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Contents

Introduction

Preparing for an age of dynamic change

The 2016 edition of the Erasmus Competition and Innovation Monitor – published recently by INSCOPE: Research for Innovation and highlighting the sectors and regions in the Netherlands that are seeing the greatest levels of innovation – shows that while Dutch companies have achieved a record level of radical innovation, job losses are inevitable in the financial services and logistics sectors as we stand on the brink of the Fourth Industrial Revolution.

Characterised by Professor Klaus Schwab, founder and executive chairman of the World Economic Forum, as 'a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres', this new industrial age has the potential to revolutionise modern society and, as a consequence, reshape the ways in which business is conducted.

Forward-looking companies preparing for this new future are already rethinking their leadership and management strategies, and exploring how they can better serve their customers. Supporting this progress, the Innovation Monitor shows companies in the life sciences, healthcare and high-tech sectors within the Netherlands are excelling at both technological and social innovation while start-ups, particularly those in the high-tech sector, are creating more jobs.

While this is very good news that bodes well for the future, there is much work to be done if organisations are to maintain their competitiveness and ensure growth. Essentially, managers need to look hard at the means and methods by which they can future-proof their businesses. The world of management science has a hugely important role to play here by developing research that offers genuinely practical insights that not only provide organisations with the guidance they need, but which does so for the betterment of society.

It is in exactly this light that we devote an article in this issue of *RSM Discovery* to honouring the professional life of the late Leo Kroon. Leo, who sadly passed away in September, was professor of quantitative logistics at RSM and devoted his long and successful career to solving complex societal problems. His outstanding achievements and tireless dedication exemplifies how management scientists can – and must – bridge the gap between theory and practice for the greater good.

This and the other articles in this issue, covering a range of subjects of great relevance to managers, reinforces the significant contributions RSM's world-class researchers are making to ensure organisations are readied to succeed in an age of dynamic and unprecedented change. I am sure you will find them to be of great value.

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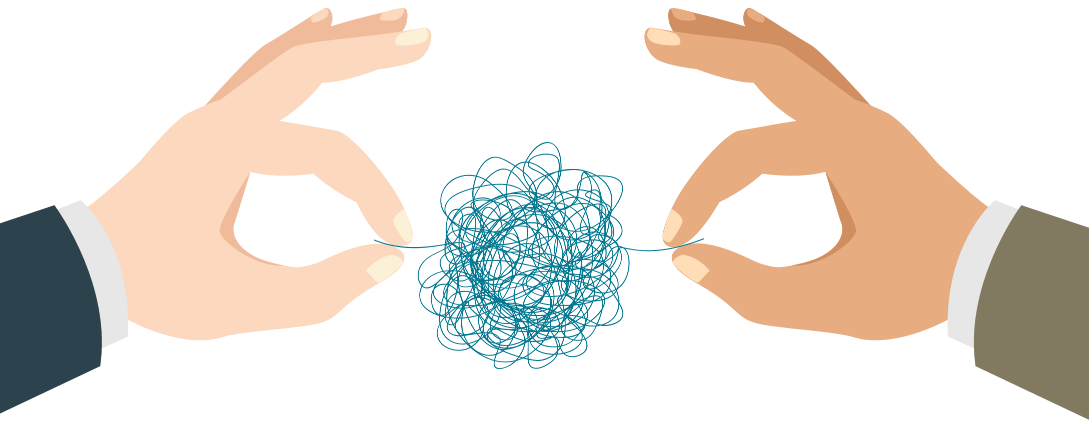
Solving wicked problems through partnerships

***Chris Murray talks with** Rob van Tulder*

Cross-sector partnerships — partnerships that include organisations from the corporate, government and non-profit sectors — are growing in popularity. Thousands of cross-sector collaborations are currently active around the world as these partnerships help businesses to increase their competitive advantage, government to address regulatory and social issues, and non-profits to advance and fulfil their mission.



There are 'simple problems, complex problems, and wicked problems. Wicked problems move beyond complexity,' explains Rob van Tulder, professor of international business-society management at RSM, and academic director of the Partnerships Resource Centre. Wicked problems are not only complex in the "spaghetti bowl" sense of involving a massive, entangled set of interactions, Prof. van Tulder says. They are also wicked because *approaching* these problems — and Prof. van Tulder is careful to note these are problems that are approached or addressed rather than completely resolved — requires the participation of different stakeholders from different sectors. 'These problems are wicked because they are cross-sectoral, meaning governments, communities and companies are all part of the problem and they all need to be part of the solution,' he says.

Four impact loops

Intuitively, multi-sector partnerships contributing different perspectives, resources and know-how should have greater success in approaching and addressing wicked problems. However, assessing the impact of cross-sector partnerships precisely is a significant challenge because of their inherent complexity and diversity. Nevertheless, evaluating the value-added of cross-sector partnerships is important for creating the legitimacy and credibility of these partnerships.

Working with colleagues in the Netherlands, the UK and Canada, Prof. van Tulder has developed a framework for monitoring and evaluating cross-sector partnerships built on the concept of an impact value chain. The impact value chain links inputs and activities to a series of *outputs*, *outcomes* and, ultimately, societal *impacts*. At the heart of the framework are four "impact loops" progressing from internal outputs to global impacts. (The basic framework was published in an April 2016 *Journal of Business Ethics* article, entitled *Enhancing the Impact of Cross-Sector Partnerships: Four Impact Loops for Channeling Partnership Studies*.)

The first impact loop in Prof. van Tulder's assessment methodology looks at the impact at the level of operational efficiency within the partnership, focusing on individuals. For example, a for-profit organisation is involved with community partners in corporate social responsibility (CSR) initiatives. As a result of these CSR initiatives, employees in the for-profit sector

Solving wicked problems through partnerships *(continued)*

***Chris Murray talks with** Rob van Tulder*

are more engaged and motivated to work hard for their organisation.

The second impact loop relates to this organisation and its CSR activities focus on the external outcome of the activities. In this example, what impact do the activities of the partnership have on the community? Did the partnership achieve its goals? While the first impact loop measures project efficiency, the second impact loop measures project performance.

The third impact loop assesses the impact of a cross-sector partnership as it relates to the overall mission of the partnership. Ideal partnerships offer synergistic value to both (or all) partners as well as to indirectly involved communities.

The fourth impact loop concerns the overall global impact of the partnership's ideas and activities. A partnership involving profit and non-profit organisations and supported by governmental entities can make a contribution that even extends far beyond the mission statement of the partnership.

Partnerships in action

To illustrate his four impact loops, Prof. van Tulder uses the example of a partnership called the Roundtable on Sustainable Palm Oil (RSPO). Palm oil is used in a surprising variety of products, from chocolate to ice cream, soaps and cosmetics to fuel for cars and power plants. Unfortunately, palm oil production can also destroy rainforest ecosystems.

