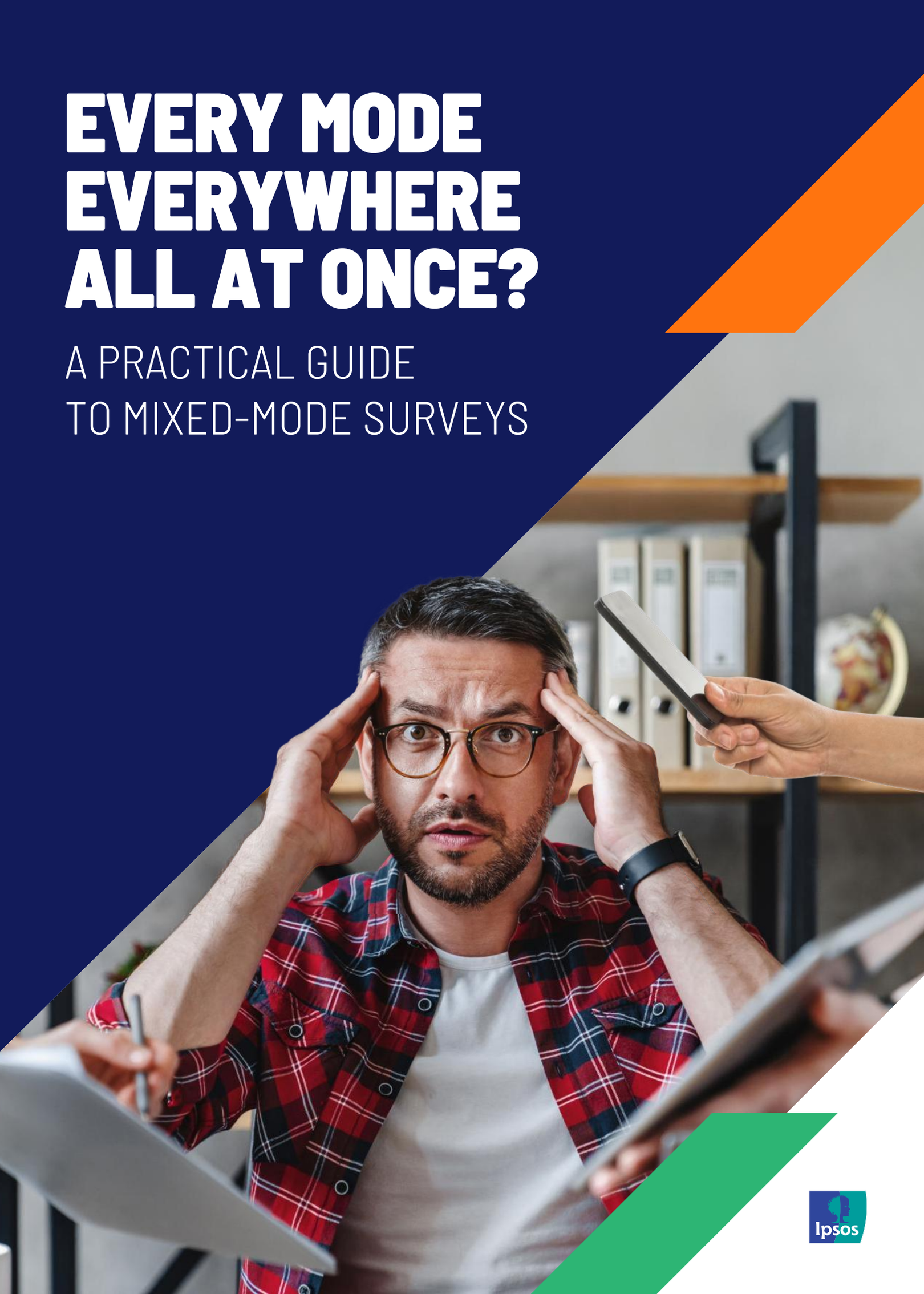
EVERY MODE EVERYWHERE ALL AT ONCE?

A PRACTICAL GUIDE TO MIXED-MODE SURVEYS



Introduction

In recent years there has been a notable rise in the proportion of government and academic surveys that use multiple modes of data collection. These include surveys that produce official statistics, such as Sport England's Active Lives Adult Survey and NHS England's GP Patient Survey.

