

Showing where and how to win with data

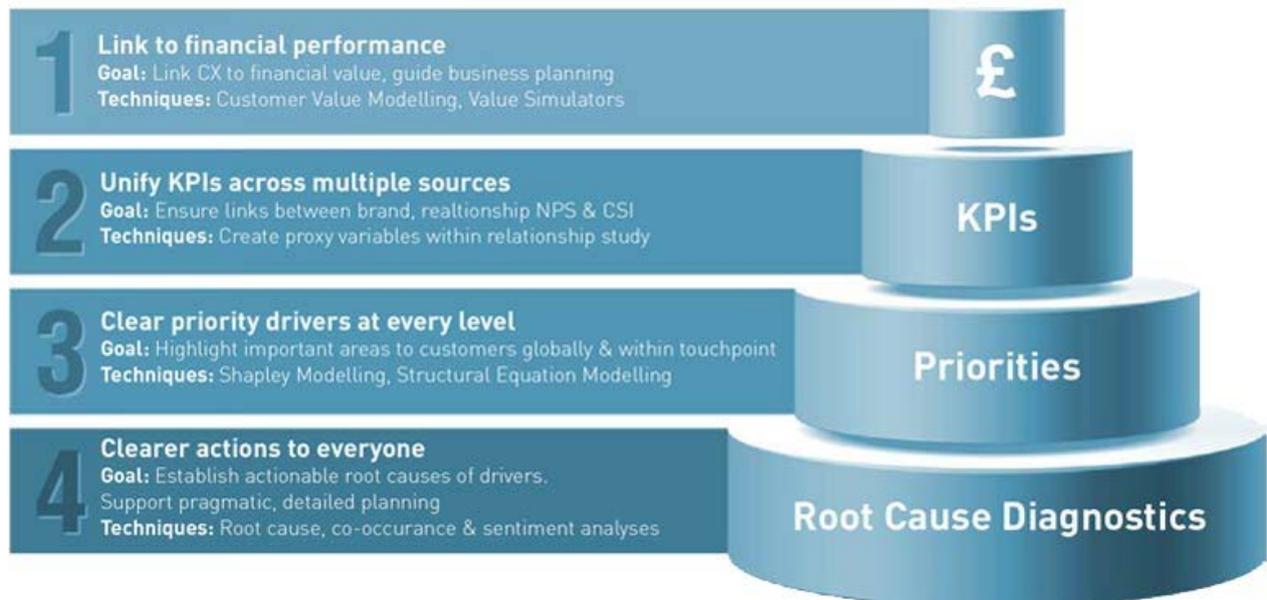
Customer experience insight

Creating a framework for joined-up customer decision making

As organisations become more sophisticated in managing their customer experiences, they are faced with a new analytical challenge. They no longer only need to select the ‘right’ analytical techniques for their customer data, but are increasingly challenged to create a framework to guide global decision making across all insights. Such a framework – as implemented by the leaders in the field – ties together multiple techniques and data sources. By doing so, these organisations avoid the risk of varying insights telling non-compatible ‘stories’ and progressively educate colleagues to make more scientific, commercially effective decisions.

KPMG Nunwood’s Business Diagnostic Framework is designed to achieve this. It is used extensively in financial services, retail, utilities and telecoms as a unifying framework, with specific techniques selected at each level to accommodate detailed requirements and data formats:

Business diagnostics framework



(Links at this level to qualitative exploration, experience redesign and detailed service evaluation (e.g. via mystery shopping))



At an overall level, the business diagnostics framework has two significant benefits:

1. All analytical techniques are setup to work in harmony with each other. Users of this framework do not experience conflicting or hard-to-reconcile 'stories' resulting from different parallel analyses.
2. A number of carefully chosen analytical techniques are available at each level of the framework. Skilled analysts select the correct tool for the data, as opposed to rigidly applying a single methodology in all instances. Many of these techniques are cutting edge and recently developed (see below).

Detailed techniques:

We need to examine the detailed techniques that sit behind each level of the framework.



1. £/\$/€ Links to financial performance

To have impact within the business, NPS or other headline KPIs need to explain customers' commercial behaviours. This can be challenging in industries characterised by high inertia (such as retail banking or life assurance) or frequent price-based switching (such as telecoms or general insurance). Indeed, customers often receive a standard level of service irrespective of their value and the fact their expectation levels vary accordingly. Identifying and quantifying links can be a challenge.

To address this goal and the associated challenges, KPMG Nunwood have developed a number of complementary approaches which help to identify relevant value measures and quantify links with key survey measures. Frequently, these relationships are non-linear, which explains poor correlation scores even though differences in value are

evident between population subgroups such as promoters versus detractors.