The Roundtable on Sustainable Palm Oil, according to Prof. van Tulder, is a giant and complex partnership of big food-producing companies such as Unilever and Nestlé, governments and NGOs, such as the World Wildlife Fund. 'It's quite a complex partnership with a clear issue, sustainable palm oil,' he says, 'but with a bigger aim even, covering rainforests, orang-utans and sustainable development in countries that are affected, in particular Malaysia and Indonesia.

'Getting the right people together is the first impact loop; it's a necessary prerequisite to building an efficient partnership,' Prof. van Tulder observes. The next step is at the organisational level. The palm oil partnership is not a philanthropic effort. The goal is to review business models and supply chains — in other words, for the organisations involved in the partnership to change the way they are doing business. This organisational-level impact is the second impact loop.

The third impact loop in this example, according to Prof. van Tulder, is at the palm oil industry level. The goal would be to create an industry that is built on sustainable practices. 'The problem at the moment is that the partnership is not completely solving the palm oil problem because there are other producers, for instance in China, who do not participate in the alliance.' Nevertheless, the outcomes that the RSPO partnership have been able to achieve are 'substantial, even if they could be improved,' he says.

The fourth level impact loop addresses the wider problems related to palm oil production. 'It's not about palm oil, it's about poverty and health and climate change,' he says. 'It's about the governance system in Indonesia, Malaysia, and the whole value chains. That is the ultimate and longer-term impact question.'

> *"Getting the right people together is the first impact loop; it's a necessary prerequisite to building an efficient partnership."* **Prof. Rob van Tulder**

Coalitions

For leaders and companies wanting to become involved in cross-sector partnerships, one of the lessons of Prof. van Tulder's research is understanding the difference between so-called "coalitions of the needed" and "coalitions of the willing". A coalition of the needed represents an ideal situation in which the key partners that have a direct impact on the issue and through which a solution must travel are directly involved in the partnership. A close working partnership consisting of Palestinians and Israelis as full and equal partners, for example, would resolve the Middle East crisis instantly. 'But that is not going to happen,' Prof. van Tulder argues.

In the absence of a coalition of the needed, the next best thing is to gather a coalition of the willing — a wide variety of partners who have a stake or an interest in the issue and are willing to work in partnerships with others to help resolve major problems. The majority of cross-sector partnerships that have been organised at the moment are coalitions of the willing, and they come with their own challenges.

Coalitions of the willing are likely to be made up of partners very different from each other. They come from different sectors with different missions — the nonprofit or community organisations working with a multinational, for example. As a result, the partners not only have different perspectives, they even speak a different language.

Companies becoming partners within a coalition of the willing must be prepared to learn from each other. 'You really have to understand each other,' Prof. van Tulder says. 'We've seen in practice that many of these partnerships, even coalitions of the needed, had to invest time in understanding each other's language.'

Common challenge

Another common challenge related to these partnerships, is the issue of institutionalisation — that is, aligning the organisation to the partnership. 'We see in many of these partnerships that the organisation delegates people to the partnership, who collaborate at the individual level with other partners,' Prof. van Tulder explains. 'Then these individuals come back to their organisations, and the organisations say, 'That's all very well but I don't care,' or 'I don't know how to work on that.'

In contrast, Prof. van Tulder cites the example of the partnership of AMREF Flying Doctors, a large healthcare non-governmental organisation, and Dutch conglomerate Philips, which, he says, 'is now more into health than into light bulbs.' Both organisations have – after long negotiations – identified a business case for the partnership. 'Philips has a business case because they want to be in health,' he says. 'AMREF has a business case because they want to be in health prevention. The impact loop for Philips and for AMREF is not only the partnership itself; if they can link it to their business models or their organisational models, the impact would go way beyond the partnership itself.'

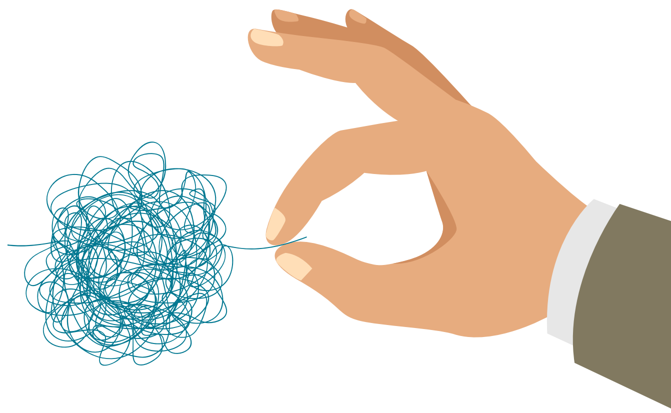
This kind of internal alignment with the partnership's goals — or 'institutionalisation' — is key to the wider success of the partnership. However, it requires a full commitment from the organisation that champions of the partnership are not always able to muster.

More and more companies are becoming involved in vital cross-sector partnerships that give them opportunities to contribute to society in ways they could never achieve alone. Prof. van Tulder's research offers a tool for measuring the local and global impact of these partnerships, thus emphasising and confirming their value-added. The potential for contributors from all sectors to effect major change in the world has never been greater. ■

For more information on RSM's Partnerships Resource Centre, visit WEB www.rsm.nl/prc

"...governments, communities and companies are all part of the problem and they all need to be part of the solution."

Prof. Rob van Tulder



Does shareholder voting matter in Europe?

By ***Hans van Oosterhout***

Every year, publicly held companies ask their shareholders to vote on several proposals. Generally, the proposals endorsed by the board pass by overwhelming margins, while those the board doesn't endorse fail – also by enormous margins.

In theory, the power to vote at shareholder meetings is shareholders' most powerful right. In practice, it seldom works that way. Most of the time, shareholder votes look like North Korean-style democracy, of seemingly little interest or value either to managers or shareholders. A number of researchers have therefore called shareholder democracy a paper tiger that hasn't turned out to be very useful at changing corporate behaviour.

But in a recent study, my colleagues Steve J. Sauerwald of the University of Illinois at Chicago, Marc van Essen of the University of St. Gallen and I have found that an unsupported shareholder proposal is actually more like a canary in a coal mine: our research shows that even proposals that win little support can be an important sign that investors aren't happy with the company's strategy. Proposals that win only four per cent shareholder approval may in fact be an advance warning signal for deep-seated investor misgivings.

The value of these votes as a way to send a message has been documented in the US, where corporate boards are generally made up of outsiders handpicked by the management and shareholders. But does shareholder voting serve the same function in Western Europe? After all, corporate governance in Western Europe is very different from the US. In many northwestern European countries, for instance, the law requires employee board representation.

"...like loudly cheering supporters at a football match, dissenting shareholders can have a practical impact on the game's outcome."