This trend applies to newly developed surveys that have adopted a mixed-mode design from the outset (such as the Civil Aviation Authority's Aviation Noise Attitudes Survey); surveys that have transitioned from a single-mode to a mixed-mode approach (such as the Food Standard Agency's Food and You 2 Survey); and existing mixed-mode surveys that have incorporated an additional mode (such as the Care Quality Commission's NHS Patient Survey Programme).

In each of these contexts it is vital to consider the benefits, limitations, and practical implications of combining modes, especially where a change may affect established trend data.

Ipsos has extensive experience of designing and delivering mixed-mode surveys, including all those just cited. Complementing this practical experience, our Survey Research Methods Centre has contributed to the methodological evidence base of mixed-mode approaches.

This includes our co-authored report with Professor Peter Lynn (Professor of Survey Methodology at the University of Essex's Institute for Social and Economic Research) to inform the Scottish Government's Long-Term Survey Strategy, for which we interviewed many survey methodologists, commissioners, and practitioners, as well as experimental work, such as exploring a change of mode for the Department for Education's Childcare and Early Years Survey of Parents.

As surveys adapt to technological change, tighter budgets, and evolving respondent expectations, mixed-mode designs have become more common — but also more complex. This guide draws on both our practical experience and methodological insight to help survey commissioners and users navigate this shifting landscape with confidence.

What are mixed-mode survey designs, and why do they matter?

What are survey modes?

High-quality random probability surveys can collect data in various ways, or "modes". The most common modes involve interviewers administering questionnaires **face-to-face** or by **telephone**, or respondents completing questionnaires themselves **online** or on **paper**.

Other modes, like video interviewing or passive data collection, are less common and tend to support these main modes.

In the UK, large-scale social surveys have traditionally collected data via face-to-face interviewing, but sometimes by telephone. Over the past several decades technological and societal changes, as well as budgetary considerations, have seen survey commissioners seek to deviate from this model. For instance, interviewer-administered surveys have experienced gradually falling response rates, the rise of households without landlines has posed challenges for telephone sampling, while the growth of the internet has made online questionnaires widely accessible and relatively cheap to administer.

Technological advances have also made it easier for survey contractors to manage their samples and data in the service of more than one mode. This has led to the rise of '**mixed-mode**' designs.

Here, modes might be administered:

- '**concurrently**' (with more than one mode available from the outset), or
- '**sequentially**' (with one mode, usually the cheapest, offered first, with an additional mode or modes introduced as fieldwork progresses).

In practice, "**push-to-web**" designs have become the most common mixed-mode design. Push-to-web involves an offline approach - most often a letter posted to a sampled address – that invites recipients to complete an online questionnaire. An incentive, such as a £10 gift voucher, is generally offered. Non-respondents are usually given the option of completing via an offline mode, most often via the inclusion of a paper questionnaire in a reminder mailing.

The rise of mixed-mode survey designs poses both challenges and opportunities for survey commissioners. For instance, some must weigh up the pros and cons of sticking with a single-mode face-to-face design against the pros and cons of introducing a new mode, or of transitioning to a new mode or mix of modes entirely. Others initiating a new survey must consider whether an entirely self-administered approach is appropriate or whether interview administration will be necessary, given the topic and the amount and complexity of data required.

How to think about survey modes

Our interviews with survey commissioners and methodologists made one thing clear: deciding when and how to mix or change survey modes can seem like a minefield, with more questions than answers being generated at every turn. This is not helped by the fact that decisions are generally made against the backdrop of conflicting pressures: budget holders demand cost savings, survey users seek consistent and more detailed data, and statistical accreditation bodies require evidence that certain quality standards are met.

Ultimately, changing or mixing modes is about making trade-offs, and explaining and justifying these to stakeholders. Explanations must acknowledge that many stakeholders are not survey methodologists, and that key terminology is often used loosely or inconsistently. For example, the term "mode effect" can be used in many different contexts. So, what is the best way to think about survey modes, in the interests of making these trade-offs, and communicating them clearly and unambiguously?

