from employees' homes to their workplaces and brings empty tiffin carriers back again. They move more than 400,000 *dabbas* daily.

How they do it: There are two fascinating aspects to the Dabbawala business story. First, the *dabbawalas* have no formal learning or schooling, and they come from underprivileged homes. They are employed as *dabbawalas* with the aims of brushing up their skills and providing them with a career. Second, the *dabbawalas* do not use any kind of telecommunication or technology. The entire task is based on a code marked on the top of the *dabbas*. The meals are delivered 99.9999% of the time. The *dabbawalas* received a "Six Sigma" award, which not only focuses on certification but also on customer satisfaction.

Integrative Intelligence is already intrinsically present – it just needs to be nurtured in order to enhance trust among all stakeholders.

INTEGRATIVELY SELF-MANAGED CARE ON THE BASIS OF TRUST: BUURTZORG NEDERLAND[13, 14]

Based in: Almelo, Netherlands
Founders: Jos de Blok, Gonnie Kronenberg, Ard Leferink
Established: 2006
Headcount: 14,000
Clients served: 100,000

What they do: Buurtzorg is a leading European community-based home-nursing provider. The company offers cost-efficient, high-quality, in-home care for people in need. The concept is globally respected, widely recognised and the fastest-growing model for home care.

How they do it: Buurtzorg's approach is based on its unique community-care model and a unique organisational model of self-management. The company has implemented a nurse-led model in which nurses work in autonomous teams of 10-12. They organise themselves, set up their own offices, recruit new personnel and acquire patients through general practitioners or hospital referrals. IT connects the teams to each other and to the headquarters.

Integrative Intelligence is the ability to pursue a holistic approach with the aim of realising a coherent view driven by an inherent need for self-freedom. This ability to understand interrelationships and the goal of coherence give rise to an ability to nurture and exercise trust in a holistic way.

Businesses build policies, set up compliance procedures and introduce standardisation. These activities are mostly aimed at evaluating trust with the hope of affecting the nurturing and expression of trust. Notably, technological innovations such as blockchain, are being pursued under the assumption that the transacting entities inherently lack trust. However, forcing humans to fit together in technological frameworks creates an unsustainable situation, as humans naturally have a tendency to trust others. The integrative worldview allows for contextualisation and harmonious integration of these developments with the natural human disposition of trust, without discarding either of them or being skewed towards one. Integrative Intelligence, in turn, provides an ability to nurture (and potentially express) trust in a more holistic and integrative way.

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GDPR

GDPR – Death Knell or a New Life for Customer Analytics?

BY AMIT JOSHI

Even before the enforcement of the General Data Protection Regulation (GDPR) across the European Union's 28 member states, European firms apparently had a tough time becoming GDPR compliant. Today, they are faced with the implications of the constraints on the ability to collect, store, process, and use customer data. Where this leads customer analytics is a significant question to ask.

With the inception of the General Data Protection Regulation (GDPR) in 25 May 2018, the initial sense across European firms was that they are underprepared for the disruptive effect that such a law brings forth on all aspects of data management. Even among companies who were well aware and better prepared for the commencement of the GDPR regime, there was a sense of despair arising from what were seen as severe constraints on the ability to collect, store, process, and use customer data. But were these fears legitimate, or were they misplaced? Were firms overreacting to the implications of this law? And what about consumers – are they going to see long lasting benefits from the increased individual data privacy?

With GDPR slowing the data flow to a trickle, companies need to figure out how to draw more insights from less data, rather than just throwing more data at the problem.

Immediate effects

It is important to separate the immediate effects that this regulation have on both companies and consumers, from its possible longer-term implications. Moreover, all parties, including regulators, should consider the unintended consequences resulting from such a sweeping change in data privacy regulations.

In the short term, companies that are dependent on consumer data (especially data collected online) were hamstrung in their customer outreach efforts as they lost their access to several avenues of data collection that were previously used, including both internal and external sources of data. Since May 25, re-targeting data, clickstream data and even data that could previously be purchased from vendors were lost. Furthermore, even for data that were legally collected and stored, the scope of usage was drastically reduced, since GDPR rules that data can only be collected and used for very narrow, spnecific purposes, as disclosed to consumers during collection. Companies were apparently caught unaware by the law, or unknowingly committed infractions. Luckily, the consequence of the first sanction is only a warning and not a fine! In the short term, the fears of several managers may therefore be realised, especially if they are unprepared for the challenges.

Ironically, the short term impact of this law can be felt most by the firms that are truly committed to managing by analytics, while those that are analytics laggards cannot be as impacted. However, the most agile of these companies can recover their edge by prioritising speed to market new analytics systems over the accuracy. The best firms are using analytics innovation to meet this challenge.

Spurring innovation

In the long term, GDPR can spur innovation in data analytics. The last several years have seen firms being spoiled for choice in the amount and variety of data that were available to them. As a consequence, data analytics paradoxically became more sophisticated and lax at the same time. Access to vast amounts of data allowed for deeper understanding of the customer, but the analytics techniques used often ignored the underlying causes of that customer behaviour – why expend resources trying to understand causality when copious amounts of data provided insight into every decision outcome? Take collaborative filtering as an example, which is the model that Amazon or Netflix use to provide customised recommendations to their customers based on past purchase or viewing habits across billions of data points. While extremely powerful, this technique does not really care why you may like a particular book or movie – it is just that your past actions strongly predict that you probably will.

With GDPR slowing the data flow to a trickle, companies need to figure out how to draw more insights from less data, rather than just throwing more data at the problem. This is surefire way to spur innovation in analytics, leading to newer techniques, which are better at understanding what actually drives consumers to make decisions. Over time, the use of more rigorous analytics shall become a common feature in analysing customer data, thereby leading to even more nuanced insights.

International competition

At the same time, European firms need to ensure that their traditional analytics models remain up-to-date, or else they risk losing out to rivals who are not subject to these regulations (for instance, Alibaba or Tencent from China). The lack of massive amounts of data can also slow down the Artificial Intelligence capabilities (specifically those linked to deep learning, which depend on very large datasets) of GDPR affected firms, putting them at a further disadvantage with rivals. Affected firms need to have a plan in place to prevent falling behind in this race.

That GDPR is a boon for customer privacy is not a news. In some ways, this law levels the playing field between companies and customers in terms of their information. Companies have had much more information on consumer habits than consumers have had on a company and its products. Now, customers can actually control how much of their information companies can get, and thus reduce the asymmetry. Indeed, this may actually prompt firms to start paying for customer data, as they realise the real worth of this resource that was free so far.

On the contrary, consumers are also looking for fewer personalised recommendations as companies lose the insight into their behaviours. It is possible that the amount of spam individuals receive may increase, as some firms again resort to indiscriminate mass targeting due to the unavailability of high quality personal data. Another unintended consequence is that companies again revert to creating products for an "average" customer, as they typically did before the mass customisation of the digital era. The "long tail" of niche products offered by firms such as Amazon, Spotify, and Netflix depends largely on the unfettered access to prior consumer choices. In its absence, companies could be hampered in serving the long tail. Of course, as companies become savvier with their "limited data" analytics skills and re-gain the ability to personalise their products and recommendations, consumers may benefit from the double positives of increased data privacy and higher personalisation.

Companies have had much more information on consumer habits than consumers have had on a company and its products. Now, customers can actually control how much of their information companies can get, and thus reduce the asymmetry.

Most significant change in the digital marketing era

GDPR is the most significant change companies are grappling with in the digital marketing era. Invariably, the more agile and analytically driven firms are the ones with the ability to adjust faster to this disruption and come out ahead. Consumers should also brace themselves for changes in the way companies interact with them, the variety of products and services they can access, and how companies communicate with them. In all, anyone dealing with European customers may be in for a rollercoaster ride over the next few years. EBR

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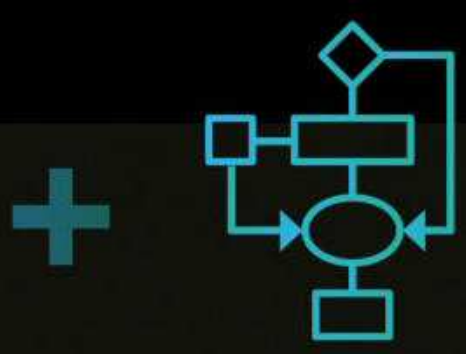

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NOTHING IS FREE

Data-driven optimisation unlocks freemium business models' real potential

BY STEFAN WAGNER AND JULIAN RUNGE

In today's digital era when the marginal cost of (re)production and distribution of products and services tend to be close to zero, freemium strategy is becoming more appealing among companies as going freemium can be an effective strategy for customer acquisition and the monetisation of their digital products. Stefan Wagner and Julian Runge present an effective approach to designing freemium business models that would maximise the business impact of a product or service.

Digitisation has a tremendous impact on the conduct and the economics of business as it has the power to transform virtually every step in the value chain of almost every industry. Most visibly to the public, digitisation has transformed consumer software in video and content-related industries including publishing of text, music, and videos. In particular, long-established pricing schemes are being overturned by distributing content in a digital fashion via the internet and through mobile applications (apps). Digital content and products more generally are characterised by high cost to produce the first copy or version. The marginal cost of (re)production and distribution then tend to be close to zero, however. This particular cost structure has given rise to freemium business models, i.e., hybrid pricing schemes that combine the virtues "free" and "premium": customers are allowed to use a basic version of a product for free without any time restriction but have to pay an access fee if they want to access premium features.

Freemium is ubiquitous

Freemium business models are appealing for consumers. Compared to the traditional buy/sell system model, freemium allows consumers to sample a product not only for a limited period (as test versions in the buy/sell model typically do) but perpetually.

The exact specification of freemium pricing schemes depends on the product context and different examples abound. Media companies frequently implement freemium models to monetise their content on the internet. In 2011, the *New York Times* moved from publishing their

Most visibly to the public, digitisation has transformed consumer software in video and content-related industries including publishing of text, music, and videos.

content online for free to a freemium business model using paywalls; users exceeding the limit of 20 articles per month were required to pay for a subscription. Voice-over-IP (VoIP) services such as Skype offer VoIP calls for free but charge for premium features such as voicemail, messaging, or calling (mobile) phones. Cloud-based data storage services such as Dropbox offer a limited amount of storage for free but charge subscription fees for increased volumes. In 2015, Microsoft released apps of its MS Office Suite that allow consumers to use a set of features for free while access to the full functionality requires a subscription.

Freemium is also ubiquitous in gaming where users are allowed to play a certain amount of levels for free while additional levels and other in-game items have to be purchased. Recent statistics indicate that freemium accounts for 95 percent of Apple App Store revenue and 98 percent of Google Play Store revenue. The "app economy" – defined as all business activity on different app stores – is expected to reach a volume of 100 billion USD by 2020.

From a company perspective, going freemium can be an effective strategy for customer acquisition and the monetisation of their digital products. Free features are powerful marketing tools and often allow companies to attract new users and scale-up novel services or products without devoting large budgets to ad campaigns.

More than pricing

Despite this obvious appeal, freemium models are still poorly understood. Many firms find it challenging to implement a specific design of a freemium model, which is maximising the business impact of their product. In contrast to the already challenging task of setting a price that maximises profits or revenues in traditional business models, freemium requires firms to make more decisions simultaneously.

In fact, setting up freemium business models requires companies to carefully consider three main parameters: one, how much (and what) to give away for free; two, how much to charge for premium features; and, three, how to design the product so that existing users attract novel users. Complicating matters, companies need to find answers to these three key questions simultaneously because they interact with each other.

How much should we give away?

A crucial choice in any freemium model is the selection of features – how many and which – to give away for free. More free features make a product more appealing and attract more users, which is particularly important in situations where companies seek to quickly scale up their product and acquire a large user base in a short period.