Shareholder dissent

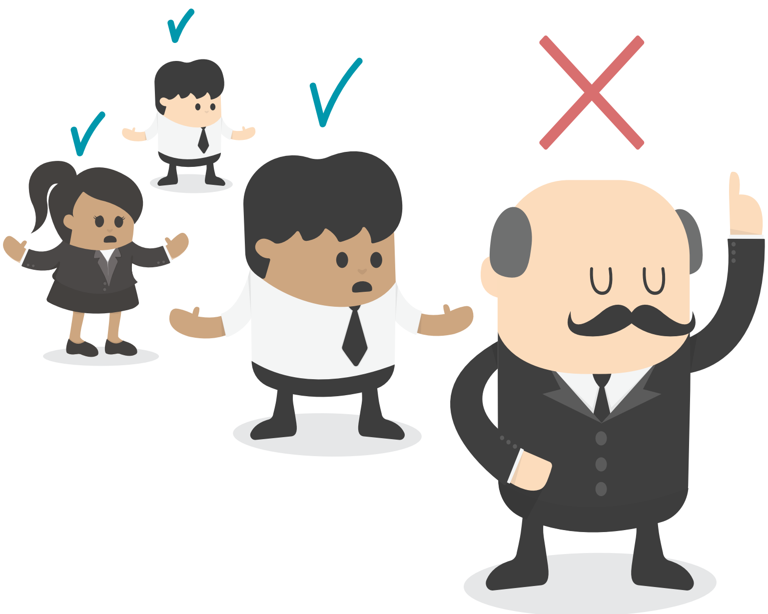
Shareholder proposals, however, follow a similar path in European companies. Generally, the board offers voting recommendations to shareholders based on proposals made at the annual shareholder meeting. They usually approve their own proposals but give unsolicited shareholder proposals a thumbs-down. Although strictly speaking, shareholders vote on the proposal and not the board's recommendation, for the purposes of this study, we consider shareholder votes that deviate from management recommendations for a proposal as dissent – essentially, the equivalent of a parliamentary vote of no confidence.

To find out, we studied a sample of 12,513 proposals voted on in 717 firms in 15 Western European countries. We found that in the most liberal European market economies, the United Kingdom and Ireland, two countries that follow the US model of independent director-led governance, shareholders vote very similarly as in the US. In Coordinated Market Economies (CME) such as France and Germany, however, the expressive function of shareholder voting looks equally important, although shareholders seem to be guided by a different corporate governance ideology.

To be sure, shareholder votes matter in Europe's CMEs too. Even when there aren't enough votes to ratify a measure, the votes may carry a message. For instance, in 2015, shareholders of Deutsche Bank probably voted to express their discontent when a substantial minority voted *against* management's proposal to discharge the board from the legal liabilities that resulted from managing the firm in the previous year. Such proposals, which are routine in countries like Germany and the Netherlands, are largely symbolic, as directors may still be held legally liable for a breach of their duties years after shareholders have passed such a proposal.

In this case, however, protesting investors evidently used their vote to express their discontent with management. Here too, an expressive "protest vote" isn't pointless: like loudly cheering supporters at a football match, dissenting shareholders can have a practical impact on the game's outcome. In the case of Deutsche Bank, for example, the bank's leadership team stepped down less than a week after the vote.

But there are differences. Because CMEs tend to have more joint governance by managers, employees, and shareholders, shareholders in these countries seem more reluctant to jeopardise ongoing team efficiency by expressing dissent through public referenda.



Investor views

Our findings show, for example, that CME investors' view of a dominant bloc of shareholders is different than LME investors'. In LME-based companies, voting patterns indicate that investors see a major block of relational shareholders, such as a founding family, as a buffer that may reduce company responsiveness to shareholders. In CME-based companies, by contrast, a bloc holding is often seen as a stabilising factor that counterbalances the power of labour, for example. We suggest that investors in CME-based firms believe that long-time relational shareholders, such as a founding family, are keeping close tabs on the company's well being.

In addition, these investors may consider mixed board membership to be a superior model for maximising value. In these countries, therefore, even shareholders seem to appreciate the value of incorporating the perspectives of more stakeholders at the board level.

The level of shareholder support for compensation practices also varies between markets. For example, LME investors are more likely to understand equity-based pay of CEOs as a performance incentive, while CME investors tend to see high executive pay as divisive, encouraging too much concern about shareholders while undermining relationships with other stakeholders, and encouraging overly risky activities.

Overall, we found that regardless of the nature of the company's home economy, routine and strategic proposals receive the lowest level of dissenting votes while governance and shareholder proposals receive the highest. This suggested to us that governance issues are most important to dissatisfied shareholders.

Further, the insignificant difference in market-to-book ratios between companies suggests that relative performance is not really a cause of dissent. However, the correlation between dissent and the level of free-floating ownership suggests that shareholder dissent is a more important mode of expression for outsider investors than for long-term investors who have stronger internal channels of communication.

Greater democracy

Many shareholder advocates in Europe have asked for more shareholder democracy in public firms. The European Union has also moved to make more shareholder democracy a priority in the European market. However, our research suggests that it would be a mistake for European companies to blindly adopt the US model. First, the difference in corporate governance between CME-based and LME-based companies is not arbitrary, but reflects different ideas of the ownership and purpose of the corporation.

"…our research suggests that it would be a mistake for European companies to blindly adopt the US model."

As a legal matter, LME-based companies are institutions that exist to serve their shareholders. CME-based companies, by contrast, are believed to exist to meet the goals of a variety of stakeholders, including employees. Second, our analysis of the contrasts between LME and CME votes suggests that the expressive function of dissenting votes is also powerful throughout Europe, despite the fact that European shareholder meetings resemble North-Korean style democracy just as much as the shareholder meetings of US firms. Managers would therefore do well to pay attention to the reactions of the minority investors who vote for proposals not sanctioned by the board.

In sum, our work suggests that European executives should not be complacent about shareholder challenges despite low numbers of protest votes in CME-based companies, as even soundly trounced proposals may raise serious issues. It would be best to understand shareholder voting as a political process, and to interpret voting outcomes as polls that gauge how the firm is doing in the eyes of shareholders.

As with citizens in democratic elections, shareholders' votes seem to be guided by their view of the corporation. Where LME-company shareholders see the management of a company as their agent, CME-shareholders see the company as the product of team-production, and vote accordingly. ■

This article draws its inspiration from the paper *Expressive Shareholder Democracy: A Multilevel Study of Shareholder Dissent in 15 Western Countries*, written by Steve Sauerwald, J. (Hans) Van Oosterhout and Marc van Essen, and published in the *Journal of Management Studies* 53:4 June 2016.
DOI: http://dx.doi.org/10.1111/joms.12171

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Increasing shopping efficiency by optimising locomotion

By ***Bram Van den Bergh***

When 80 per cent of a typical shopper's time is spent merely wandering from aisle to aisle instead of making conscious purchases, retailers need to sit up and take notice. A recent study has delved deeper into the issue, identifying the ideal conditions to create the right walking speed while keeping customers alert to the offers within the shop.