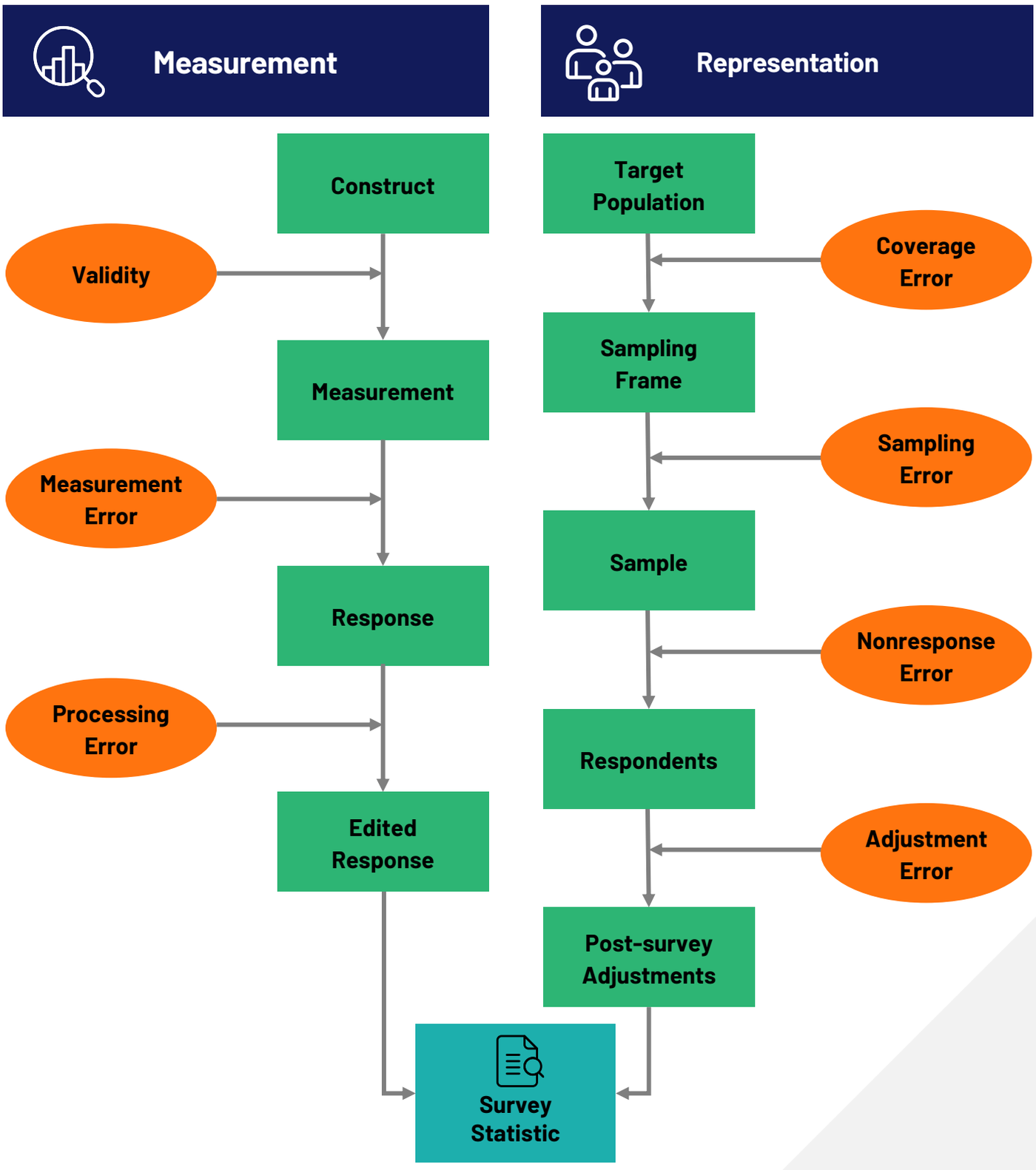
> 'Trade-off' is the right term ... every design decision involves a trade-off
>
> **Expert interviewee**

We suggest starting with the **Total Survey Error** (TSE) framework[1], which is widely used by survey methodologists to assess survey quality. The TSE divides survey errors into a **representation** and a **measurement** arm, which together highlight that survey quality depends both on *who* you interview, and *how* you interview them. Specifically:

- The **representation arm** describes how well one's achieved sample represents the target population. Of most concern here is **nonresponse error**, which occurs when some of those invited do not participate, (i.e. the response rate is less than 100%). Problems arise when respondents differ in meaningful, survey-relevant ways from nonrespondents. Here, nonresponse error leads to **nonresponse bias**. The extent of the bias will vary across survey estimates, with questions most strongly associated with the likelihood of response showing the greatest bias.
- The **measurement arm** describes how well the questionnaire captures views, behaviours and experiences of the target population. Of most concern here is **measurement error**, which occurs when a respondent provides an inaccurate answer. This might be due to a poorly designed question, a lack of effort from the respondent, intentional misreporting, or for a range of other reasons.

