



# DEVELOPING A NEW MODEL TO FORECAST CUSTOMER SATISFACTION

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## The passenger satisfaction requirement

One of the key recommendations of the Brown Review was that the franchise award process move away from an overwhelming focus on franchise premia, to a process in which bids are 'explicitly scored on their proposals for improving service quality for passengers [and]...National Passenger Survey (NPS) scores...be more closely reflected in franchise commitments.' The changes to the franchising process which have followed, with increased focus on service quality and NPS scores, place greater obligations on all parties. In their bids, bidders will need robust forecasts for passenger satisfaction – forecasts developed from a clear evidence base and management initiatives – whilst the DPT need to develop a transparent process to evaluate the proposals of different bidders and, as Brown identified, the sample size and the robustness of the NPS needs to be enhanced.

In many respects, the change is more evolution than revolution – the Great Western franchise process required TOCs to forecast NPS scores and commit small financial incentives to achieving the specified targets. However, there is a massive difference in the importance of these forecasts, from the old process where they were worth less than 0.15% of annual franchise revenue, to a structure where future targets are contractualised and bidders' commitments in this area contribute to overall bid evaluation.

For such a significant factor in the franchise award process, a robust and consistent modelling approach is required. It needs to be linked to specific initiatives and validated through pan-industry and TOC specific research. It should, in short, be as robust as a demand and revenue model with approach and evidence as rigorous as that in the Passenger Demand Forecasting Handbook.

## Building a model for customer satisfaction

However, at present there is neither the agreed method to build such a model, nor the evidence base to calibrate it. Over the past decade, much work has been done highlighting what is important to passengers. However, the current methodology is intended to identify the most important factors in driving satisfaction and dissatisfaction. It gives valuable insights into customer requirements, but does not form the basis for evaluating different proposals to improve satisfaction; for evaluating satisfaction and dissatisfaction differently does not recognise that there is a continuum from being very dissatisfied to very satisfied, and gradual improvement will see the views of passengers evolve across this continuum. In an effective forecasting model, one cannot use the percentage of passengers who will be dissatisfied, but rather one must forecast how average satisfaction is





improving. Existing approaches are not designed to do this.

Although not currently standardised, such a model can be established within the current records of the NPS. But it requires a change in the statistical treatment of results, with the conversion of each individual score on each record to a numeric value to represent the level of satisfaction. Once this is done, one can use multi-variable regression analysis to track the relative satisfaction of customers across all of the different variables in the NPS. Further regression between the overall satisfaction of each user and their satisfaction with each variable allows one to determine the relative importance of each factor and build a weighted picture of aggregate satisfaction from each of the variables.

Such analysis has great benefits, as it identifies which factors are most important to passengers in improving overall satisfaction, and allows TOCs to benchmark their performance in these categories against their peers

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and their past performance. This means that TOCs can identify not only those areas where they are under-performing, but those areas where this under performance is having a material impact on satisfaction.

As with most aspects of rail demand, there are significant variations by customer segment. Passengers have different requirements for different journey purposes and different types of journeys. This means that different customer segments have different levels of customer satisfaction for the same level of service. For example, commuters have consistently lower satisfaction than passengers travelling for other journey purposes and passengers on AP tickets are consistently more satisfied than those paying higher walk-up fares. Any regression analysis to understand and predict satisfaction must be undertaken at a suitably disaggregated level to reflect this. (These differences are also a key factor in explaining differences in NPS scores by TOCs, and there is a strong argument for scores being reported on a normalised basis to reflect differences in journey purpose across TOCs in the same class).

**Linking initiatives to outputs**

From this analysis, we can build up a clear picture of what drives satisfaction, and how changes in different variables will drive change in aggregate satisfaction over time. However, this does not translate into a forecasting model, for satisfaction is an output measure, something that TOCs cannot directly influence. All TOCs can do is improve performance on the key input measures (performance, reliability, helpfulness of staff etc.) and hope that this leads to an improvement in customer satisfaction. But one cannot build a forecasting model, or award franchises, on the basis of hope.

The industry needs a new evidence base at this level to allow improved forecasting – tracking how changes in input variables have led to changes in the relevant satisfaction metric. For example, how have changes in PPM and AML observed in each period led to changes in customer satisfaction with performance? How have the relative changes in fares impacted satisfaction with value for money? How are changes in staff numbers and expenditure in staff training linked with satisfaction with the helpfulness of staff etc. Establishing such a database would provide the

evidence base necessary to build a forecasting model for each component of the bid, and allow bidders (and incumbent TOCs) to deploy a clear and consistent process to evaluate the impact of initiatives and investment in customer service. Last year, we developed such a model for a bidder for the Great Western franchise, and know that such an approach will work. However, an effective model needs a much larger data set linking historical customer satisfaction to metrics across all TOCs. It needs to be done on a pan industry basis with a far larger data set than one franchise.

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**Tying it back to revenue**

If this is done, then the industry will have a consistent tool for forecasting passenger satisfaction. The final stage would then be to build on the work done in 2010 linking Passenger Satisfaction to revenue, developing and embedding an elasticity based index within the PDFH revenue forecasting framework. If this is done, then there can be a full circle.

- From the NPS, we will be able to identify the key requirements to improve satisfaction among key segments.
- By linking input and output measures we will know what will have to be done to achieve this.
- And by linking NPS to revenue we will be able to determine the business case for such an improvement.

There would be a certain irony if one of the key changes to stop the franchising process being such a revenue gamble led to such an improvement in how revenue was forecast!