Only 20 per cent of the shopper's time and attention in a store is spent on selecting merchandise for purchasing. Retailers send shoppers on a "treasure hunt" and force shoppers to spend their time walking around the store to find items. Retail managers think they are cleverly boosting sales by holding shoppers in the store as long as possible. For instance, they stimulate long walking paths by placing dairy products in the back in an attempt to encourage impulse purchases along the path.

While treasure hunts are fun for children's birthday parties, inefficient shopping trips lead to irritation for a time-pressed customer. Moreover, prolonging a shopping trip leads to congestion and might even harm sales. As a consequence, only a small portion of a shopping trip is devoted to actual shopping. Retail managers therefore need to maintain customer flow in order to avoid congestion while guiding shoppers through their doors and around their shop in the most effective way. Getting people through the door is the first challenge. Ensuring that they use their shopping time effectively is an entirely different ball game.

A question of timing

In an attempt to make shopping more efficient, a team of Belgian and Dutch marketing scientists investigated how they could increase the walking speed of shoppers in a supermarket and designed interventions to optimise the pace of locomotion of in-store traffic flow. To alter walking speed, they relied on an extensive body of work that suggests environmental features modulate human behaviour.

While prior research explored the impact of music, scent, lighting, colour schemes, width of aisles, and temperature, they examined the previously unexplored idea that flooring is capable of altering walking speed. The scientists attached lines on the floor of a shopping aisle in a supermarket, in an electronics store, in a DIY store and in hallways of European universities. While tracking the behaviour of thousands of people, the scientists found

Increasing shopping efficiency by optimising locomotion *(continued)*

By ***Bram Van den Bergh***

that closely spaced, horizontal lines on the floor slow the pace at which shoppers walk down an aisle, encouraging them to browse and pay more attention to their immediate environment. When the gaps between the horizontal lines on the floor are widened, shoppers moved more quickly and paid less attention to their surroundings.

Nearing a goal

The explanation for the changes in walking speed resides in a phenomenon that was discovered more than 80 years ago. Clark Hull observed in 1923 that when rats traverse a runway for a food reward, they run faster at the end of the path relative to their speed at the beginning of the path. That is, rats run faster and faster when they are getting closer and closer to the reward. Similarly, when customers need to collect many more stamps to get a free espresso or fly many more miles to get an upgrade in their frequent flier status, their purchasing rate is relatively low – many days pass between every purchase they make.

But when customers feel they are getting closer to the goal, as their loyalty card is steadily filled with stamps or when air miles are added to their account, their purchasing rate increases sharply. Essentially, customers purchase faster when they get closer to their goal.

Moving with purpose

Since as far back as the times of Aristotle, locomotion has long been identified as a goal-oriented activity, made with a sense of purpose and progress. To return to modern times, people render themselves to a particular place with an objective. Purchasing is an especially pertinent case in point. With the obvious exception of idle window shoppers, one goes into a retail outlet with certain intentions. Like rats who move faster when they get closer to their food reward or customers who accelerate their purchasing when they are about to receive their free product, this research shows that customers walk faster if you trick them into believing they are closer to their goal than they actually are by widening the gaps between the lines presented on the floor.

"While treasure hunts are fun for children's birthday parties, inefficient shopping trips lead to irritation for a time-pressed customer"

Widening gaps

The multi-study research was based upon real-life and simulated conditions across a range of types of stores and shopping conditions, comprising stopwatch tests in a Netherlands-based supermarket, mock tests in a Belgian university to test for walking speed and response to visual stimuli, video-taped exercises within a German retailer, and tracking of shoppers in a Dutch electronics shop towards a staircase. Across these various tests the objective was to analyse the effect of widening gaps between horizontal lines attached to the floor on walking speed, and the ability to recall

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visual stimuli along the walking path. Above all, the goal was to understand if speeding customers around a shop will affect awareness of products and product advertising, and if so, how?

While the researchers' goal was to increase the efficiency of shopping trips, their insights might help customers in other settings as well. For instance, in airports or railway stations, more people might reach their gate or platform in time if they are gently "nudged" to walk a bit faster. Conversely, in contexts where a slower walking speed leads to an increase in safety, such as slippery floors in swimming pools, insights related to slowing down the walking speed might help decrease the risk of an injury. While an increase in walking speed helps customers make more efficient use of their time, this faster pace has negative effects on customers' ability to recognise and recall products along the walking path.

Perception is everything

What emerges very clearly is that guiding shoppers around a store at a particular speed is a way of instilling in their minds that they are spending their time constructively, as well as their money. This can be achieved in all manner of ways. Above all, store managers need to find a compromise between avoiding congestion and ensuring the maximum number of bodies through their doors. When the world-famous Harrods store sought to double the number of customers the effect on sales was only 60 per cent, as opposed to the expected 100 per cent, underlining that sheer number of bodies does not have the necessary impact if traffic flow is not managed and guided correctly. From the precise moment that shoppers feel their time is being wasted, they will leave in droves. By expertly orienting them the chances that they will consume can only hope to rise, in the interests of all. ■

"…guiding shoppers around a store at a particular speed is a way of instilling in their minds that they are spending their time constructively, as well as their money."

This article draws its inspiration from the paper *Altering Speed of Locomotion*, written by Bram Van den Bergh, Nico Heuvinck, Gaby A. C. Schellekens and Iris Vermeir and published in *The Journal of Consumer Research*, vol.43 (2016). DOI: http://dx.doi.org/10.1093/jcr/ucw031

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Are leaders needed to improve team performance?

By ***Murat Tarakci***

Businesses are always on the lookout for stronger leadership. But is it always better for a team to have a powerful boss? New research shows that the effect of power disparity on group performance affects the ability of groups and organisations to assign power according to competence, thus offering new and important insights for those tasked with getting the best results out of managerial hierarchies.

In a series of studies that my colleagues Patrick J. F. Groenen, Lindred L. Greer and I undertook, we believe we have come up with a persuasive and verifiable answer to this old question.

Our conclusion: the best plan is to put the most competent person in charge and when the task changes, choose a new leader who is good at the new task. If this isn't practical, operating as a group of equals will be better than to keep following the old leader. Let me explain.

"Our research shows that a steep hierarchy can be both a blessing and a curse."