Thus, we employ methods such as logistic regression or CHAID / C&RT in order to identify a reduced set of drivers and sub-population characteristics of high value customers. In parallel, we explore the effect of change in KPIs over time using time series techniques to quantify the relationships between aggregate level survey scores and business value measures. Finally, we use customer recall interviewing to validate the links between stated survey KPI, intentions and attitudes and subsequent value generating behaviour.



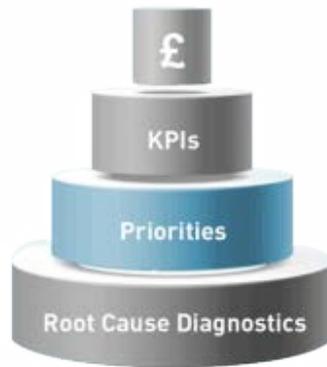
2. KPIs: Select & unify KPIs across multiple sources

Selecting KPIs is an important step. KPMG Nunwood provide best practice models and case studies to help choose between common KPIs (e.g. NPS, customer effort, satisfaction.) Even where an organisation has already adopted a 'single' KPI (such as NPS), there are frequently multiple unconnected studies or insight sources that explain customer behaviour. For instance, whilst a relationship NPS programme may exist, often the analytical links between this programme and touchpoint or brand trackers are less well defined.

If relevant, we can rectify this by taking proxy variables (e.g. 1-3 top level KPIs), from each survey and inserting them into the overall relationship survey. These can then be modelled (see 3, below) and the links between studies established. At this stage, the organisation can also consider including 6 variables from KPMG Nunwood's Customer Experience Excellence Centre as 'secondary KPIs'. Doing this, will allow later comparisons to over 750 brands worldwide, helping the identification and assimilation of global best practice.

Detailed techniques:

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3. Priorities: Clear priority drivers at every level

Working out what drives our KPIs at level 2 (and therefore our financial outcomes at level 1) is critical for any successful programme. Over the last 2 years, KPMG Nunwood have developed a suite of techniques that address the main analytical issues confronting modellers of customer experience data. The main concern has been the failure of traditional regression models to handle multicollinearity between predictor variables, leading to lack of model robustness and stability. Typically, we would choose from two statistical techniques here:

a) Shapley value regression

This technique is based on the work of Lloyd S. Shapley, who was awarded a Nobel Prize in 2012 for his advances in economic sciences. Shapley modelling allocates the variance explained (ie. the R^2) to each component by isolating their incremental contribution. In other words, we build separate models for each possible combination of predictors and assess how well they fit the dependent. We can then quantify the impact of individual predictors by assessing model strength in the presence versus the absence of the predictor in the model. This difference is the Shapley Value which relates directly to the relative importance of each component.

For situations with high multicollinearity, the approach is extremely useful. If two predictors are highly collinear, it means we cannot really tell from the data which is more important. Common regression-based models would wrongly allocate most importance to one or the other predictor. The Shapley Value Regression approach examines each predictor's contribution in every possible combination of predictors and by this provides an estimate of its real impact, which in this example would be very similar.

A further issue in modelling customer relationship data which is often overlooked is Structural Missing Data. It is unlikely that any single respondent will have had full experience across all touchpoints, let alone the fact that few respondents will be exposed to all routes through the questionnaire in a sophisticated modular design. This presents itself in the data as missing values. Many modellers approach this issue by exclusion of respondents or attributes without complete data, or, perhaps worse, imputation of a mean score to replace missing values in the data set. Our

model uses a proprietary technique to allow us to estimate missing or incomplete data without simply replacing empty cells with the mean. (We are happy to share how this algorithm works on request.)

b) Structural equation modelling

Alternatively, in other instances, we use Structural Equation Modelling to explore specific hypotheses. While SEM is an extremely powerful technique to build an understanding of the relationships between survey variables, the models can become complicated on the scale of the typical Experience survey covering multiple touchpoints.