Increasing the number of free features, on the other hand, typically reduces conversion rates. Conversion in this context refers to converting free users into paying customers; the conversion rate is the number of free users that upgrade to the premium version. As advertising has become a negligible source of income in most freemium business models, customers of the premium version are the most important (if not the only) source of income. This makes the conversion rate a key metric in the design of freemium models.

Typically, conversion rates for internet-based products and services range between 1.5 to 5 percent of all users. Giving away more free features can reduce this already low rate even further.

How much should we charge?

In addition to differentiating free features from premium ones, firms have to set a price for those premium features. As in conventional business models, higher prices reduce conversion rates but increase profit per freemium user. In some cases, setting a price for premium features is equal to setting one global price (for instance, if the payment of a subscription fee allows users to access all premium content) but can also amount to setting a bundle of different

prices if different premium features are sold separately. For instance, Skype is selling various premium features including voicemail, unique phone numbers, and different calling rates separately as well as in bundles.

How do we leverage free users?

In a freemium world, companies have to learn not to consider free users as free riders. Rather, they have to be strategic to harness the value of consumers who like their product even if they have not been converted to premium customers (yet).

A large base of free users can deliver value to a freemium model primarily via two channels. On the one hand, having a large base of active users increases a product's chances to be listed in the "most popular" or "most downloaded" ranking of app stores. A listing in these rankings is of high value as it almost automatically boosts the number of new users that discover a product by browsing these lists. "Most popular" rankings hence bring in new users at zero cost. On the other hand, existing (free) users often recommend a product to their peers who then try it out. Again, this allows companies to acquire new users at zero cost. So existing users bring in new users – some of which have the potential to be converted into premium customers. Many successful freemium models include built-in reward mechanisms that create an incentive for existing users to recommend a product. For instance, Dropbox rewards existing users with additional free storage space if they attract new users to the service.

Solving the freemium puzzle

When designing freemium models, companies must take into account how those three parameters interact with each other. First, giving away more features for free increases the attractiveness of a product per se and facilitates initial acquisition of (free) users. This can create a virtuous cycle: a larger base of free users is likely to attract more new users via recommendation or "most popular" listings. This, in turn, leads to a bigger user base, which attracts even more new users – all of which can potentially be converted into premium users.

Second, rewarding free users for attracting new users nurtures the virtuous cycle. However, giving too many rewards might crowd out conversion. For instance, Dropbox observed users to strategically acquire novel users in order to increase their amount of free storage and to avoid upgrading to the premium version.

Third, increasing the number of free features reduces conversion rates as a larger share of existing users will be able to satisfy their needs by relying on free features exclusively.

Finally, the price set for premium features interacts with conversion rates (higher prices reduce conversion), user acquisition (higher prices reduce the likelihood to attract free users), and the chances that existing users attract novel users for free (higher prices have been found to lower recommendation rates of a product to peers)

Experiments drive results

To date, there is only sparse academic literature that can offer guidance to a structured or even analytical approach of finding profit-maximising

In a freemium world, companies have to learn not to consider free users as free riders. Rather, they have to be strategic to harness the value of consumers who like their product even if they have not been converted to premium customers (yet).

More free features make a product more appealing and attract more users, which is particularly important in situations where companies seek to quickly scale up their product and acquire a large user base in a short period.

designs of freemium models. Most successful companies approach the challenge of designing freemium business models in a data-driven manner by testing different parametrisations of freemium models in experimental settings. Users are randomly allocated to versions of freemium designs that differ only in one respect. Comparing relevant outcome measures, most importantly conversion and recommendation rates, allows companies to identify specific designs that work better than others. This approach is well known as A/B testing. Most often, a single A/B test will not do. Successful freemium designs are refined over time by running a whole sequence of multiple experiments.

Case-study evidence from video gaming

In order to demonstrate the benefits of an experimental approach to freemium design, we analysed data from an A/B test conducted in collaboration with a Berlin-based provider of video games for mobile phones and tablets. In our experiments, a total of about 300,000 users of a highly successful video game were randomly assigned to three different versions of freemium designs. Compared to the default design originally implemented by the company, we varied the number of free features (the number of levels users can play without paying) in one test scenario. In a second test scenario, we varied the rewards for attracting novel users.

A statistical analysis of how the 300,000 players used the game over a 14-day window allowed us to identify how different freemium design choices affect important outcomes including conversion rates and the number of new users attracted. Our analyses provided clear evidence that – in this specific example – conversion rates could be significantly increased (by more than 20 percent) by offering fewer features for free without negatively affecting existing users' efforts to attract novel users. This example highlights how experiments can help to optimise freemium models based on hard evidence rather than assumption or "guesstimation."

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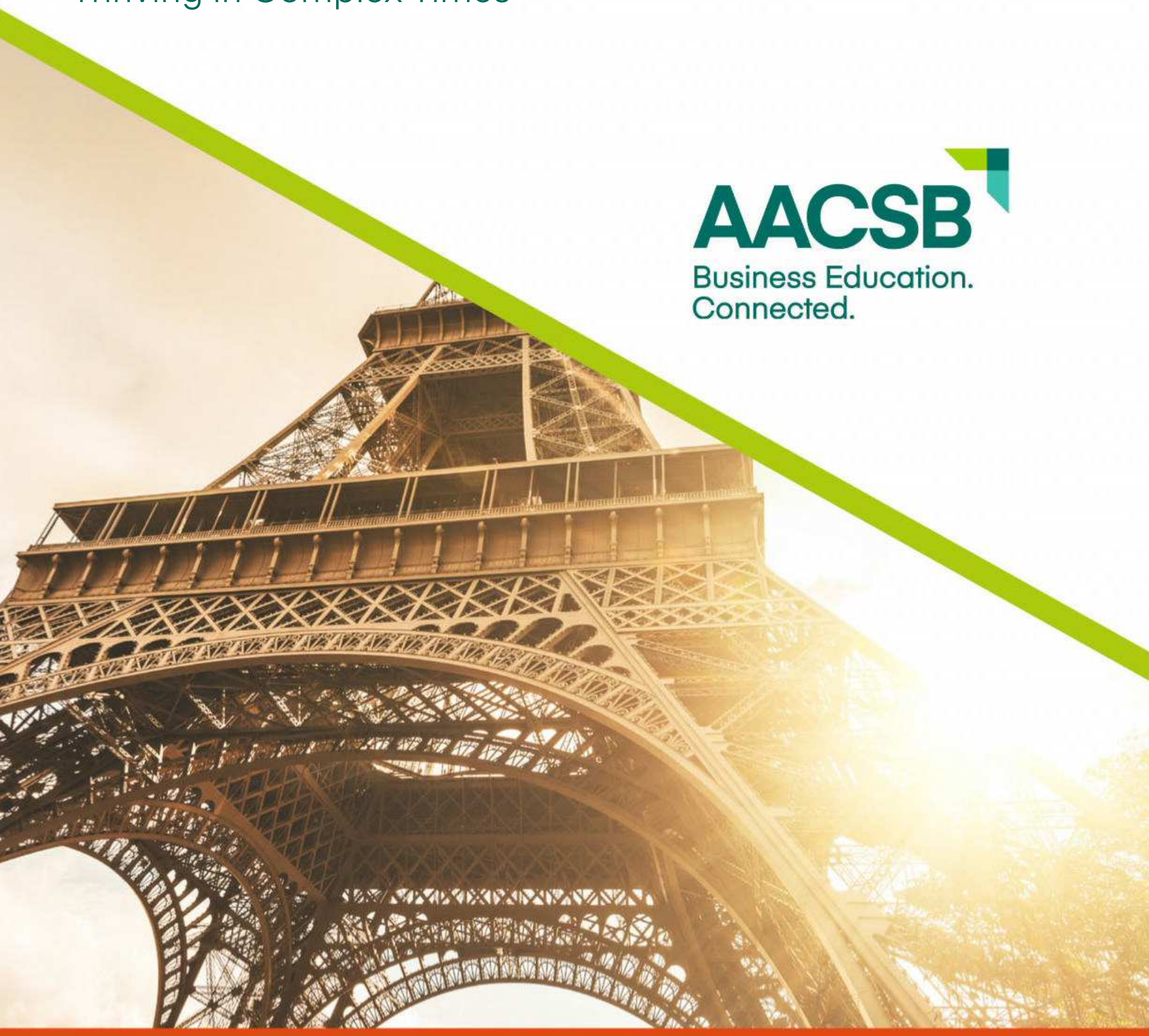

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Data to the rescue: Investing in *(female)* employees

BY INEKE CEDER AND SUMRU ERKUT

Can companies successfully align attention to their bottom line with the current urgent calls for wider diversity and inclusion? The authors argue that thoughtfully collecting data on workplace climate and letting affinity groups address any identified hurdles towards sustainable employment are effective routes to remaining relevant.

Having been writing about issues that inhibit women's careers, we discussed[1] most recently how unpredictable schedules disproportionately hurt women because they continue to be the main care providers in most families. The absence of workplace policies and provisions that allow women to streamline their home and work responsibilities stands in the way of their upward movement and career sustainability.

Our industry of focus[2] has been the U.S. non-profit regional theater world where only about 27% of leadership is in the hands of women. Our surveys and interviews didn't merely uncover the hurdle of unpredictable scheduling. We also identified a lack of trust in women's leadership capabilities and a dearth of mentors who are able to provide women with the needed support. These and other issues turned the U.S. non-profit regional theater — which was started by women — into a field predominantly overseen by men. While our analyses focussed on this one performing arts field, our findings and recommendations

are relevant to other industries seeking to address gender parity in leadership.

The case for diversity[3] in business and leadership has been made; we already know that diversity is good for the bottom line, and consider this debate addressed. While in some industries there are effects of both glass-ceiling barriers and of pipeline issues on gender parity in their leadership, this was not the case in our study. In theater, most number-two positions are filled by women. Therefore, when addressing obstacles to full representation of women in leadership, we are driven to focus primarily on tackling organisational and cultural hurdles that women face on the leadership ladder and on their quest to break through the glass ceiling, rather than on what women themselves need to change in their preparation for the top position.

Supporting women or other underrepresented groups in their preparation for leadership or their efforts toward sustainable and engaged employment in your industry.

Organisational barriers can be hard to eradicate, because they are often couched in wider cultural views and biases. Regardless, each individual company or industry can take the lead on dealing with gender imbalances. The first step is to collect reliable data. The second step is to translate these data into effective action. Ideally, this should be accomplished by groups of invested employees, and backed and financed by management.

Gather your data

Efforts for effective change often start with the right data. Your organisation should collect its own or contract an external research institution to assist you. Through systematic and thoughtful data collection and analysis, you will be able to identify the strengths and weaknesses of your company's culture in order to achieve full inclusion.

You may think that employees will come forward if there are problems that affect their commitment to your organisation. However, just a quick overview of the allegations that the recent #MeToo movement brought to light can attest to the difficulty of coming forward, the pervasiveness of gender-based and other abuse, and how long "business as usual" is often allowed to proceed.

We encourage companies to explicitly ask their employees how they experience their workplace in order to uncover systemic disadvantages or even actual discrimination. However, *how* you do this matters greatly. A carefully designed and administered, fully anonymous survey may help you learn about your company's climate. It can also, for example, help you identify where your company falls short in effectively supporting women or other underrepresented groups in their preparation

Workplace accommodations need to acknowledge the full outside responsibilities of all its workers as this will benefit the company's bottom line to retain all dedicated workers instead of having to go through costly rehires.

for leadership or their efforts toward sustainable and engaged employment in your industry. For example, a survey is an excellent route to ask your employees questions about work-life balance. All employees who shoulder caregiving responsibilities are vital for the survival of your company. Ask them questions that elucidate what they need to be fully present while at work. For example, which of the offered benefits do they need in order to stay employed? Which aspects of their work provide them with motivation to remain with the company?