We began our research with a computer simulation. At this point, we realised that much of the reason this question had been difficult to answer was the way people thought about power. Three assumptions scholars have often made about the nature of power made the question harder to answer than it needed to be. The first was that they tended to treat power as static and stable, something that can always be mapped on an organisational chart rather than something that ebbs and flows. Second, they assumed that the person at the top was always competent at the group's core task (an assumption that historians – not to mention political journalists – might dispute!). Third, most scholars assumed that equality is never really possible.

Our simulation program allowed us to experiment with these assumptions. In addition, the program showed that a steep hierarchy helps team performance only if the person in charge is competent in the group's task. Our model suggested that a group with a powerful but less competent leader underperformed the group of equals, and the team with the most competent member assigned to be the strong leader performed best.

To confirm that our model was correct beyond the artificial reality of computer simulations, we conducted a laboratory experiment involving 294 university students. Each student was assigned to one of 83 teams, which were given a hypothetical task of surviving in the desert.

Each team was randomly assigned to a condition where we manipulated the distribution of power. In the low power disparity condition, there were no assigned team leaders. In the high and stable power disparity condition,

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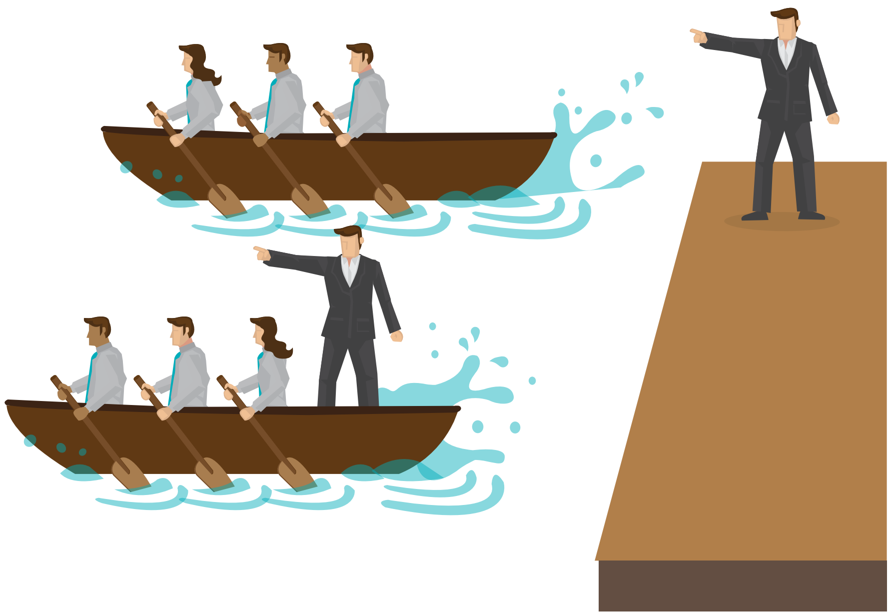

we randomly assigned a team member as the leader. And in the high and dynamic condition, we asked teams to select a person who would be in charge of managing group discussions. For the teams in this condition, we gave feedback on their performances and allowed them to pick a new captain before the second round if they chose.

The result: 41 per cent of teams that selected their own team leader dynamically switched captains. This result demonstrates that hierarchies are not necessarily static, as earlier organisational theoreticians had assumed. More importantly, this result suggests that teams do not need higher executives to assign a team leader – about which they do not usually get much say. In fact, teams are capable of selecting and changing their captains. There is a twist, however: when looking at the results we found that only 55 per cent had initially selected the most competent team member to be the central power holder. That is, teams are not that good in detecting competent team members and giving them power. Perhaps higher executive intervention in monitoring competence can be of help here.

Overall, our findings confirmed the simulation results: high power disparity boosted team performance when the team had competent leadership but not when the leader was unskilled. If the leader is unskilled, a team with low power disparity will outperform.

Now we undertook a third study, this time in the field, at a 1,190-employee public organisation in the Netherlands. We asked a large group of fraud investigation teams to characterise their team leaders. Here too, we found the relationship between team performance and high power disparity teams only when the group saw its leader as highly skilled.

Taken all together, the results offer qualified support both for people who favour flatter hierarchies, such as proponents of holacracy or agile development, and people who favour an organisation with a steeper hierarchy, such as the executives of Google and GitHub. Our research suggests that teams with flatter hierarchies tend to be outpaced by groups with steeper hierarchies when the leader is competent in the task at hand. At the same time, our results do not offer an unconditional endorsement of the Google view, as strong leadership without competence underperformed.

Our research further shows that a steep hierarchy can be both a blessing and a curse. Essentially, whether you are better off with a strong leader or a team of equals depends on the competence of the people in those respective roles. If the boss has no deeper insight than anybody else, our research suggests that a flatter organisation will be better because these bosses will derail the team from finding correct solutions to the problems they are trying to solve.

In the end, we have found that a dynamic response is best: keep the competent leader until the task at hand moves beyond his or her competence, and then move on to another strong leader who has expertise in the latest essential task. ■

This article draws its inspiration from the paper *When does power disparity help or hurt group performance?*, written by Tarakci, Murat; Greer, Lindred L.; Groenen, Patrick J. F., and published in the *Journal of Applied Psychology*, Vol 101(3), Mar 2016, 415-429.

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Business groups in emerging markets: the Chilean experience

By ***Francisco Urzúa Infante***

Business groups are sets of companies managed by the same controlling shareholder, often a family. Both from the finance literature and day-to-day commercial life, we know that business groups can be a force for good. This statement is fundamentally true. The statement that business groups might have a negative impact on their environment, however, is also fundamentally true.

These apparently contradictory truths became clear during the research undertaken for *Do Business Groups Change with Market Development?*, a paper which I co-wrote with Borja Larrain of the Pontificia Universidad Católica de Chile. We set out to test the hypothesis that business groups should be more common in economies with less developed markets and institutions, which we explore using Chilean data.

We limited ourselves to for profit organisations, but business groups are also involved in non-governmental organisations (NGOs) and other not for profit enterprises. For instance, leading Chilean groups support many NGOs. This is hardly something unique to Chile, as Hyundai (Korea) has an applied research institute and Turkey has two universities founded by business groups (Koc and Sabanci).

Also interestingly, even though we study Chilean groups, what we learn sheds light into the development of groups in many other countries. This comes as no surprise given how common business groups are around the world. In Europe one can easily think of the Wallenberg (Sweden) and Agnelli families (Fiat), the Quandts (BMW) in Germany and Maersk (Denmark) to name just a few. From Asia, maybe the most famous is Samsung.

A dichotomy

There is an obvious dichotomy and a broad range of shades between business groups being good or bad. The stark reality is that business groups are either good or bad depending on the setting. In conducting the research for our paper and to understand them properly as a species, we set out to venture beyond the obvious distinctions and to comprehend such key strands in the corporate DNA as their history, industrial strategy, shareholder makeup as well as their ownership and financial structures.