1. Groves, R. M., Fowler, F. J., Jr., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2009). Survey methodology (2nd ed.). Wiley.

The Total Survey Error Framework



CASE STUDY: MILLENNIUM COHORT STUDY

Ipsos manages fieldwork for the Millennium Cohort Study on behalf of the Centre for Longitudinal Studies at University College London. This is a cohort study of children born in the UK between 2000 and 2002. A key challenge in the latest wave was maintaining high participation rates as cohort members transitioned into young adulthood.

To address this, Ipsos piloted an innovative "online-first" approach to data collection. Prior to the face-to-face interviews, cohort members were invited via email and SMS to complete the survey online. This strategy proved highly successful, with strong uptake among the young adults who appreciated the convenience and flexibility of online participation. Subsequent face-to-face fieldwork focused on those less engaged or unable to participate online, maximizing the overall response rate and representation across the cohort.

So how does this theory relate to survey modes in practice? A key insight is that **no single survey mode is perfect**. Instead, each mode has an '**absolute mode effect**' that describes how closely the data collected match reality. This absolute mode effect is made up of a **representation effect**[2] (the impact of the mode's influence on who responds) and a **measurement effect** (the impact of the mode's influence on *how* they respond).

As an example, consider a face-to-face survey in which interviewers ask respondents how many units of alcohol they drank last week. The survey has a high response rate, with an achieved sample that closely resembles the population, so the representation effect is small. But respondents tend to underreport their alcohol consumption to present themselves in a positive light to the interviewer, and so the measurement effect is large.

Now consider the same question in a push-to-web survey. The survey has a lower response rate, with an achieved sample that under-represents those from less affluent backgrounds, and so the representation effect is larger. But without an interviewer present, respondents are more comfortable reporting their actual alcohol consumption, and so the measurement effect is smaller.

These two surveys will produce different estimates of alcohol consumption, and this difference will often be referred to, simply, as "the mode effect". Understanding that this "mode effect" describes the difference between two absolute mode effects, each of which has a representation and a measurement element, is key to thinking through how to mix and change survey modes.

What are the pros and cons of mixing survey modes?

Given an unlimited budget, most commissioners of large-scale social surveys would be likely to opt for a single-mode face-to-face design, perhaps with a self-completion section for more sensitive content, and with an incentive to maximise response rates.

This approach has many benefits. Mode effects are avoided. Nonresponse bias is minimised. Within-household selection of individuals can be conducted accurately. The questionnaire can include relatively complex or demanding questions with interviewers assisting as required. Interviewers can build rapport and keep respondents motivated across a relatively long interview. And additional data can be collected, such as interviewer observations, biodata, and cognitive assessments.

2. Mode-specific representation effects are often referred to as 'mode-specific selection effects'

But in reality, budgets are not unlimited. Mixed-mode designs which incorporate self-administered survey modes allow overall survey quality to be maximised for a given budget.

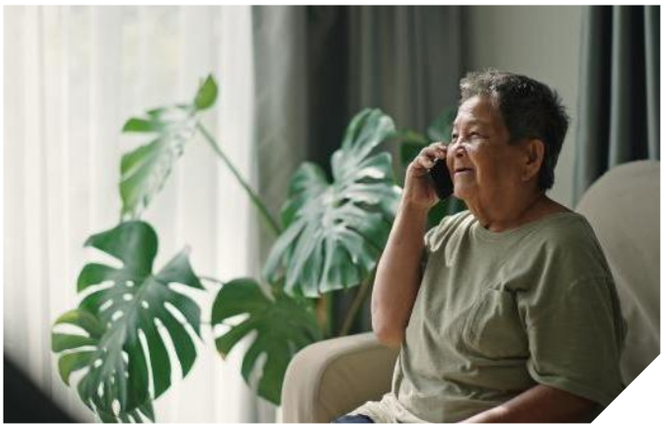
Some benefits of mixed-mode designs can include:

Cost savings and resource efficiency

Self-completion modes are far less costly than their interviewer-administered counterparts. Designs that predominantly make use of online and paper modes will be cheaper to administer.

Larger and more flexible sample sizes

Designs that predominantly use self-completion modes, particularly online, allow for larger sample sizes for similar costs. This improves the precision of estimates, allows for more detailed sub-group analyses, and gives more opportunities to modularise questionnaires to cover more topics. Sample sizes are also more flexible, as they are not dependent on interviewer panel size and availability.