We employ SEM (via Amos) in special circumstances as an exploratory or confirmatory tool identifying the presence and influence of themes underlying the data, where the power of SEM comes to the fore. How do these techniques compare to other common approaches? There are a number of techniques commonly discussed as alternatives to basic regression modelling – for instance ‘Ridge Regression’, ‘Principle Components Regression’, ‘Partial Least Squares’, ‘Average over Orderings’, ‘True Drivers’ etc. The latter two are essentially built on the same principles to tackle the issue of multicollinearity, and although there may be some subtle differences in implementation, the outcomes are largely similar (giving an answer somewhere between the extremes of correlation analysis and regression). In some instances, though, there are disadvantages to these techniques, compared to KPMG Nunwood’s preferred approach:

1. Many pre-suppose an age of limited computing power

The majority of these techniques were developed 10 or more years ago, when desktop computing power was much more limited. As such, they compress multiple customer experience variables (e.g. 30+) to a low number (<5) that a PC of that era could handle. This loses a great deal of the sophistication required to give a proper account of a complex, multi-channel customer experience. Moreover, with the computing power available in 2013, this compression is unnecessary.

2. They apply simplistic rules to missing data

Unlike the Shapley or Structural techniques described above, other common models often have simplistic ways of dealing with missing data. As mentioned, missing data is a common problem, particularly with research data where respondents will often provide no answer or ‘don’t knows’ in response to questions or be routed round them, leaving gaps in the dataset. Most other techniques will simply impute mean scores for the missing data, so modelling can be run. However, this assumes a flat, unsophisticated data set – an assumption completely incompatible with the nature of customer experience research data. As such, this approach to missing data often introduces inaccuracy and error into the model and the ensuing business decisions.



4. Root cause diagnostics: Clearer actions for everyone

Level 4 of the diagnostics framework uses text analysis as a means to get to deep, root causes for customer experience problems.

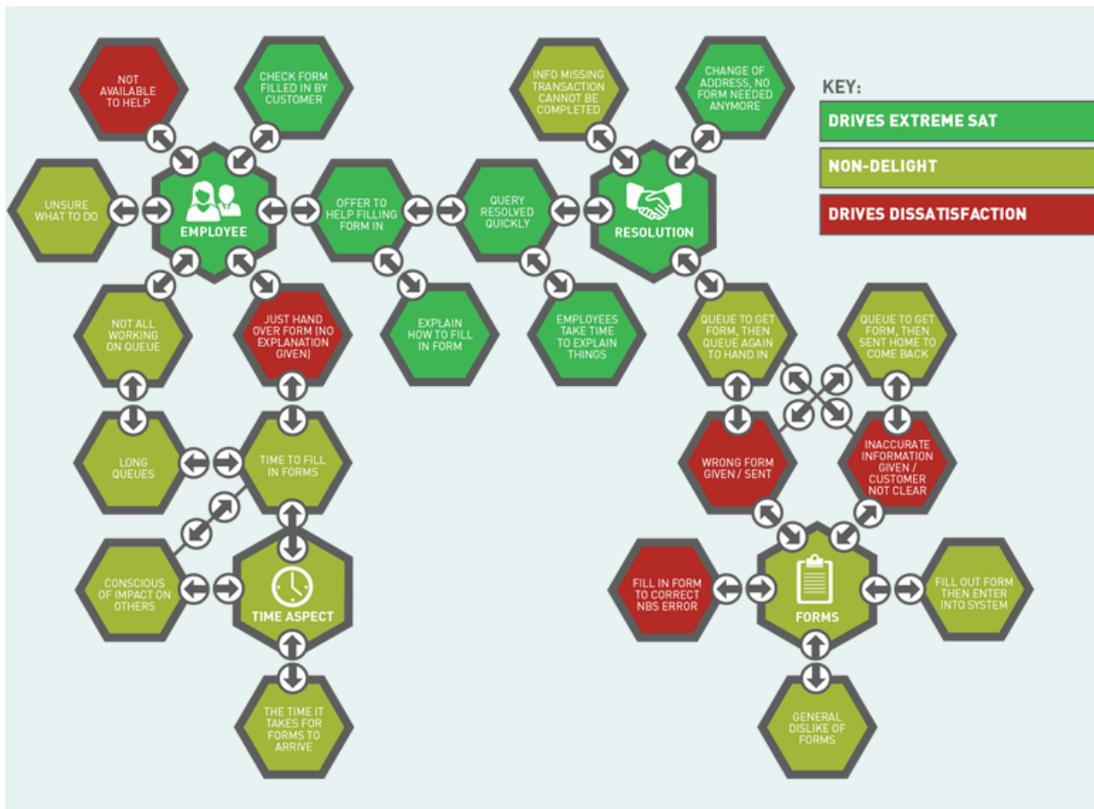
Text analysis is now recognised as an essential element of any programme. However, the challenge many organisations encounter is when they run text analysis in parallel with their priority / drivers analysis (as outlined above in level 3). This often leads to divergent 'stories' emerging, with quantitative multivariate analysis suggesting one set of statistically-derived priorities and text analysis showing a prevalence of differing themes.