Further, it is paramount that anonymity is guaranteed on these surveys, such that, for example, no manager who is given aggregated data is able to identify a specific employee's responses. Going through the efforts of gathering data is only useful when the information gained can be truthfully and completely reported and is treated as valuable feedback. Outside consultants can more credibly promise anonymity and help avoid that employees hesitate about their contributions.

Can this survey process be disruptive? Absolutely; for example, the exposure of widespread abuse at Nike[4] was uncovered by a group of women who shared results of an anonymous survey. But, not every instance of identified disadvantage will be a matter which requires drastic measures. In most cases, surveys will identify which policies need improvement and which tools need to be sustained or introduced to support inclusive company practices.

Take action

The data you gather in surveys drive subsequent action steps. It is important to ensure that the employees who are affected by any uncovered issues have a role in turning them around. An effective way to ensure this is by allowing affinity groups to be formed. Affinity groups have employee members who team up organically around shared interests and common goals. The groups' recommendations are passed up to the company's leadership for consideration and implementation. The issues these affinity groups could tackle may range widely, and will be based on your collected data. However, considering how widespread some biases are, chances are that many organisations will deal with similar struggles.

Bias creates replication

Consider for example your hiring process. In our interviews, a theater leader reported that a colleague at another institution used a baseline benchmark against which candidates for an open position were measured: "When I asked who exactly counted as "normal" on the baseline, it was candidates who had been successfully hired to similar positions. But these were mostly men!" If this or a similarly flawed process in your employment practices were reported on your survey, an affinity group can work on redesigning the selection process. In this example, the group would design a measure of what success for a particular position looks like, focussed on demonstrated skills or experiences and not on a baseline that is created outside of many applicants' reality. The example given here was obviously gender-biased: the baseline used did not account for any advantages that men may have had in the past in gaining the position and, when applied to new hires, would merely replicate the same results.

Address work-life balance for every employee

If your company frequently loses female employees when they start a family, your accommodations may not be sufficient to support them. Properly administered surveys, again, can identify the barriers these employees face at work. An affinity group tasked with addressing these barriers can make recommendations for change that can keep your female employees supported and committed to your company.

At the same time, your survey should also ask about work-life balance among fathers. Why do we still accept that only mothers need a more extended amount time to adjust to a new member of the family? If we continue to encourage only one set of parents to fully access family accommodations at work, we diminish the reality of both parents' combined roles as worker and caregiver. A separate affinity group can design strategies for how to encourage the *whole* organisation to take paternity leave more seriously and for how to fully promote your caregiving accommodations among all new parents.

An affinity group can also address the tendency to let any struggles working parents face become embedded in our stereotyped expectations of a mother's performance and whether she is actually committed to her job. Some of our female interviewees reported instances of being presumed not to want a leadership role. A male interviewee's comment discussing the scarcity of women in leadership was "I don't think they aspire for that type of leadership role given their family situations." A stereotype like the one underlying this statement renders invisibly any ambitions mothers may have toward growth in their employment. This invisibility harms women's careers and their chances to a top position.

Conversely, we do not tend to take a man's fathering responsibilities into account when evaluating his performance. However, a father may struggle equally with work-life balance as a mother may, but likely doesn't feel equipped to ask for support. The old prototype of the "ideal worker", a man with a primary caregiving wife at home, is no longer a reality, but most of our workplaces seem to cling to it. A majority of families with children have both parents in the workforce. Therefore, workplace accommodations need to acknowledge the full outside responsibilities of all its workers as this will benefit the company's bottom line to retain all dedicated workers instead of having to go through costly rehires.

Finally, it is only reasonable to also consider the work-life balance of employees who are not taking care of others at the time you collect your data. They may feel unfairly considered as "always available", and may face burnout or resentment. Opportunities for those employees to speak up about such treatment are necessary and will help create a culture of more equitable sharing of responsibilities between diverse groups.

Until we make diversity and inclusion priorities in financial planning as well as in policy development, any efforts toward reaching these goals will remain substandard, without credibility, and in all likelihood just wasted time.

Promote equity in reviews

Our study in theater confirmed what others[5] have also shown: Men get promoted based on potential more often than women. Our data showed that the men in the top executive roles at the largest-budget theaters were promoted into those roles from smaller-budget theaters more often than their female counterparts. In general, women are not given that benefit of the doubt when it comes to promotion on potential. More research needs to be conducted to unravel the cause and effect in this dynamic. Some work[6] shows that women believe they need to be 100% prepared for a position before they apply to it, while men do not and feel more confident relying on their potential when applying. However, it may also be that by constantly seeing men reach higher-level positions in larger numbers, women react by working harder at building out their list of experiences.

A role for an affinity group in this process can be to work on designing a fair and equitable review process. Currently,[7] in general, men tend to receive more specific constructive feedback and suggestions for growth than women do; this needs to change. Discussing specific plans for growth is essential in a review for any employee. With a manager's help, an employee should be supported to transform any failures or setbacks into future successes. Creating a list of accomplishments is an important step. But, as long as

men and women feel ready to apply for a promotion with differing levels of actual achievements — with men relying on potential and women on achievements — a review process should include help in creating a list of acquired skills and how to turn those skills into practical stepping stones toward advancement.

Make it real

Finally, to be fully effective in driving change, there has to be a mandate. The change agents who form affinity groups need access to both a public forum within your company and an ear from your highest management for feedback. And last but not least, their plans need a line item on the company's budget once they are fully formulated and reviewed. Until we make diversity and inclusion priorities in financial planning as well as in policy development, any efforts toward reaching these goals will remain substandard, without credibility, and in all likelihood just wasted time.

At some time in the, hopefully, not too distant future, we should all be so lucky to see words on our climate surveys similar to those from one of our female interviewees. She had just announced to her mentor that she was expecting a child and recalled: "[My mentor] had no doubt that I would continue to do my job well and that I would want to. And that I was committed to what I was going to do. And that having a child would be an expansion of my universe and my point of view that was not a threat to my work." Imagine that every one of your employees could be that new parent or that mentor. Imagine that your organisation reached its goal of full inclusion and had created a culture of belonging. It is possible.

About the Authors

Ineke Ceder is a Research Associate at the Wellesley Centers for Women. She has contributed to studies focussed on women's leadership, adolescent development, sex education, and racial/ethnic identity. Her recent collaboration with Sumru Erkut on women's leadership in theater informed multiple initiatives that are driving leadership change.

Sumru Erkut, Ph.D., is a senior scholar at the Wellesley Centers for Women. Her research focusses on racial/ethnic diversity, gender equity in leadership, and development across the life course. Her work found that three or more women on a corporate board of directors constitute a critical mass which improves boards' functioning.

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THE POWER OF ONE:
Leadership and Corporate Sustainability

BY JUDITH L. WALLS

What kind of leader does it take to make a positive change? What traits set these leaders apart? In this article, the author presents their research highlighting the kind of leaders that can move companies towards a better social and environmental performance.

Examples of positive leadership are all around us. But we rarely see them. Instead, public interest gravitates towards CEO's abusing their positions of power: everything from fraudulent accounting practices (Jeff Skilling at Enron) and using company money to buy basketball tickets (Aubrey McClendon at Chesapeake Energy) to throwing a second wife a $2 million birthday bash, dubbed the "Roman Orgy" (Dennis Kozlowski at Tyco). It's no wonder then that we get hung up on the dark side of leadership.[1]

Yet, every day, people in powerful positions are working to make the world a better place. And their passion to do so can have long-lasting benefits to companies and society. One of the most famous examples is Ray Anderson, late CEO of carpet maker InterfaceFLOR, whose "spear in the chest" moment ignited the drive towards a company with zero negative impact on the natural environment by 2020. In Europe, CEOs are trailblazing strategies to address climate change, actively combatting it by using renewable sources of energy.[2] Leaders like Paul Polman, CEO of Unilever, have even gone as far as to scrap quarterly reporting in favour of pursuing long-term goals like achieving 100% sustainable agricultural practices by 2020.[3]

But, what kind of leader does it take to make a positive change? What traits set these leaders apart? This is a question that my co-authors and I have been studying over the last five years, looking at the roles that CEOs and board directors play in moving companies towards better social and environmental performance. Collectively, our research shows that some individual background traits (like something as simple as having experiences in nature) matter in doing good. Other background traits hinder social and environmental progress. The good news is that research can help us identify the right kinds of leaders who can and do step up to tackle society's toughest environmental challenges like climate change, habitat destruction, or water scarcity.

Examples of positive leadership are all around us. But we rarely see them. Instead, public interest gravitates towards CEO's abusing their positions of power. It's no wonder then that we get hung up on the dark side of leadership.

Experience is Power

Our first finding is that experience is power. When we have enough experience, we attain the power that comes with being an expert. And experts are special: they can notice things others cannot, they can take advantage of unexpected opportunities, they can wade more easily through ambiguity and complexity, and they make sense of all that information to others.[4,5] For this reason, experts have the ability to influence others around them. In other words, they have the power to create change.

This is why environmental experience is so important when it comes to leaders and corporate sustainability. Experience with environmental issues, whether gained through life or a former job, affects how we think about topics like sustainability. Experience going as far back as our childhood can affect the level of commitment we have to protecting the natural environment.[6] Those kinds of experiences can come from being in a family or having friends that live off the land, doing outdoor activities, going hiking, engaging in environmental volunteering activities, or seeing habitat destructed or polluted. That experience can also come from grade school activities or field trips, inspiring teachers, or later on through formal education or vocation.

In a corporate context, that experience may come from prior jobs, board appointments, or extra-corporate activities that deal with environmental topics. For example, Francesco Starace, who became the CEO of Enel Group in 2014, brought with him six years of environmental experience running Enel Green Power. More recently, he joined the board of the UN Global Compact. Since becoming the CEO of the Enel Group, Starace has been mainstreaming green energy into the group's strategy. Similarly, when Emmanuel Faber became CEO of Danone in 2014, he took the company's sustainability strategy to a whole new level that includes Danone becoming a Certified B Corp by 2030. As early as 2005, Faber gained experience in social projects in Bangladesh and was part of an Action Tank on "Poverty and Business" in 2010. These CEOs' experiences are not neglible.

Regardless of its origin, experience with environmental activities act as a filter through which leaders process information and make decisions. In research with Andrew Hoffman,[7] we found that the more environmental experience leaders have, the more likely they are to consider the environmental impact of their businesses. In fact, if they have enough environmental experience, leaders can direct their companies to become positive outliers and have better environmental performance than their immediate peers in the industry. More specifically, we found that companies with board members who have environmental experience based on their past employment or board positions, environmental awards or honours, or engagement in environmental activities such as being part of a not-for-profit organisation tended to be above the norm in environmental performance.

Similarly, in research with Pascual Berrone,[8] we found that CEOs with this kind of environmental expertise can significantly reduce a company's environmental footprint. Leaders who have environmental experience can exert influence over their followers to attend to sustainability because they understand the issues at hand and know how to deal with them. Environmental expert CEOs are also able to sway their companies to be even more sustainable when they additionally have other forms of influence over the board, by holding the Chair position, being the company founder, or owning a large proportion of the company's shares. These attributes allow expert CEOs to influence the very top of the organisation.

Childhood experience also matters. In a study with Eunice Ng and Gana Wingard,[9] we looked at how Mongolian mining managers make decisions about

If they have enough environmental experience, leaders can direct their companies to become positive outliers and have better environmental performance than their immediate peers in the industry.

environmental sustainability and found that childhood experiences form an important part in their attitudes towards sustainability. In Mongolia, values and beliefs towards the natural environment are passed down from parents and grandparents, through folklore and religion, and the cultural lifestyle of an historically nomadic people whose identities are tied to the land. These experiences tend to generate enormous tension within managers who later find themselves digging up pristine landscapes and polluting the environment. As a result, many of these managers try to compensate psychologically by doing what they can about sustainability either in their personal or professional lives.

