



How to improve performance by making smarter decisions

An in-depth case study on how data and analytics can optimise business performance

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As technology transforms the world at break-neck speed, businesses must make more complex decisions, more quickly than ever before. The pressure to get these decisions right is immense – and growing.

The problem is that, as decision-makers, humans are fallible. With limited brainpower, we struggle to compute more than a few variables, often falling back on familiar strategies to arrive at a decision. As a result, the performance that depends on these decisions is less than optimal.

At one of the UK's biggest bus operators, all this could change. A decision-support tool built by KPMG could help managers make smarter decisions on how to optimise operational performance, grow the business and achieve better commercial results. Our solution provides the objective, data-based insights businesses need to ensure they make the best decision every time.

The challenge

Transport networks provide a perfect example of how difficult it is to get complex decisions right. Where, when and how transport operators decide to route services has a huge impact on costs, revenue and customer satisfaction. But with many variables feeding into these decisions, working out the optimum configuration across the network is beyond the cognitive powers of the human brain. It's the type of challenge decision-makers in every sector face every day.

To optimise performance across the network, commercial development managers at our client organisation need to take account of a wide range of variables including: bus routing and frequency, passenger demand at different times of day and at different bus stops, passenger demographics and length of journeys, bus capacity, location of depots and competitors' routes. These factors rarely remain constant. The weather, school holidays, road works and major events all disrupt passenger demand and traffic flow. Every scenario demands a different response to maximise performance.

KPMG saw an opportunity to use data and analytics to help the company's commercial development managers make better decisions and optimise the use of resources across the network.

Because decisions about how to route and schedule buses on the network are so complex, managers tend to reconfigure routes and schedules infrequently. As a result, the organisation may be missing out on opportunities to carry passengers who want to travel but can't find a convenient bus route or get a seat on board. At the same time, running buses at less than full capacity means the business could be incurring unnecessary cost.

KPMG saw an opportunity to use data and analytics to help the company's commercial development managers make better decisions around how to match supply and demand, and optimise the use of resources across the network.

The transformation

Applying new-generation technologies to transform operational performance is a relatively new discipline. So far, digital has been largely focused on the front and back office. For this client, we proposed using our proprietary approach, built by our experts from the ground up, to apply the power of data and analytics to transform performance in the middle office – operations.

We began with a review to understand the different types of decision our client needs to make. These range from near-real-time decisions on whether to re-route a service in response to traffic congestion, for example, to long-term decisions such as where to site a new business terminal. From here, we assessed the relative impact of different types of decision on performance. Improving decisions around routing and scheduling emerged as a priority, with the potential to deliver the most in terms of increasing passenger numbers and revenues and improving margins.

In future, with the tool, our client will be able to quickly and effortlessly assess countless options whenever new opportunities to refine schedules and routes occur.



We proposed a decision-support tool to enable commercial development managers to improve performance. We chose an Agile process to develop a demonstrator, consulting the managers after each short burst of development to check that what we were building worked for them in real life. It took us just ten months to demonstrate that our idea had the potential for real-world application and confirm the business case for the investment.

The results

Without the tool, our client's commercial development managers would typically produce two or three options for network re-configuration once a year. It was just too difficult and too time-consuming to do more. In future, the tool could enable managers to quickly and effortlessly assess countless options whenever new opportunities to refine schedules and routes occur.

Using the decision-support tool, they would be able to:

- access the right insights, such as likely sources of increased or reduced demand
- model changes to consider their impact on performance
- estimate difference in costs and revenues for different scenarios
- make better-informed decision on optimising the network
- review the impact of performance gains from changes.

We expect better decisions to have an important impact on commercial performance. The business case for the investment anticipates growth in earnings running into the tens of millions, with around 60% of this benefit coming through passenger growth and the remaining 40% through efficiency savings and better matching demand.

Our client has been so impressed with our work, we have been invited to become their 'digital partner of choice'. Over the coming years, we will be helping them capitalise on new technologies to improve performance across their operations. It should be possible to use location data from GPS in buses and passenger load data to enable near-real-time changes to operations.

Transformation take-outs

Key lessons from this project can help your organisation get plans for digital transformation right.



Aim to make processes frictionless and decisions effortless. Achieving frictionless processes is widely understood as vital to achieving operational excellence. But for maximum impact, any strategy targeting operational excellence must also include an ambition to make decision-making smarter, faster and easier.



Start with performance, not with data or technology. The possibilities from big data and powerful technologies are impressive. But performance should always be the starting point. Ask first: 'what is the performance challenge?' and 'what levers can I use to influence performance?' Data and technology will emerge as enablers for better decisions, not as solutions in themselves.



Strive to optimise performance; don't maximise in isolation. Optimising performance is a balancing act. It involves bringing a range of indicators into the most beneficial arrangement overall, rather than maximising performance for individual indicators such as cost, customer service, inventory, flexibility and on-shelf availability.



You don't need perfect data to get started. Don't assume only perfect data can help improve performance. Using sophisticated approaches such as fuzzy cognitive mapping of decision systems and techniques that acknowledge the randomness of business and markets, you can improve decision making and enhance performance even with less-than-perfect data.



Focus on ROI and payback: smart sequence your initiatives. It's good to start with a vision of advanced, optimised decision-making, but build from the right foundations. Sequencing initiatives to stabilise, then improve, then optimise decision-making will ensure you realise maximise returns from your investment.

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