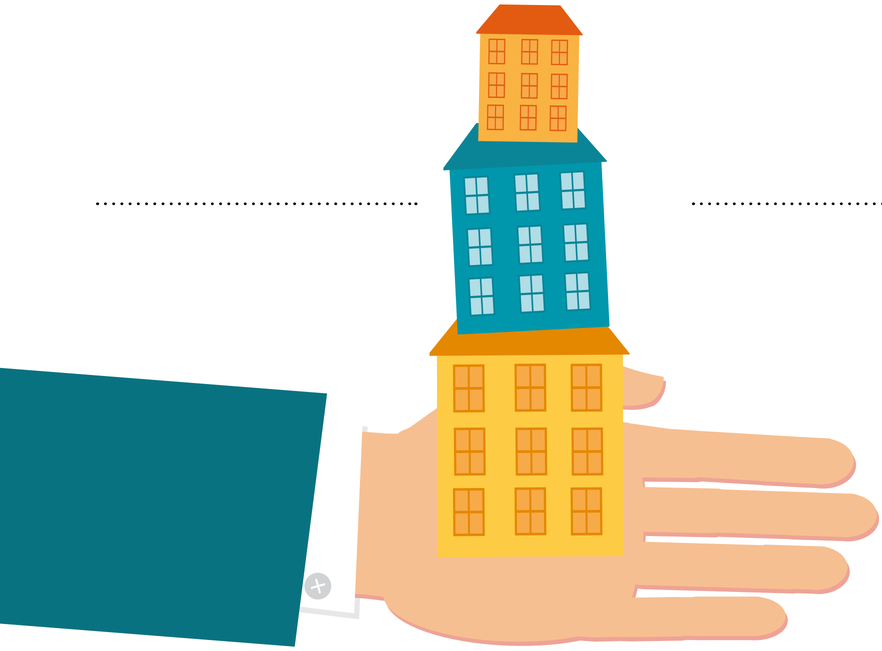
All have a role to play. The existence of a pyramidal structure of ownership, for instance, can often create divergences of interest between shareholders. This in turn can lead to abuses of power. The behaviour of the late disgraced Robert Maxwell in running his printing and publishing group in the UK in the 1980s and early 1990s might easily be cited as an example of that country's worst corporate behaviour in recent years. It was only after he was found dead in the sea on 5 November 1991, having disappeared from his yacht off the Canary Islands, that the full extent of his corporate abuse became apparent.

Building a detailed awareness of these key attributes is essential to understand the development of a business group. While it is often said as a cautionary warning in the investment world that past performance is no guarantee of future performance, the structure of Chilean business groups is remarkably stable. Our results show that, despite the changes that Chile experienced in the two decades under examination (1990-2009), business groups are very similar to what they were in 1990. And although there are some changes, most changes in group characteristics do not appear to be systematic (ie, correlated with market dynamics).

The sole exception to the stability of group structure is leverage, which increased significantly from an average of 30 per cent in 1990 to 44 per cent in 2009. This overall increase in leverage is explained by old groups increasing leverage, and not simply by new groups being formed with higher leverage. In common with the prevailing trend elsewhere, business groups took advantage of the expansion of domestic credit by funding more of their operations with debt. This is perhaps broadly analogous to the involvement of the private equity industry in commerce in more highly developed countries.

Relevant lessons

Are there lessons to be learnt that are



"Building a detailed awareness of these key attributes is essential to understand the development of a business group."

of relevance to international business activity beyond the confines of South America? I believe the answer is yes. Some conclusions are in fact virtually irresistible. Whatever the geographical location or the perceived inherent goodness or badness of a business group, there are clearly a number of key issues that differentiate the successful from the unsuccessful.

Keeping costs down and running the business efficiently are two that spring unbidden to mind. Focusing on the quality of the product is another. Initiating and cultivating good, lasting and productive relationships with politicians and other people of influence is a third. Unfortunately, this last aspect can easily and quickly degenerate into out and out bribery of politicians and people of influence involved, which, of course, will not be tolerated in some countries. The words legal, decent, honest and truthful are immediately linked to a company's name, even if in most cases it is doing no more than playing the local rules to maximise its position.

Our research shows, inter alia, that a number of business groups in Chile have been extremely successful in this context over the past 20 years, growing export-oriented commodity businesses and establishing subsidiaries elsewhere in South America, Europe and the US. In the traditional business models, the cheapness and quality of their product have typically mattered more than almost any other aspect of commerce.

Such an approach to business will, however, take Chilean business groups only so far, and at some point a decision will have to be taken that will set the path to the next stage of development. When that point arrives, the challenge becomes how to replicate their success with commodity and price with cutting-edge innovation and value-added products. In this context, stability and persistence can only grow in importance for the success of any business group. ■

This article draws its inspiration from the paper *Do Business Groups Change with Market Development?*, written by Borja Larrain and Francisco Urzúa Infante, and published in the *Journal of Economics and Management Strategy*, 25 (3), 750-784. DOI: http://dx.doi.org/10.1111/jems.12165

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Exemplifying how to bridge theory and practice

Rebecca Morris *on the career of Leo Kroon*

Most of those who knew Leo Kroon considered him a quiet, unassuming man. A professor of quantitative logistics at RSM, he was known for his expertise in railways and the complex mathematical models he developed to optimise their operations. He was reticent when it came to his achievements, and his opinions. Yet his humble demeanour belied the reality of his accomplishments.

A gifted mathematician and scientist, Professor Leo Kroon, who passed away in September, aged 57, was the world leader in timetable modelling and a scientist who exemplified how to bridge theory and practice.

'Every person in the field of timetable modelling worldwide knows the name Leo Kroon,' says RSM´s René de Koster, professor of logistics and operations management, and someone who knew Kroon for 21 years. 'He was one of the brightest people I have ever known: a gifted mathematician with an exceptional mind. Leo Kroon was simply very, very good at what he did, and much of that involved solving very complex societal problems.'

At the time of his passing on 14 September 2016, Leo Kroon was the world authority on timetable modelling. During an event held by the Railroad Application Section (RAS) of INFORMS in Nashville on November 12th, (at which Joris Wagenaar became the second student of Kroon's to win a prestigious RAS award for best paper), his peers described him as 'having raised the entire field to a higher level' in terms of the quality of research, while at the same time bridging the gap between theory and practice.

Pursuing relevance

Kroon joined RSM while the school was still in its infancy, completing his PhD in 1990 before becoming one of the school's first faculty members. He quickly established himself as a prolific researcher. His foremost interest was in railways and he dedicated himself to the development of complex mathematical optimisation models for solving problems relating to planning and operations control. Core to the challenges he addressed was practical relevance: train scheduling and planning, rolling stock scheduling, crew scheduling and minimising travelling times for passengers who needed to switch trains. His research led to the authoring and co-authoring of over 100 papers that were published in leading journals.