The backgrounds of leaders, whether derived through childhood or professional experiences, education, or simply being a fresh set of eyes, only partially explains why CEOs and board directors care about sustainability.

Other Background Matters

Apart from environmental experience, there are other characteristics of leaders that improve companies' environmental actions. In research with Ben Lewis and Glen Dowell, we found that both educational background and position tenure is relevant.[10] CEOs with MBA degrees are more likely to voluntarily disclose information about the company's environmental performance. But the opposite is true for CEOs with law degrees. This finding leads us to hypothesise that CEOs with MBAs are better at spotting the win-win opportunities of engaging in sustainability activities, whereas CEOs with law backgrounds view voluntary disclosure as a risky strategy that exposes a company to greater scrutiny or litigation.

Newly appointed CEOs, who have been in their position for less than two years, are also more prone to voluntary disclosure of environmental information as they have more freedom and willingness to experiment with new strategies. Ongoing work with Shih-Chi Chiu suggests that new CEOs re-assess the current situation of their company more readily than longer-tenured CEOs and review the needs of environmental and social stakeholders. As a result, new CEOs pay more attention to social and environmental stakeholder demands than CEOs with longer tenure who have a tendency to maintain the status quo. Whether those new CEOs are promoted from within the firm or hired from the outside doesn't matter.

In other cases, certain characteristics of leaders can hinder companies' efforts to become more sustainable. In recent work with Bjoern Mitzinneck and Glen Dowell, we consider why some corporate boards remain male-centric, lacking any women directors. Early results show that individual characteristics of board members (such as age) play a role. A board with older generation directors is less likely to be open to new social trends, such as gender equality. This same project also looks at how conservative or liberal the leaders of the company are and shows that companies headquartered in a more conservative location are less likely to have women directors. Directors with these qualities have grown up in eras and cultures with norms that are more patriarchal, and therefore more likely to maintain all-male boards.

When are Individual Traits Not Enough?

The backgrounds of leaders, whether derived

through childhood or professional experiences, education, or simply being a fresh set of eyes, only partially explain why CEOs and board directors care about sustainability. Other factors, such as leadership styles[11] and a strong moral identity[12] are also important. But research still has a long way to go to understand what drives, and what hinders, leaders to do good.

Leaders can only influence their firms' strategies to a certain extent. Companies face many other pressures that affect sustainability, such as conflicting demands from stakeholders and shareholders, the financial health of the company, and so on. Further, organisations are large and complex and therefore need more than a single driver to steer their various components away from a path of inertia and in new directions. There are also larger forces at play, such as the public's mistrust of experts and the science around sustainability.[13] These sociological factors affect how much change leaders can enact.

If (the Right) Leaders Step Up, There is Hope

The notion that companies can actually make the world a better place is counter-intuitive for many. And the notion that leadership can make a difference is powerful for those who can accept that fact. So powerful, in fact, that a new field of research has emerged that looks at how leaders can build high performing organisations that have a positive impact on society and the environment.[14] Intuitively, we sense that the right kind of leadership is important for creating corporate outcomes that maintain the financial bottom line and improve social responsibility and environmental stewardship. There is hope that we may yet be able to tackle issues such as climate change because business has to be part of the solution. With the right kinds of leaders, we can see companies stepping up.

The notion that companies can actually make the world a better place is counter-intuitive for many. And the notion that leadership can make a difference is powerful for those who can accept that fact.

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AI and Digital Resources in Fintech:

Creating an evolutionary analytic platform for "risk" estimation

BY STEPHAN KUDYBA

This article describes the potential for AI to augment risk estimation for both individual investors and financial market assets. AI processes vast amounts of a variety of data to identify patterns underpinning processes and metrics. Evolving data resources including digital touch points provide AI with attributes that can enhance risk estimation to ultimately augment elements of modern portfolio theory.

There has been heightened emphasis on the utilisation of AI in various applications throughout industries. This algorithmic learning and replication technique that processes data to learn how activities work, has reached intense depths given the creation of vast data resources in the evolving digital era. The results of AI initiatives have been both mixed and alarming as applications including voice recognition, identifying fraud, understanding consumer propensities and replicating tasks performed by humans have intrigued business leaders and heightened concerns in the workforce as to the potential of labour displacement.

One particular AI-based initiative is in the financial sector that falls in the realm of FinTech. This has been the creation of robo-advisors or the use of algorithms to enhance the activities of financial advisers interacting with investors regarding asset allocations among various financial market based assets (e.g. equities, fixed income, commodities, etc) for wealth and retirement management. These platforms can augment the tool set of "human advisors" and also introduce a more total technology interface (e.g. evolving robo-advisors) that investors can access for investment advice.

The AI analytics "under the hood" of

Algorithmic learning and replication technique that processes data to learn how activities work, **has reached intense depths given the creation of vast data resources in the evolving digital era.**

this technically intensive initiative processes vast data resources that describe investor attributes and financial market asset classes. Algorithms can be used to identify relationships that can exist between investor stage in life (similar to a product life cycle approach), wealth and risk appetite or attributes of foreign exchange based products, stocks, bonds etc. domestically or globally.

The Basis of Risk

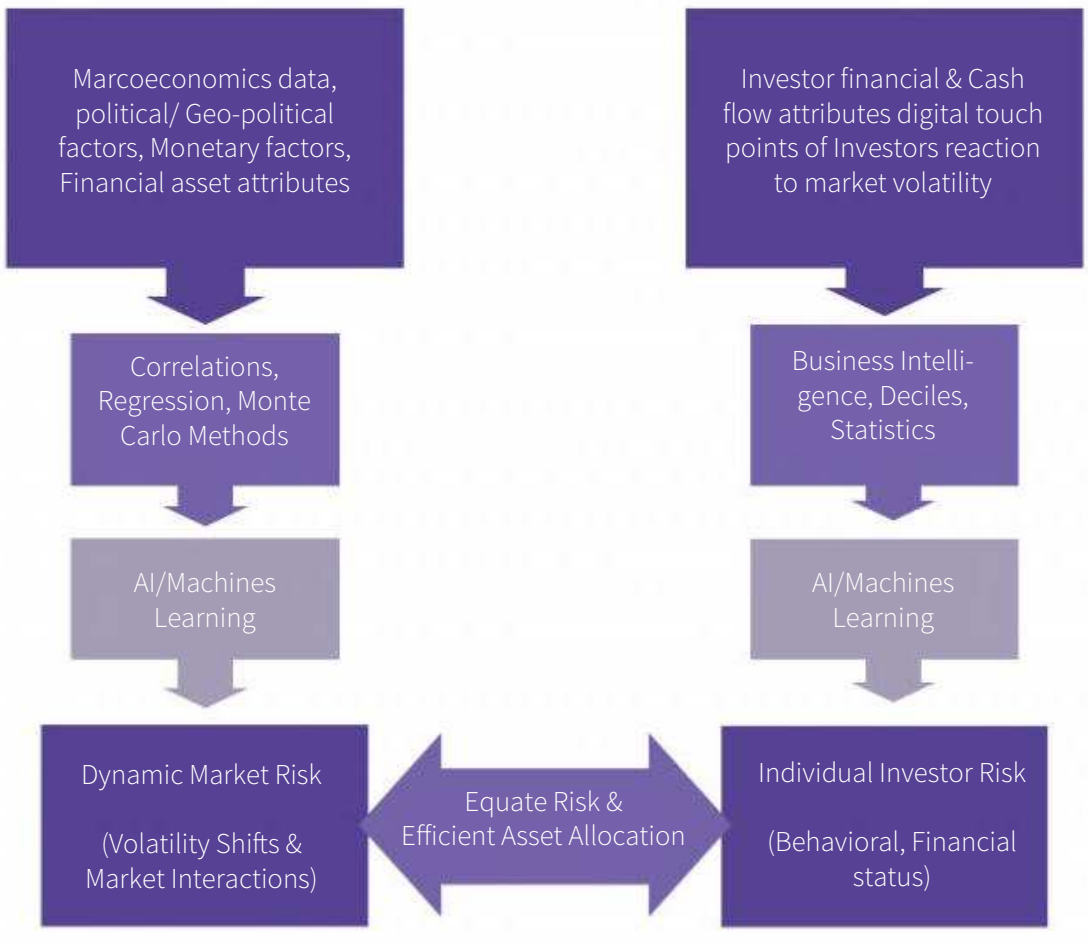
One of the main factors that ties the entities of market fluctuations and investor propensities is the term "risk". This term applies to the risk that investors can tolerate regarding fluctuations in portfolio value and also applies to the volatility of potential returns corresponding to financial assets. It is this factor that may provide a great need for evolving applications of data science and AI while maintaining the need for the skilled financial "human factor" as well in financial advising. On the investor side of the equation, risk generally entails the potential of gaining or losing value in the financial assets comprising their portfolios. A generally accepted principal for investor risk is that achieving higher portfolio returns involves increasing the amount of risk (or adverse fluctuations in asset value) or, according to Modern Portfolio Theory, investors will choose the scenario or portfolio of lower risk given equal expected rates of return. Some basic ideologies involve the idea that younger investors can take on more risk relative to older ones because of the increased time to recoup losses because of a longer investor horizon. While simple personality traits entail some high-risk takers or conversely risk averse personalities.

AI and the Evolution of Investor Risk Estimation

Previous research introduced an approach to augment Modern Portfolio Theory which involves the concept of a wealth allocation framework that more broadly defines individual investor risk. This augmented notion of investor risk includes more descriptive variables involving behavioural finance to better estimate personal risk. Once this is established, the appropriate asset allocation can be achieved.[1] These attributes can be harnessed through evolving data resources that provide AI with the inputs to better estimate investor risk. These data resources can include behavioural attributes that can be extracted from investor activities corresponding to financial market characteristics (e.g. how investors react to volatility in various markets), simple consumption patterns of individuals along with general descriptors of investors. The risk profile of individual investors presents an attractive task of data scientists skilled with AI modeling.[2]

AI modeling in this Fintech application involves the analysis of more descriptive and behavioural attributes of investors which can be processed to estimate personal risk. Many new attributes are available due to the digitation of organisational and consumer activities. A broader spectrum of attributes

Dynamic Risk Estimation Platform



that describe consumer risk tolerance can provide wealth/financial advisors a more accurate profile of individual risk.

Digital transformation across industry sectors has generated micro-detailed data that record and describe activities. Consumption patterns of individuals can be tracked in much greater detail that provide insights into cash-flow status and requirements of daily living that can play a critical factor in determining risk estimation. Individual risk can also be estimated at a more personalised level given the emergence of digital touch points or records of consumers' direct activities with various technologies.[3] For the FinTech case, digital touch points refer to the reaction of investors to market swings that effect the value of portfolios. In other words, investor behaviour in liquidating or adding to asset classes in response to market volatility of assets can provide a more objective portrayal of investor risk.

This type of analytic approach applied to individual risk estimation provides significant value as it entail the analysis of more objective data resources that learn from actual individual behaviour rather than wealth advisors relying on risk assessments based off of self-reported attributes from investors (e.g. investors may perceive themselves as risk averse or aggressive in risk taking, however behavioural patterns may prove otherwise). The AI approach ultimately seeks to enhance the estimation of the personal utility function in Modern Portfolio Theory.