To address this, KPMG Nunwood has developed an approach to run a range of text analysis techniques sequentially with the outputs of drivers analysis. In essence, the statistical priority determines how the text is analysed. This allows the priorities (tier 3) to show where action is needed and the root causes analysis (tier 4, this section) to highlight how the business needs to respond. This is achieved by development of a codeframe that allows text analyses to be grouped around each of the quantitative attributes, any of which could potentially emerge as a priority. If and when these variables are flagged as priorities (e.g. product knowledge of branch staff) the text is then interrogated using specific search parameters around this variable.

This allows an array of highly focused analyses to be carried out, focused on a specific priority. This is conducted by an analyst using tools such as Semantria, Clarabridge and SPSS. The results can be displayed in a number of ways:

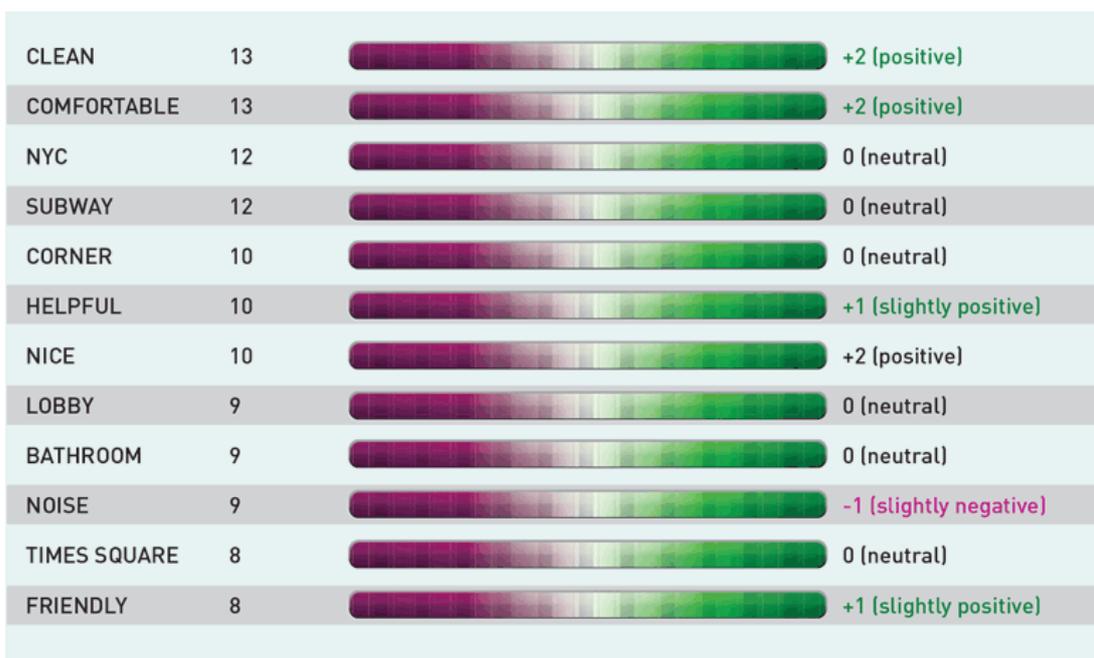
Example 1:

Multiple cause diagram created by root cause analysis



Example 2:

Sentiment analysis of themes within proirity



(Important Note: As well as being created by an analyst and presented back to the business via workshops, deep dives and analyst reports, text analysis outputs can also be systematically delivered via the Fizz portal. A separate overview of how this works is available on request.)

Finally, business diagnostics also facilitates links out to other work, e.g.

Global benchmarking

– via KPMG Nunwood’s Customer Experience Excellence Centre, we draw on quantitative and text analyses of over 750 brands worldwide. If proxy variables are adopted as secondary KPIs, we can link the Centre’s work directly to the relationship programme, allowing relevant best practice examples to be precisely identified and applied.

Experience redesign

– root cause diagnostics (tier 4) will show whether a process or part of the experience is fundamentally ‘broken’ or failing to deliver against expectations. This then sets an agenda for experience redesign activity – prioritising change around customer need, as opposed to subjective opinion. KPMG Nunwood’s qualitative specialists work directly with the quantitative analyses to design this work.

Service evaluation

– sometimes it is useful to audit a bottom performing priority in even more detail. In this instance, business diagnostics can guide where it is appropriate to deploy service evaluation techniques (e.g. mystery shopping). This precision guidance alleviates the need to deploy them broadly, saving considerably on time and budget.