Kroon's models were implemented with growing frequency by the Netherlands Railways (NS). By 1996, Kroon was employed part-time as a logistics consultant for the Department of Process Quality and Innovation at NS. He was the leading member of a team responsible for creating a model for the development of a new NS timetable, a project for which they won the prestigious INFORMS Edelman Award in 2007. This was followed in 2008 by an ERIM Impact Award. 'He basically made a model that made it possible for us to rapidly develop timetables for passenger trains all over the Netherlands, a model that has been followed in other countries,' says De Koster.

His expertise in railway timetabling attracted interest Europe-wide. In 2010, he co-ordinated the Dutch teams involved in the EU-funded research projects AMORE and ARRIVAL, which developed algorithms for optimising railway schedules and led to huge

"Leo Kroon was simply very, very good at what he did, and much of that involved solving very complex societal problems."

René de Koster, professor of logistics and operations management, RSM

cuts on waiting times in Germany, the Netherlands, Italy and Switzerland. More recently, he was project leader of the EUR team in the EU-funded research project ON TIME, as well as the leader of a project funded by the Netherlands Organisation for Scientific Research (NWO), "Complexity in Public Transport Project".

Teacher and mentor

Over the course of his career, Kroon supervised a large number of PhD students. NWO subsidised many of his students, while Kroon obtained a standing contract with the Dutch Railways for the partial subsidy of all his PhD students.

Joris Wagenaar was one of his PhD students for four a half years. 'Leo was an extremely nice, humble man,' says Wagenaar. 'It was only after seeing people's reactions to him that I realised he was one of the big guys in the railway industry. Whenever I said I was under Leo Kroon, I was immediately one step ahead. Yet for all his success, he was always interested in my opinion and spoke to me as an equal.'

The many accolades he received are testimony to his success as a supervisor. Twice he was awarded the PhD Supervisor Award by TRAIL (the transport, infrastructure and logistics research institute). Most of his students have gone on to pursue highly successful careers within the Dutch railway sector or work at other top business schools. 'The railway research group is one of only around 100 or so worldwide and they are known for being very, very good researchers,' says De Koster. 'We can certainly look to Kroon as a contributing factor in this.'

In his own research Kroon continued to flourish. In 2011 he was awarded best paper at the World Congress on Railway Research and, in 2013, was given a "Strategic University Relationship" collaboration with IBM. Meanwhile, his network and reputation continued to grow. 'He had a constant influx of guests from all over the world coming to RSM, wanting to collaborate with him,' says De Koster.

Excelling in everything

Kroon held himself to the highest standards, says De Koster, an attribute that was occasionally a double-edged sword: 'He often doubted himself. But he also excelled in everything he did.'

In recent years, Kroon was associate editor of the prestigious *Transportation Science* journal. Alongside other research projects, he had been chair of RSM's Examination Committee. 'Even in this he excelled,' says De Koster. 'He introduced a number of excellent changes that were very well thought out.'

De Koster has a great many memories of Kroon's qualities and achievements. But his legacy, he says, should be Kroon's approach to research. 'Kroon helped forge our reputation worldwide. But his brilliance lay in the fact that not only was he a gifted mathematician, but that he shared this gift with his students and applied it to solving important challenges in society.' ■

***Marie Schmidt** will be Leo G. Kroon's successor in leading public transport research at RSM. Marie was hired by Kroon as an assistant professor and worked alongside him for four years.*

Disruption management in passenger railway networks

By ***Joris Camiel Wagenaar***

The drive to encourage people to take the greener option of public transport means that rail networks are under increasing pressure to guarantee quality of service. What the frustrated passenger waiting for a delayed train does not realise is the myriad of potential hitches that can occur and the domino effect on an entire network. More than ever, a computerised system is required to assist rail operators in anticipating problems and managing the unforeseen, in the interests of all.

Delays will always represent the biggest headache for rail passengers and network managers alike. By opting and paying for train transport, the general public has a legitimate expectation of a certain level of service in order to get from A to B. Similarly, network operators need to do their utmost to get passengers from A to B with the minimum inconvenience in order to maintain customer satisfaction. This is a highly complex set-up that requires a quick response to dense traffic flow, rolling stock maintenance and the knock-on effect of any problems on timetabling.

However, the current reality is that many railway operators are rescheduling manually, managing problems over a short space of time that only serves to postpone technical hitches for the coming minutes. As a result, the displayed timetables are no longer tenable over a sustained period. An overall solution is needed rather than dealing with (or alternatively delaying in only the short term) the various disruptions that may occur.

Planning for problems

The issue faced by railway operators does not reside in the nature of the problems as much as in finding the right solutions. It is fully expected that rolling stock will require regular maintenance, which involves a certain proportion of trains being out of service for a particular amount of time. Repairs to damaged or faulty rolling stock simply adds to the workload.

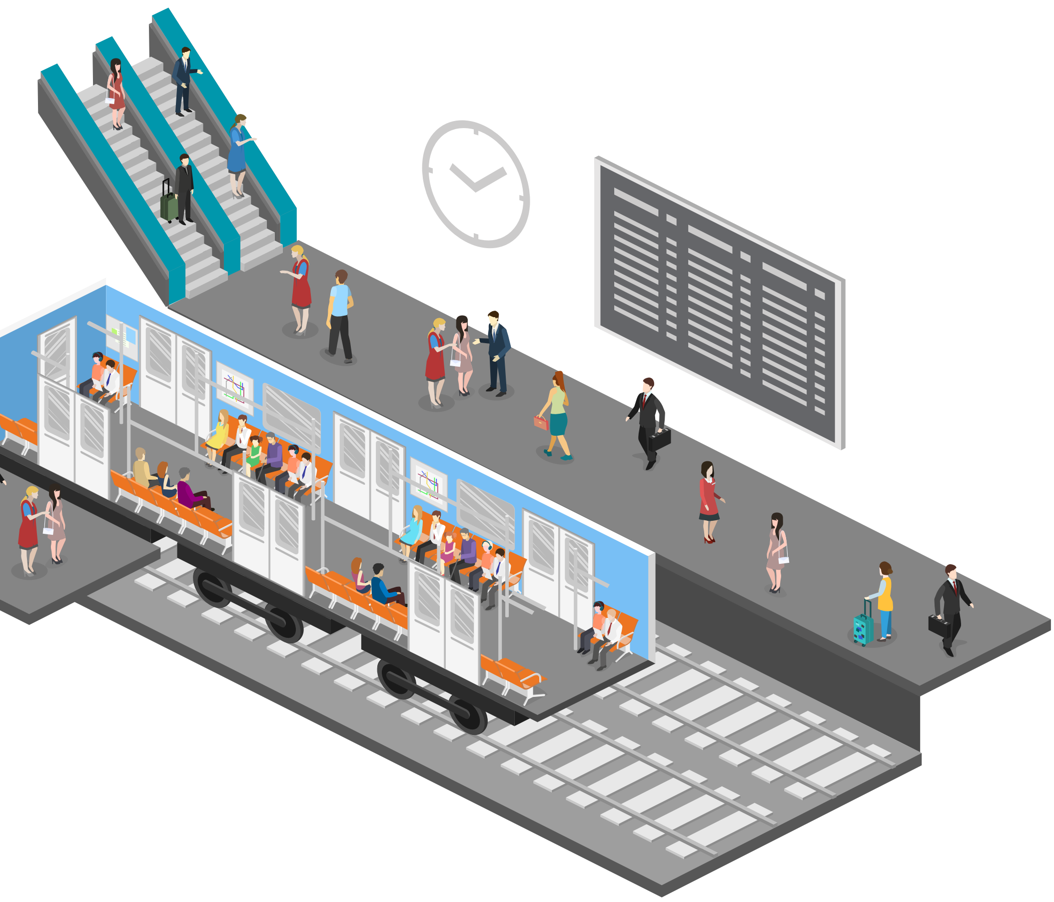
Even when the correct amount of rolling stock per station has been correctly identified, there is also the logistical issue of shifting trains from one place to another to ensure that there is not a surplus at one point and a shortage at another. In addition, rolling stock comes in all shapes and sizes, from self-propelled to locomotive-driven, single or double deck, and coupled or uncoupled. Crucial to anticipating and, ideally, avoiding problems is to have the appropriate contingency plan in place.