AI and Market Risk

The other side of risk deals with market risk. A prime component of measuring risk of financial assets is a term referred to as volatility, which entails the potential magnitude of change of a financial assets value. For instance, what is the chance a given stock price of a company in the tech sector will fluctuate up or down more than four standard deviations from a base measurement over the coming month? The higher the probable change in value, the more risky the asset. To add to the complexity of this measure, one must consider the interrelated forces between financial market assets. Take for example the notion of higher interest rates and their effects on the price behaviour of stocks, or the differential of interest rates between trading countries' and the effects on their corresponding currencies. Now add yet another component that adds yet more complexity, which entails economic conditions or geopolitical factors that can add multiple entities of data variables and data points that can effect volatility of a host of financial assets (Bloomberg). This is a scenario in which AI is naturally applicable. The equation for advisors is to

AI and data science are the **"the new kids on the block"** regarding the arsenal of quantitative and statistically based methods that provide decision support in the financial market/investment sector.

maintain an acceptable level of risk between investor profiles with that of financial asset classes to achieve desired returns.

Not Just Analytics but Timing of Models

AI-based platforms are created by applying algorithms to data that underpin processes and activities to identify patterns that are used to create models to perform those tasks they learned to replicate. However, drastic changes in the characteristic of the data and the patterns that exist require a re-optimisation of those models. As characteristics of financial markets change (e.g. higher interest scenarios, geo-political turmoil, etc), risk profiles change, and not just financial market risk but the risk profiles of investors may be altered as well.

This process refers to the evolution of financial modeling, where more traditional economic, quantitative and statistically based techniques can be augmented by AI regarding such areas as retirement programs, account aggregation and more shorter-term interactive, investment advice. AI and data science are the "the new kids on the block" regarding the arsenal of quantitative and statistically based methods that provide decision support in the financial market/ investment sector.

Simply put, AI in the Fintech industry introduces significant value as it supplies enhanced decision support for financial advisors and can also provide an automated platform to facilitate the needs for their customers in the digital era. The optimal platforms remain to be a combination of experienced and skilled human experts, existing decision support methods now augmented with AI, and the addition of data scientists skilled in this area who can monitor the effectiveness of these evolving analytic techniques in this dynamic and ever changing space.

The evolving risk estimation platform should enhance the current state of equating portfolio risk and asset allocation with investor risk by broadening the knowledge base of wealth management firms regarding investor advice, mitigating risk relative to asset returns, options of alternative asset based portfolios and new risk models. Some firms have embraced the AI-based evolving risk platform. Vanguards Personal Advisor services involves a hybrid process of machine and human based investment services and Morgan Stanley offers its Next Best Action platform to enhance its investor services.[4] AI has introduced concerns throughout industries regarding the potential of labour displacement due to automation, however reality may be that more knowledge-based workers and data and analytic skilled workers may prove to provide a balance in the equation.

Individual risk can be estimated at a more personalised level given the emergence of digital touch points or records of consumers' direct activities with various technologies.

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Digital twins: How big is the opportunity for industrial organisations?

BY DEBORAH SHERRY

Looking at how advanced our world has become, a bridge to the virtual world is no longer an imagination as the concept of digital twins is already being developed in the IoT space, ushering in an era of more efficient operational performance and business processes.

Industrialisation has had a profound impact on human history and has created major shifts in society thanks to technology innovations that can be traced back to four key stages of industrialisation. While the first three stages were marked by the rise of mechanisation, mass production and automation, the last one, often dubbed the Fourth Industrial revolution, is defined by ubiquitous connectivity. This new stage of industrial development is driven by the wider adoption of the Industrial Internet of Things (IIoT) and other emerging technologies such as AI, advanced robotics and 3D printing, which have the potential to revolutionise production and drive productivity growth.

The Industrial Internet, which connects machines, product diagnostics, software, analytics and people, so that businesses can operate more efficiently, presents a massive opportunity to transform European industries. Conservative estimates suggest that the Industrial Internet market is about £173 Billion globally, compared to the consumer Internet, which is about £131 Billion. Apart from being a driver of growth, the Industrial Internet will drive the adoption of new technology

Digital Twins are digital replicas of physical assets built with artificial intelligence (AI) algorithms that allow companies to understand, predict and optimise the performance of individual assets. These could be individual pieces of equipment or an entire factory.

Digital twins, combined with AI, can improve operations by helping organisations predict potential issues and how to prevent them.

innovations that have the potential to revolutionise how goods and machines are manufactured and repaired. One of these innovations is digital twins.

Beyond theory: Using Digital Twins to simulate new operating conditions

Gartner[1] predicts that Digital Twins will be one of the key strategic technology trends transforming industries in the next couple of years. Digital Twins are digital replicas of physical assets built with artificial intelligence (AI) algorithms that allow companies to understand, predict and optimise the performance of individual assets. These could be individual pieces of equipment or an entire factory.

Digital twins can be used to analyse and simulate real word conditions, test new changes to existing products and monitor how they respond to these changes. This can help companies uncover deep patterns of behaviour and get the most out of each asset by integrating analytics from Digital Twins across an entire class of assets. Digital twins, combined with AI, can improve operations by helping organisations predict potential issues and how to prevent them.

For instance, when an asset wears down, its twin can provide recommendations on how to fix the problem by running simulations based on its past history, context and environment and by building feedback loops for continuous improvement. Until now, organisations don't have visibility into the impact of external factors such as weather conditions when planning the maintenance of their machines. A jet engine, for example, does not have the same maintenance needs if it flies over Europe as when it flies across the desert. A digital twin can integrate the historical data of previous flights, including data from the engine and data from the operating conditions, to help engineers understand the impact of the weather (or other external factors) on the engine and when it needs to be repaired.

That makes a huge difference for industrial organisations as it allows them to tailor repair and maintenance to the needs of the physical asset and avoid unnecessary service disruptions. The ability to know when a jet aircraft engine needs maintenance is critical – but the insight to know it can be repaired after normal operations instead of delaying the next flight is an important consideration.

Improved efficiency and service innovation

These improvements offer tremendous potential for driving service innovation. For instance, we are working with a famous global food & beverage brand to help them optimise the efficiency of their filling and labelling machines which produce millions of bottles every day. By analysing data from digital twins about the operating conditions of the machines and external factors that impact their performance, the company is able to predict system failures and improve efficiency. So far, this approach has helped our customer improve throughput by 8%, which resulted in $1,000,000 of savings per production line per year.

Similarly, our customer Exelon is using Digital Twins to optimise the efficiency of its power plant and deliver faster, more affordable and more sustainable energy. These are just a few of the examples of how Digital Twins can deliver significant benefits to businesses.

This adoption of digital twins will help organisations make informed decisions that improve the way they sell, manufacture, design, service and operate. As a result, companies will be able to gain significant competitive edge in their industries.

Such a data-driven approach to repair and maintenance can improve the lifecycle of critical processes in advance manufacturing and allow organisations to save millions by avoiding potential unplanned downtime of critical assets. Moreover, the combination of digital replicas of machines and AI can significantly improve enterprise decision-making by removing the uncertainty from introducing new changes across the whole organisation. This can help organisations augment human skills by using digital twins and data analytics to improve work outcomes.

Achieving scalability and creating new business models

Apart from improving assets performance management, digital twins have strategic importance for organisations because they can enable the introduction of new business models. Optimising the maintenance costs and knowing precisely how an asset will evolve in specific operating conditions, can enable organisations to sell assets-as-a-service and other add-on repair services rather than just the physical product.

Another important consideration for business leaders is the scalability of the technology – not just across factories but also across the entire value chains. In the future, every machine will have a Digital Twin with the ability to connect a system, or systems of Digital Twins easily, creating Digital Threads. As more digital twins are created and connected to a digital platform, the industrial learning system will be able to provide data to the individual digital twins, improving fidelity. This will drive greater and greater productivity gains, allowing businesses and industrial processes to become more efficient and to adapt faster to the rapidly changing market requirements.

To be able to take advantage of these opportunities, businesses should be looking to build digital platforms that allow them to centralise structured and unstructured data from a variety of external and internal sources. This will help them create enterprise level dashboards that allow executives to look at their global operations in real time, and drill down to an individual asset on a manufacturing line or an oil rig to investigate how it is working.

More importantly, the use of AI and machine learning means that engineers and executives alike will be given recommendations for the best decision to make in a certain context. This approach will help organisations make informed decisions that improve the way they sell, manufacture, design, service and operate. As a result, companies adopting these technologies will be able to gain significant competitive edge in their industries.

Increasingly, we will move from a world where people tell machines what to do, to a world where machines tell people what to do for specific tasks, making them more efficient than today.

About the Author

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What Governments **Need to Understand** About **Ethical AI**

BY JOSHUA ENTSMINGER, MARK ESPOSITO, TERENCE TSE, AND DANNY GOH

The increasing application of artificial intelligence across the value chain reflects that such a technological development provides competitive advantages to enterprises. However, as one can observe, its meteoric rise paves the way for greater ethical risks – which means a more effective governance should be put in place. Here are a few propositions governments can consider when looking at the scope of the problem associated with AI.

Primum Non Nocere. First do no harm. So goes the more modern version of the Hippocratic Oath, taken by doctors despite knowing more than likely they will be involved in a patient's death. The involvement may be from a mistaken diagnosis, exhaustion, or a variety of other influences, leading to a natural concern about how many of these mistakes could be avoided.[1] AI is taking up the challenge, and shows promise, but just as with doctors, if you give AI the power of decision making along with the power of analysis, it will more than likely be involved in a patient's death. If so, is it the responsibility of the doctor? The hospital? The engineer? The firm?

Answers to such questions depends on how the governance is arranged – whether or not a doctor is at the end of each AI-provided analysis, checking whether or not it's correct; whether or not the decision-making paths of each AI driven diagnosis can be followed. It is paramount to remember, that current attempts to automate and reproduce intelligence are not deterministic, they are probabilistic, and therefore subject to issues and experiential biases that plague all other kinds of intelligence.

The same issues arise for self-driving cars, autonomous drones, and the host of intentional and incidental ways AI will be involved in life-or-death scenarios, and the more day to day risks people face.

As machine to machine data grows in the internet of things, companies with preferential access will have more and more insight into more and more minute aspects of behavioural patterns

As AI takes hold, we need to know what counts as good governance for governments, firms, people, and societies driven and shaped by AI. In short, we need to be ethically literate.

we ourselves might not understand – and with that comes a powerful ability to nudge behaviour, or more worryingly, limit choices.

We can begin to see the larger picture, but governance is in the details. The risks of 99% accuracy in a hospital, in image recognition for food safety, in text analysis for legal documents, will not be the same – as such, policymakers will need more nuanced accounts of what is involved.

The details for the use cases of AI in each practice are as well going to change. What kind of oversight, standards, and frameworks for making AI accountable in healthcare may require different conditions than AI in education, in finance, in telecom, in energy, on and on.

From Tech Literacy to Tech Fluency

Effective governance of AI means the burden of adjustment falls, if unequally, on all partners – on governments, on firms, on users, and non-users. Ethical governance takes it further.

New technology means new risks, meaning firms, governments, and users have to be literate enough about the technology to understand the new set of risks and responsibilities that come with the tech. Understanding those risks is not straightforward – not for users, governments, or even the firms employing that tech.

Consider if an AI is employed to assess risk of a heart attack, detecting variations in eating habits and other trends identified to be important to making an effective prediction;[2] or, more simply, assessing risk by scanning your eye. Consider a service leveraging voice analysis to identify PTSD.[3] The more individual the profile, the better the prediction. Consider if a school replaces teachers as test monitors with an AI system to detect cheating or is leveraged by students to cheat better,[4] or to identify trends in homework grades and class attendance to identify the probability that a student will drop out.[5]

It is paramount to remember, that **current attempts to automate and reproduce intelligence are not deterministic, they are probabilistic**, and therefore subject to issues and experiential biases that plague all other kinds of intelligence.

Such cases have a clear burden on the designer and the firm – but the depth of usefulness of any of the predictions implies an understanding of how that decision was reached, what was a trigger – for someone being informed of an increased risk of heart attack without, seemingly, overtly changing any behaviour, generates confusion – for a cheating system that might not reliably be able to tell between stretching and looking at another paper, we can create further problems. But these are technical issues and have technical solutions – the problem is when the user has to change their behaviour to match the technical issues.

Ethical AI means that everyone will have to improve their tech literacy – to go from the prediction or analysis we get from an AI to the response. Yet it goes further, with the insights we derive from AI about our behaviour, understanding AI implies, and demands, a better understanding of our own habits, our own behaviour, our own often unconscious trends.

This understanding therefore begins with how to not only treat our behaviours, but what others know about them – in short, we have to begin with the data.

Governance for all or for nobody at all

The first step to good AI governance means being honest about whether or not the data set represents what we want the AI to understand and make decisions about.

However, we cannot conflate AI with data – and governing data can only go so far. Data sets cover a limited range of situations, and inevitably, most AI will be confronted with situations they have not encountered before – the ethical issue is the framework by which decisions occur, and good data cannot secure that kind of ethical behaviour by itself.[6]

Generically, we can train the AI to make better decisions, as with GoodAI – but the issue is not simply in the algorithm, but in the choices about which kinds of data sets, the design of the algorithm, and the intended function of that AI in impacting decision making, in short, its ecology of use. Even at 99% accuracy, we will need a system of governance to structure the appeals – in fact, under such conditions, we will need it even more.

The ultimate source of legitimacy, and a key provider of effective governance, will be giving the choice to citizens – offering the chance to say no to uses of their data, and maybe even to opt out of AI-driven decision making.

Ethical governance is not deterministic. We may be able to find reliable ethical responses for day-to-day situations, but the test will be in the inevitable uncertainty which decision makers have to respond to and respond appropriately.

Our lives are already ruled by probabilistic assumptions, intended to drive behaviour. Now we need to ask, and answer honestly, how much of your life are you willing to have shaped by algorithms you do not understand. More importantly, who should be watching and maintaining the algorithms to flag when it made a bad decision, or an intentionally manipulative one?

Good approaches to governance do not begin from one-size-fits-all. Governance begins with the concepts by which we determine what is relevant and irrelevant, appropriate or inappropriate, good, bad, or inconsequential.

When the concepts are understood, rules are derived, and the system of rules is precisely what makes up governance – what is permissible, what is impermissible, and what to do about each. There are no technologies, not AI, nor blockchain which are not impacted by such rules, and as such, who is writing the rules will continue to matter. Blockchain in particular is often considered to be neutral – but the decisions on block size, and incentive structure, remain strategic decisions.

As AI takes hold, we need to know what counts as good governance for governments, firms, people, and societies driven and shaped by AI. In short, we need to be ethically literate.

Getting beyond transparency

When a decision was made using AI, we may not know whether or not the data was faulty – and as such, may have a right to appeal an AI-driven decision. The first step is to be informed that a decision concerning your life was conducted with the help of an AI.

Conventionally, these issues are to be resolved in the courtroom – but what if the courtrooms are themselves run by AI? Judges, like everyone, are biased. If an AI is trained on data sets from previously biased judicial decisions, then the parameters of successful judgements for an AI will likely include that bias.

Governments will need a better record of what companies and institutions use AI and when. Furthermore, companies may have to better understand the architecture of decisions within their company, and where precisely AI is placed within the architecture.

However, we can pose that being informed does not provide enough transparency. Even after the data is understood, mistakes can still occur, and biases can still arise. As such, those lives which have been shaped by AI have a right to understand why a decision was made.

Currently, while the right to be informed is feasible, the ability to explain why an algorithm made one decisions instead of another is far less so. In the infamous second match between AlphaGo and Lee Sedol, AlphaGo made an unexpected move – the issue was not simply that it surprised the AlphaGo design team, but that it surprised Lee Sedol.[7]

Decisions on whether to train algorithms based on past data, or design in the rules, as with AlphaGo, make the decisions about whether to follow one set of rules instead of another explicit. Teams will have to choose

what kind of ethical rules, and the specifics of those rules.

While public service decisions may be open to appeals on breaking open the black box to understand why one decision was made instead of another, corporate governance decisions may be less so – the most common defense to expect is the appeal to intellectual property, of specialised AI as a trade secret. When AI driven systems are under such protections, we may need to wonder whether incentives are aligned for firms to maintain an adequate understanding of the derived decision-making system.

Different kinds of practices will require different kinds of means of making AI decisions understandable – one such method already proposed is to have counterfactual assessments, a running account of different scenarios and their flow, which can be followed – but while this enables oversight, it does not equate to getting the reasoning by which a decision was made.[8]

Opting in and out: Why the choice is up for us to take

These rules give us a right to an explanation, a means to be informed – but effective governance has to go a step further. To proceed, there needs to be a common ability to appeal an unintelligible decision, which may itself demand knowing whether or not the company themselves understand the decision-making process.

Citizens, consumers, and users need to have the ability to not only opt out but do so feasibly. But, as with the rest, this problem will not resolve the issues. Opting out may require a larger percentage of data ownership on behalf of the citizen, leasing companies the right to use that data for targeted advertising – and then there is the question of what data is actually private enough to justify the right to opt out – when there is a change in your heartbeat, is that private?

The ultimate source of legitimacy, and a key provider of effective governance, will be giving the choice to citizens – offering the chance to say no to uses of their data, and maybe even to opt out of AI-driven decision making.

The question of ethical AI is not simply the openness of the algorithm, but the effective design of the institutions by which AI is used and decision making derived from AI analyses is made clear.

However, just as ethical governance places new demands on firms, there is a new demand on the public to be aware. Ethics cannot be a one-way street – consent may be the point of departure, but cooperation, and consensus, is how the practice has to continue.

The more frightening demand of AI governance comes from the possibility that such choices to opt out or opt in may themselves be subject to influence by firms or governments using AI.

Any light at the end of the tunnel?

The decisions which corporations and governments will need to face follows from the previous issues – governing data is essential but may be insufficient; as is being informed; as is providing a right to an explanation; as is providing more alternative means to providing that explanation.

Governments will need to make decisions about where the largest burden of adjustment will fall – who will need to educate themselves most, and continuously – as AI innovation progresses, the specifics of the decision making will change – reshaping the specifics of our arguments about what kinds of risks practices built off a given algorithm actually pose.

The pursuit of such transparency on the use of AI may actually provide new avenues for oversight in governments and firms. Many government decisions, policy decisions, police decisions, judicial decisions are currently intractable – that is to say, we may not get an explanation, only a rationalisation. If the black box problem is resolved, that is a big if, then we may eventually have new means to make the governmental process fundamentally more transparent.

The general data protection regulation (GDPR) ruling in the EU remains indeed a step in the right direction; however, the future of effective appeals and governance will need to be case by case.[9] A one-size-fits-all will only serve to hide the discrepancies which complex algorithms are so effective at generating.

As such, we believe governments should consider the following basic propositions when considering the scope of the problem:

1. **Governing** the data is a necessary but insufficient step to guarantee ethical AI. This will involve decisions on whether to use historical data or synthetic data sets.
2. **Building** transparency through the right to be informed on the use of AI will be insufficient if companies themselves do not know how an AI arrives at a decision, and therefore cannot provide a sufficient explanation in the event of an appeal.
3. **Redefining** accountability through the right to explanation will be insufficient without a more rigorous set of standards for companies to know how an AI made one decision instead of another.
4. **Integrating** constantly the continual evolution of algorithmic complexity and novel AI usage will be required.

It is unlikely AI will replace decision making fully anytime soon – as such, the issue is not a purely technical problem, it is an issue, firstly, of awareness and intelligence in the response to what an AI will tell us. The question of ethical AI is not simply the openness of the algorithm, but the effective design of the institutions by which AI is used and decision making derived from AI analyses is made clear.

Suffice to say, politicians, coders, and philosophers have their work cut out for them. Technology is a tool, an extension of our problems – AI is no different, for now.

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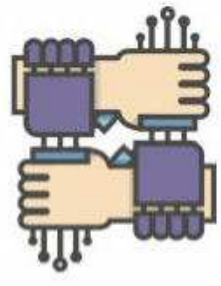


The E-Car Will Change Human Behaviour

BY STEPHAN KRAUSE AND BORIS LIEDTKE

In this article, the authors share why despite the attacks on new mobility technology and the fact that there will always be a desire by some consumers on the fringes to return to the days of travelling in their combustion-powered car, remarkable road trips in the future for most of us will be in an electric, non-polluting vehicles.

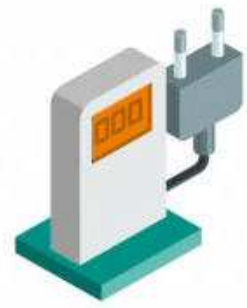
At the beginning of the last century, the roads of our cities were rapidly filled up with horse carriages and buggies leaving behind the animal excrement for the inhabitants to smell; causing the local water to be polluted. The situation became so intolerable that when the arrival of the combustion engine posed an alternative, it not only swept away the out-dated technology of horse and cart but also changed human behaviour and society. Despite the outcries of the establishment – probably above all those working in the horse industry – that the automobile was not reliable, was too expensive for farmers, was dangerous to pedestrians, and could not travel on rough roads, the combustion engine simply was too superior for the horse alternative to be ignored. The automobile gave people the chance to privately travel long distances across the country, not just within cities. Within 10 years, our cities had changed and decades after, new roads and highways were built at tremendous public expenditure, petrol stations emerged, motels appeared, and life has never been the same. Nowadays in the U.S.A., over 86% of transportation is accounted by passenger vehicles, motorcycles, and trucks.

However like all successful advancements that changed human behaviour, it replaced old challenges with new ones. As technology became more widespread, these challenges started to accumulate as fast as the animal excrement had and by the time the next century came about, these shortcomings could no longer be ignored. One look at our roads, our skies and cities makes them blatantly obvious. During rush hours and on holidays, productive working or relaxing holiday time is wasted by individuals being enclosed in metal boxes weighing over a ton and moving slowly forward while inhaling polluted air with cancerous particles which pose a

more deadly health risk than horses ever did. The picture is the same in all our cities from Berlin to Baghdad to Bangkok to Buenos Aires or Boston.

As the shortcomings became more obvious, engineers on the fringes started to increasingly address them with new solutions and technological inventions. These obviously challenged the status quo of our cities and the vested interests in the old technology. The businesses and industries associated with the combustion engine did not embrace these alternatives but rather fought them while paying lip service pretending to have embraced progress. They are stuck in the innovators dilemma. On the one hand, they need to do so in order to ensure that their competitive advantage of producing a highly- sophisticated machine remains a source of value for their firms. At risk are tens of billions of dollars in intangible assets in the form of patents and production know-how as well as logistic chains to ensure the smooth manufacturing of the combustion engine. On the other hand, their governance and capital market dependency does not allow them to accept shrinking margins and high cash outflows associated with the market introduction of the new technology. Nevertheless for many of these firms, their very survival is at risk and so they do what countless of other industries did before them when facing radical technological alternatives. They a) defend their out-dated technology with promises of further improvement; b) measure the upcoming technology with old standards in order to discredit its potential; and c) dismiss the threat that the broad social changes of the new technology will bring about.