Until now, research into rescheduling and the actual real-time practice of railway disruption management has tended to approach this conundrum in a three-step manner. In the event of disruptions a new timetable is firstly developed, after which the rolling stock circulation is adjusted, and then crew rescheduling is applied.

In other words, each piece in the puzzle is dealt with individually, meaning that the quality of resource scheduling is by no means guaranteed due to the possibility of a domino effect if ever one of the pieces is not maintained. In an ideal scenario, a computerised system based on the application of algorithms is required to ensure a more efficient and effective management of disruptions, whereby all three steps are tackled collectively.

Current theory extended

A recent theoretical study into the matter based upon the Netherlands and



"The issue faced by railway operators does not reside in the nature of the problems as much as in finding the right solutions."

Danish railway networks offers hope that a collective approach can be applied. This study extends theoretical models for disruption management in passenger railways to include important practical details such as scheduled maintenance appointments for rolling stock, the phenomenon of "deadheading" (the movement of passenger-less stock from one point to another), and a more realistic management of passenger flow and demand.

The Dutch context is especially useful and applicable since the introduction in 2012 of a smart card system, making it considerably easier for rail operators to chart passenger flow and therefore the times of day where the strain on the network is potentially at its greatest.

Regarding the issue of including scheduled maintenance appointments while rescheduling, the study examines three different models. The first involves adding a rolling stock type for every unit requiring repairs. The second implies scheduling a shadow account specifically for the rolling stock requiring maintenance. The third requires the application of specific tasks to each train unit. The empirical tests applied showed the second and third option to be the most effective for rescheduling.

The next step in the study is focused upon the reality of deadheading trips and gauging passenger flow, including in the event of disruptions. In the latter case, it is important to track passenger behaviour when disruptions occur and the most effective way in which to combat such problems. It is incredibly dif-

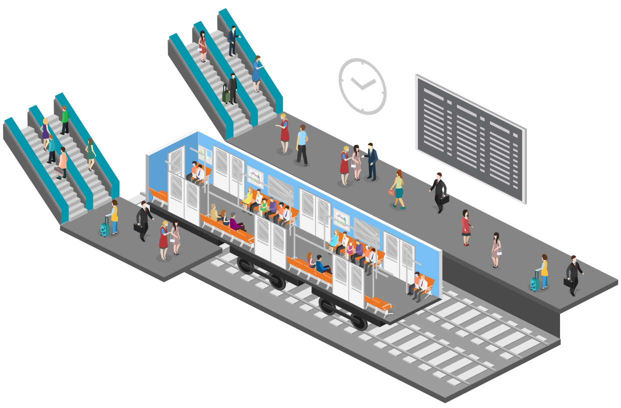
Disruption management in passenger railway networks *(continued)*

By ***Joris Camiel Wagenaar***

"This results in less inconvenience for the passengers and less time stress for the railway operators – in short, the ultimate win-win situation for users and managers of the system."

ficult to anticipate boarding strategies but what the study succeeds in doing is to establish appointing larger trains to the stations hit by a disruption just after the disruption is over. This ensures maximum seat availability for the passengers waiting a long time.

Just as importantly, effective deadheading trips are proven to be crucial to guaranteeing the appropriate amount of rolling stock at each point within a rail network. Deadheading trips also implies train storage, and so the study in question also explores the issue of shunting. Matching train units to arriving and departing train services at a station, as well as assigning the selected matching to a specific depot track, is of fundamental importance to deadheading and the entire network management operation.



Making things tick

Whilst the algorithm-based study does not yet offer up the ideal solution for railway disruption management, it nevertheless offers a very persuasive case for a collective approach of including important practical aspects, such as the scheduled maintenance appointments, deadheading trips, and passenger demand quandary in the theoretical approaches for rescheduling. This creates far more realistic conditions for feasible disruption management of all operations, applicable to real-life instances. The models developed can support dispatchers either for the disruption management process as a whole, for the rolling stock rescheduling problem, or for the train unit shunting problem.

As a consequence, using these models in practice will reduce the time it takes before the new resource schedules are operational and communicated to all people involved. This results in less inconvenience for the passengers and less time stress for the railway operators – in short, the ultimate win-win situation for users and managers of the system.

The debate does not end here. Such an approach needs to be integrated into existing systems present at railway operators. In addition, timetables should be feasible both on a microscopic and on a macroscopic level. Otherwise the resulting timetable cannot be used in practice. Therefore, either an integrated model or an iterative framework should be developed for creating a completely feasible timetable. Further, more important practical aspects must be found and included in the theoretical models.

Finally, further exploration is required of the typical duration of the various kinds of disruption that can occur. This kind of historical data is available to network operators, so a lack of information is by no means a problem in this case. One thing is certain, though. As the greener option of public transportation is quite rightly promoted and adopted, the challenge for network operators remains a stiff one. ■

This article draws its inspiration from the PhD thesis *Practice Oriented Algorithmic Disruption Management in Passenger Railways*, written by Joris Camiel Wagenaar. It may be freely downloaded at WEB http://repub.eur.nl/pub/93177

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