On the first point, promises on how to clean up Diesel by 2020 or assumptions about making driving safer through more driver-assist gadgets should be put into context that these technologies have been around for over a century. The brutal reality of Everett Rogers' famous S-Curve technology theory has simply caught up with them. In his 1962 publication – Diffusion of Innovations – he explains the concept of growth (technological advancement in our case) plotted over time. The S-curve shows a slow process at the start of research into the technology followed by a rapid acceleration in the middle phase and finally tapering or levelling off towards the end of the curve. The combustion engine has reached the end of this cycle and further advancement to this technology absorbs an increasing amount of resources. Put in a different way – more and more R&D is required for less and less technological improvement. However, only the bold would dare to abandon their previously created value in this know-how and start investing in the next S-curve – the electric powertrain. It is obvious that those with the highest sunk costs in the old S-curve (i.e. large automobile firms and suppliers) are the last to dare this move. Instead it is left to new comers (i.e. Tesla, Evelozcity) to disrupt the industry.



As the shortcomings became more obvious, engineers on the fringes started to increasingly address them with new solutions and technological inventions. These obviously challenged the status quo of our cities and the vested interests in the old technology.

In their desperate attempt to hang on to their valuable knowledge and patents, the industry goes into a public relations offensive trying to measure the new technology by old standards. The four most frequent attacks on new mobility technology are 1) e-cars also require energy to move and hence we are just shifting the pollution and energy consumption from the vehicle itself to a oil/gas/coal/nuclear power station somewhere else; 2) the production and eventual disposal of the batteries in an e-car are a source of dangerous pollution that has not been solved; 3) our electricity network would collapse as a result of the increased demand from e-mobility; 4) the e-car technology is no alternative yet because it does not enable us to charge our cars as fast as we can refill it at a petrol station ("charging anxiety"), nor does it allow consumers to travel vast distances – close to a 1000 km range on a single tank ("range anxiety"). Apart from these there are numerous other – mainly laughable – concerns raised, which we won't go further into detail. Suffice to point out for example the danger of the quietness of the e-car compared to the noise of a combustion engine. A problem so irrelevant that it can

A technological miracle of engineering to be admired. The conversion from primary energy sources to electricity follows a very different path. A single power station can power millions of cars and machinery and the pollution created can be filtered at a single source making investment in better environmental control more efficient.

– and has been solved – by a $5 gadget that "beeps" when a car goes into reverse.

On the first challenge, it is indeed a physical reality that any acceleration or forward movement against air resistance requires energy. However the efficiency with which we convert primary sources of energy such as oil and gas into this forward movement matters tremendously. It is furthermore an undeniable reality that the machines and process, which are being used to convert these primary sources into energy, operate in a real world and under the same rules of physics as any other machine. Admittedly this is stating the obvious but nevertheless required to be able to see the absurdity of the challenge. A combustion engine inside a car needs to be 1) small enough to fit inside the vehicle; 2) light enough to ensure that the vehicle remains mobile; and 3) clean enough for the pollution created by the process to be tolerated by humans walking next to them in cities. Each engine powers exactly one car only and needs to be produced again and again for each separate vehicle with all its sophisticated parts. The engine takes the primary energy source and converts it through up to 6000 explosions per minute into forward movement while at the same time moving itself; a technological miracle of engineering to be admired. The conversion from primary energy sources to electricity follows a very different path. Enormous power stations located outside of cities have virtually no restrictions as to their size, weight and require no mobility at all. A single power station can power millions of cars and machinery and the pollution created can be filtered at a single source making investment in better environmental control more efficient, i.e. stating the obvious, an industrial filter in a power station is substantially more efficient than a filter inside a car. As any physicist or engineering student in his first year will attest to – the design of a machine faces compromises between energy conversion efficiency (in our case: efficiency is the percentage of available energy in fuel converted into actual energy for forward movement and acceleration) and other restrictions imposed on it. If the machine needs to be smaller – it will lose efficiency; if it needs to be lighter – it will lose efficiency; if it needs to be mobile – it will lose efficiency; if it needs to be built affordably a million times again and again – it will lose efficiency. That is an undeniable reality which when converted into numbers means that a modern combustion engine inside a car has an efficiency ratio of just over 20% compared to a modern power plant which operates at over 70%. So 10 litres of petrol in our tank, which might allow us to travel 100km would generate sufficient electricity to allow us to travel for over 350km. The difference in efficiency is actually even higher considering the costs and energy required to convert crude oil into petrol through refining and then transport it to petrol stations located throughout the country.

Modern combustion engine inside a car has an efficiency ratio of just over 20% compared to a modern power plant which operates at over 70%.

Let us turn towards the second challenge outlined above – the environmental damage caused by the production and disposal of the batteries required to power electric vehicles. Admittedly the scientific research here on environmental concerns is still in its infancy but so far there is indication that it poses a substantially lower risk to the known exposure of environmental damage which we have experienced from oil exploration (see Deepwater Horizon), transportation (see Exxon Valdez) or eventual and continuous consumption (see Dieselgate). However the fact that there are risks, some of them unknown, should not stop us from pushing ahead and progress. After all, pollution from horse manure in cities was obviously more disturbing than pollution from combustion exhausts without humanity even contemplating at the time that the use of petrol in vehicles will lead to oil spillages of entire coastlines or substantial increase in cancer and respiratory related illnesses in the population. As research in this area intensifies, great solutions are emerging in the recycling and refurbishment of car batteries. The restoration of the chemistry in batteries is one approach taken. The other is the use of car batteries for stationary purposes when their vehicle related

use has come to an end. It is estimated that even with our present know-how, these ex-vehicle batteries still have over 10 years usable life in a stationary function. One final point on this, of course the combustion engine technology itself is not free of batteries either. So to stop progress in e-car mobility based on this concern should equally be applied to the starter engine inside our conventional cars, which are powered by electricity provided by a battery.

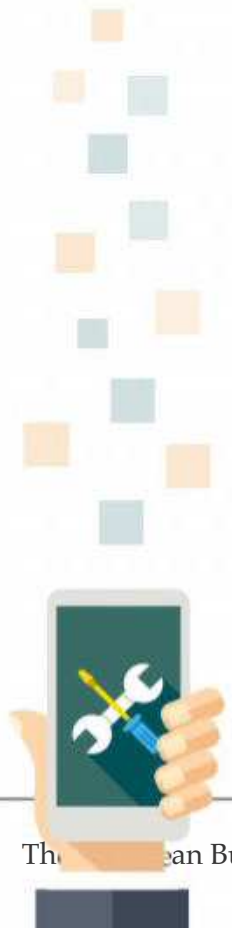
Turning to the third major challenge – our electricity network would not cope with the increased demand for electricity generated from e-car mobility. A series of simple calculations should put our concerns at rest. Let us focus on the automobile capital of the world – Germany. There are about 40 million cars in Germany, with each car driving about 10,000 km per year. An electric car consumes about 20 kwh per 100 km. So if all those cars are eventually replaced by electric vehicles, the entire electricity consumed by cars would be an additional 80,000,000,000 kwh or 1,000 kwh per capita. Presently Germany consumes 6,600 kwh per capita per year and could easily increase this to 7,600 kwh per capita. This would place them at about the same electricity consumption per capita as Russia, Japan, Belgium, or Switzerland (all between 7,000–8,000 kwh per capita), substantially less than South Korea, Australia, Luxembourg or New Zealand (8,000–10,000 kwh per capita) and around half the consumption of the U.S.A., Canada, Sweden, or Finland (all over 10,000 kwh). There simply is no reason to assume that the usually so efficient Germans would not be able to cope with this challenge when other industrialised nations have been capable of doing so. A further argument of course is that the capacity to deliver sufficient electricity is not challenged by per capita consumption averaged over a year but instead by peak consumptions. Industry and consumers need to be assured that electricity is available at all times even when there is peak consumption. Here the recharging pattern actually helps to smooth out consumption cycles. In all countries, peak demand or peak load follow the same working patterns of the economy. Electricity consumption increases as people rise from 6am onwards, reaches a plateau at around 9am and starts falling off from 6pm with an increased drop as people go to bed from 11pm onwards. Charging cycles of electric cars work in exactly the reverse – they start when people reach their home at 7pm remain constant throughout the night and reduce as the vehicles are put in use from 7am onwards. The end result is that the daily consumption of electricity actually is smoothened out making it easier for the power utilities to cover and accommodate the modest increase in electricity demand. Simple Timers on the night recharging stations could further reduce any stress on peak demand. If this argument is still unconvincing then perhaps Elon Musk's (CEO of Tesla Inc.) answer to the question "From where will all the electricity to power your cars come from?" might suffice. He responded that all the electricity required to refine crude oil into fuel is enough to power his cars. Indeed with our present technology, we require about 1.6 kwh to refine 1L of fuel – at a fuel consumption of 10 L/100 km, this is almost the same as the consumption of an electric car for the same distance (about 20 kwh).

Let us turn to the last and most sustained challenge against e-car mobility – that present technology is no alternative to the combustion engine because it does not enable consumers to charge their cars as fast as refilling them at a petrol

The most sustained challenge against e-car mobility is the perception that present technology is no alternative to the combustion engine because it does not enable consumers to charge their ecars as fast as refilling them at a petrol station. as refilling them at a petrol station.

station (so called "charging anxiety"); nor drive as long distances as their current combustion engine drivetrains allow ("range anxiety"). In order to back up this argument, the industry and increasingly the consumers pose two statistical questions to e-car manufacturers that are almost as irrelevant as the consumer questions previously posed to combustion engines about top speed and acceleration to 100 km/h. These are 1) how many hours does it take to recharge the battery and 2) what is its total range. In order to follow why these are almost irrelevant questions, one needs to understand that the development of e-mobility could also result in a natural shift of social and cultural consumer behaviour just like how the introduction of the combustion engine over a hundred years ago not only led to replacing the horse and cart but also meant that people behaved differently.

The e-cars could be charged constantly when they are not in use without the additional time and effort required to drive to a petrol station, wait in line, handling poisonous, flammable and unhealthy substances and depart with petrol smelling hands and cloths.



Firstly and stating the obvious, an electric vehicle is not required to be driven to a petrol station to refill which poses a great advantage. The currently existing electric grid allows access to charging virtually anywhere where there is electricity – overnight at home, in a garage while watching a movie, at the company car park where there is a socket, in front of a restaurant while eating or when parked on the street where there are street lamps. Electricity is everywhere, unlike petrol stations. Furthermore and again unlike petrol stations, these charging opportunities require virtually no real estate to be used. Petrol stations are not only creating bad smell and ground water pollution from spillage, they also use up valuable space in congested cities and lead to a drop of real estate value around them. Charging opportunities can be incorporated easily in the existing infrastructure of car parks and garages. All that is needed is to allow the cars to be plugged in and charged accordingly. This is like having odourless petrol stations everywhere with simple "fuel" nozzles that fit into our e-cars. Once the market that would deliver electricity is liberated from electric companies' monopolies, the upfront investment required to install these nozzles are miniscule. As a result, the e-cars could be charged constantly when they are not in use without the additional time and effort required to drive to a petrol station, wait in line, handling poisonous, flammable and unhealthy substances and depart with petrol smelling hands and cloths. Given that the average car in the industrialised world is used less than 5% of the day – it makes no difference how long it will take to recharge the battery for two reasons. The consumer does not have to wait next to his car until it is filled up – unlike with a combustion engine. Nor does he have to wait for the tank to be almost empty. He simply plugs it in when possible even when the energy remaining is 80%. Anybody who has ever driven an electric car can attest that recharging behaviour changes completely in two respects 1) no more waiting while recharging and 2) recharging even when the tank is still relatively full. Hence the consumer is totally agnostic as to how long it takes to recharge the battery from totally empty to totally full, the existing technology is obviously good enough to meet demands.

Next to "charging anxiety" (i.e. the ability to find convenient on the spot charging stations), the second consumer fear that is widely reported to cause doubts about e-cars is "range anxiety" (i.e. the fear of not reaching a desired destination). Several German automobile manufacturers have been delaying the launches of e-car models until their battery technology reaches the range of 250km or more – allowing the new e-car competition to continue gaining market share. There are several reasons why range anxiety will ultimately not be a deterrent for consumers to buy e-cars. Firstly in reality already today, most people travel substantially less per day or per trip than the available

range offered by existing electric car models. In a survey encouraged by the European Commission and conducted as part of the JRC Scientific and Policy Report, the average trip distance in six European countries ranged from less than 15 km for personal trips in Italy to 35 km for personal trips in Spain (business trips and personal trips in France, Germany, Italy, Poland, Spain, and UK were measured). The total average range driven per day was between 40 km (UK) and 80 km (Poland). The report concluded that "such distances can be comfortably covered by battery electric vehicles that are currently already available on the market." Granted that the more relevant analysis would not have been an average km per trip but a distribution of trips per distance to see what percentage of total trips a range of 200 km would cover. Nevertheless the substantial gap between range available (200 km) and range travelled (80 km) would lead us to the same conclusion as the report itself.

Nevertheless consumers are enjoying the freedom of their private mobility not only on a daily or on a typical weekend at home but ever so often use their combustion engine car for a lengthy road trip or to drive long distances to their holiday destination. It is in this area where we need to take a step further back and make some predictions about future social behaviour. What will become of the legendary "road trip"? Consumer patterns are already indicating that the long drive from North Europe, along French toll roads to the sunny Mediterranean coasts are being replaced by low-cost flight alternatives. Especially the younger generation no longer relish as much, the long hours waiting in hot metal cans, sitting in traffic jams, listening to a common radio station when they can save money and time by taking alternative means of transportation while listening to their private music collection on their iPhone. Ryanair's number of customers has already exploded from 75 million in 2011/12 to over 130 million in 2017/18. In addition, the rapid development of fast charging networks, coupled with technology to significant shorten charging times will provide viable and acceptable alternatives to long distance travel.

For sure there will always be a desire by some consumers on the fringes to return to the days of the nostalgic "road trip" in their combustion powered car, smelling petrol fumes and roaring engines, just like some people still love going to the countryside to ride their horses on a farm and through green fields. However for most of us, the future will consist of being driven quietly to work and home in an electric, non-polluting vehicle that easily charges itself when not in use. There simply is no stopping technology.

About the Authors

Stephan Krause is CEO and Founder of EVelozcity, an electric vehicle company addressing the future needs of urban mobility. He has over 30 years business experience, including 14 years experience as Management Board Member of German Blue Chip companies. Prior to this, he had a dynamic career building tenure at BMW that began in 1987. He holds a Masters in Business Administration from the University of Würzburg in Germany and serves as the President of the Schmalenbach-Gesellschft, a prestigious academic and business association in Germany.

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INTO THE WILD

BY STEVEN MACGREGOR

In today's hustling, busy world, it's easy to get caught up in the day-to-day activities relating to our professional business career. It is therefore of paramount importance to have various activities that will support our physical and mental health. Recently, I had the chance to re-connect to nature in the Slovenian Alps – which in return gave me a sense of calm. I thought, how may we re-produce such a sense of calm, peace and insight when heading back to our daily distractions and demands?

"Brisk exercise imparts elasticity to the muscles, fresh and healthy blood circulates through the brain, the mind works well, the eye is clear, the step is firm, and a day's exertion always makes the evening's repose thoroughly enjoyable."
- David Livingstone -

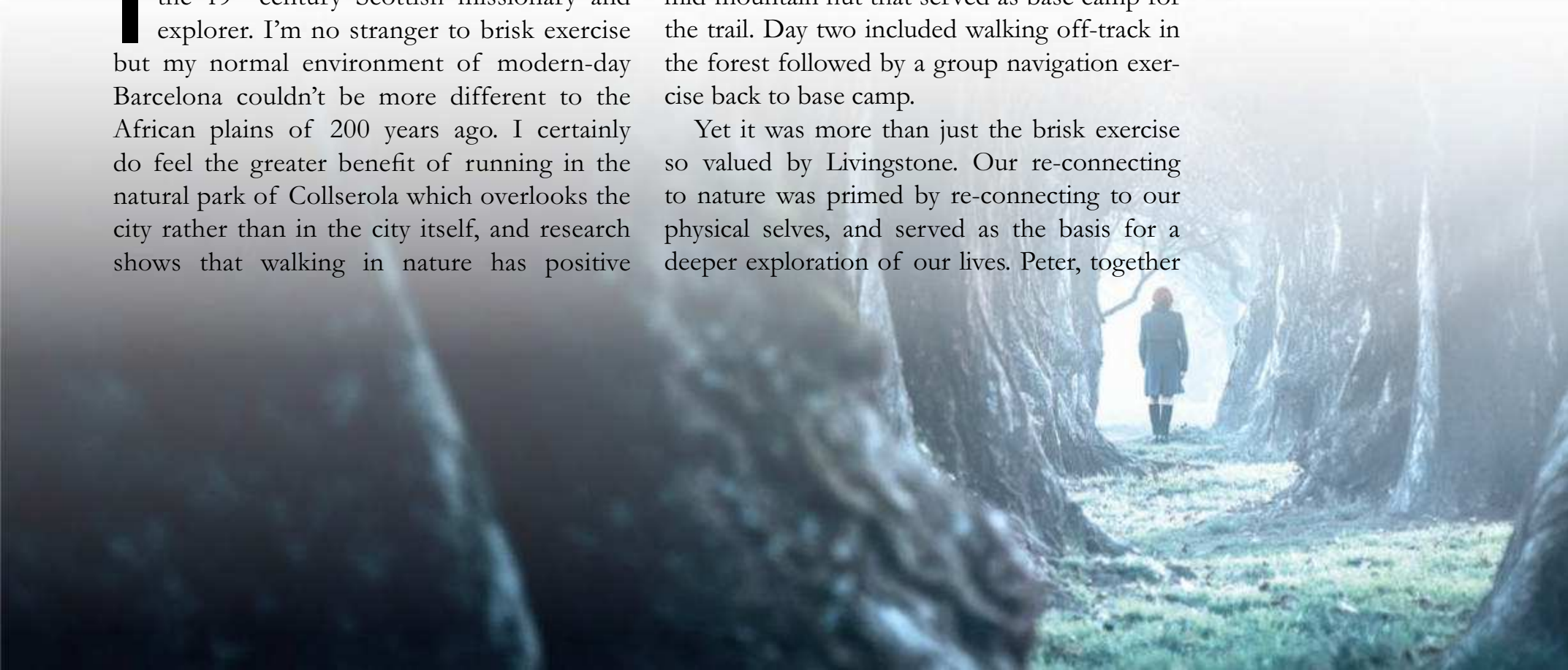
I've often reflected on this quote from the 19th century Scottish missionary and explorer. I'm no stranger to brisk exercise but my normal environment of modern-day Barcelona couldn't be more different to the African plains of 200 years ago. I certainly do feel the greater benefit of running in the natural park of Collserola which overlooks the city rather than in the city itself, and research shows that walking in nature has positive benefits for mental health, reducing blood flow to the subgenual prefrontal cortex that is responsible for rumination.

If not quite following in the footsteps of Livinsgtone I recently had the chance to more closely replicate his daily experience on a wilderness trail by Aberkyn, the leadership development firm of McKinsey. For three days in the middle of July, I, along with seven senior business leaders, re-connected to nature in the Slovenian Alps. Led by Aberkyn co-founder Peter van der Vlis, this re-connection was facilitated greatly by handing in all technology, including our mobile devices and watches.

There was of course a physical challenge, yet it was not extreme, and certainly possible for any reasonably fit adult. We hiked up the lower slopes of one of the mighty Alps on the morning of day one, and continued up the higher part above the tree line after lunch at our mid-mountain hut that served as base camp for the trail. Day two included walking off-track in the forest followed by a group navigation exercise back to base camp.

Yet it was more than just the brisk exercise so valued by Livingstone. Our re-connecting to nature was primed by re-connecting to our physical selves, and served as the basis for a deeper exploration of our lives. Peter, together

Our re-connecting to nature was primed by re-connecting to our physical selves, and served as the **basis for a deeper exploration of our lives.**



with wilderness expert guide Gerard van den Berg, would frequently bring us together as a group to raise key practical and emotional concepts, including navigation, shelter, making fire, purpose, intention and presence.

The situation of these group conversations took place at breath-taking scenic points on our physical journey, and the experience journey was marked by several 'wow' moments. The beginning and end of the experience were simply unforgettable. A 7am group meditation around a log fire in front of rolling meadows and the imposing snow-capped Alps in the near distance to start, and a solo overnight sleep (I'm guessing 10-12 hours alone, no watch remember) in a hammock tied between two tress in the forest to end.

Deep solo reflection, atop a mountain, in the clearing around our base camp, or during that forest overnight, was a critical component that allowed us to quiet the mental chatter. Simply being allowed us to gain deep insight to complex issues that have long proved problematic. Peter van der Vlis explains, "*One reason we discover clarity is because we literally slow down our brain waves to Alpha/Theta, which is were our brain function is primed to be both focused and creative.*" This slowdown was facilitated by the absence of devices, our natural environment, and specific exercises including Dynamic Mind Practice.

Being alone in the forest as the light faded, hearing night creatures come alive before settling into our sleeping bags in the pitch darkness may sound terrifying to some, and some of the group were certainly uneasy at the prospect of doing this, yet we all found it to be one of the most natural, peaceful things we've ever done. We were alone, but not isolated.

These were two and half days in the Slovenian Alps that I'll never forget. While never losing the grasp of them being two and a half days – the wax and wane of the sun on the mountain was clear and unambiguous – they were some of the longest and fullest days I can remember. Hiking, laughing, sharing stories around a fire at night, eating together in the sun, resting in the shade, meditating, crying, learning, listening and teaching, all made us fully present and aware of the great abundance of life that surrounds us in nature.

From adding plants to our offices, or simply getting outside, to expeditions in the wilderness, **we each have a variety of options to support our physical and mental health in a demanding professional business career.**

How may we re-produce such a sense of calm, peace and insight when heading back to our daily distractions and demands? Peter and Gerard both talked of the difficult transition and 'landing' back in our normal lives. While such a retreat shouldn't be a one-off experience (Bill Gates for example spends two weeks every year alone in the forest) neither should it be necessary every time when life is difficult and stressful. Stoic philosophy may offer a path. Marcus Aurelius, the Roman emperor, said: *"People look for retreats for themselves, in the country, by the coast, or in the hills. There is nowhere that a person can find a more peaceful and trouble-free retreat than in his own mind. So constantly give yourself this retreat, and renew yourself."*

We come from nature and nature allows us this renewal. Florence Williams, author of *The Nature Fix* created the nature pyramid as a recipe for how we may reconnect in our day-to-day lives. From adding plants to our offices, or simply getting outside, to expeditions in the wilderness, we each have a variety of options to support our physical and mental health in a demanding professional business career.

Being reunited with our mobile devices and watches prior to departure was a delicate moment. Here were the physical artifacts of our modern, civilised world, yet it occurred to me that maybe we were really leaving our true home, and heading back into the wild.

For more information on Aberkyn wilderness trails visit: www.aberkyn.com/trails

About the Author

Dr. Steven MacGregor is the CEO of The Leadership Academy of Barcelona [LAB] an executive education provider and management consultancy with clients including McKinsey, Telefónica and Uber. A Visiting Fellow at the Glasgow School of Art he teaches on open and custom programs at IMD, IE, IESE and CEIBS. Formerly a visiting researcher at Stanford and Carnegie-Mellon he is the author of *Chief Wellbeing Officer (LID 2018)* and *Sustaining Executive Performance (Pearson 2015)*. His twitter handle is @spmacg.

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