Improved coverage and accessibility

Mixed-modes designs can help to reach different segments of the population, making the survey more inclusive. They can also help to ensure that accessibility features are available to those who need them.

Potential to increase response rates

Mixed-mode designs can improve response rates under certain circumstances by providing modes that appeal to different elements of the population. For instance, mixed-mode push-to-web designs that allow completion online and by paper fare better than designs that only allow completion online. However, this is no substitute for the persuasive powers of an experienced interviewer, and single-mode face-to-face surveys usually enjoy higher response rates.

More timely data

Mixed-mode surveys that do not include an interviewer-administered mode are quicker to conduct, as fieldwork is not contingent on interviewer training and availability. A push-to-web survey might spend six to eight weeks in the field, compared to around six months for its face-to-face counterpart.

Resilience

Using more than one mode can increase a survey's resilience in the face of unforeseen external threats, such as pandemic restrictions on face-to-face interviewing, or postal strikes.

Some downsides of mixed-mode designs can include:

Lower response rates

Self-completion modes often yield lower response rates than interviewer-administered modes, increasing the risk of less representative samples and nonresponse bias.

Mode effects from differences in measurement

Different modes affect how respondents answer questions, particularly sensitive, complex, and attitudinal questions. This can reduce data quality in mixed-mode surveys, so careful thought must be given to question design to minimise these biases. In some cases, it may be necessary to use a single mode for certain questions. For example, in a mixed-mode online and face-to-face survey, interviewers might ask face-to-face respondents to answer sensitive questions privately, either by completing an online module or by entering their responses directly into the interviewer's laptop.

Sacrifices in questionnaire content and detail

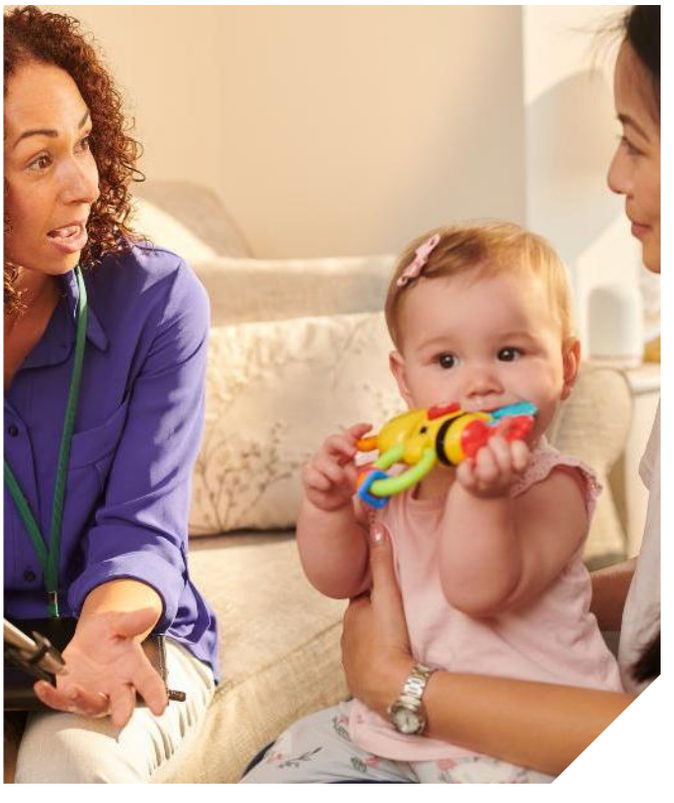
While face-to-face surveys of an hour or longer are common, with no interviewer to encourage completion self-administered questionnaires tend to be no longer than 20 or 30 minutes. This has implications for the amount of data that can be collected. Where paper questionnaires are used, there is little scope for complex routing instructions, and the questionnaire often needs to be shortened and simplified.

Complexity of design and implementation

Mixed-mode surveys can involve complex decisions about mode sequencing, invitation methods, and follow-up strategies, can be resource intensive in terms of set-up, sample management and data processing, and consequently can be more prone to error.

Increased short-term costs

Mixed-modes designs can require a substantial investment of time and budget for development and testing work, especially when the design of an existing survey is changed.



CASE STUDY: UK BUSINESS DATA SURVEY

Ipsos was commissioned by the Department for Science, Innovation and Technology (DSIT) to conduct the 2024 UK Business Data Survey. This survey aims to enhance the government's understanding of how UK businesses use data, helping to foster a data-driven economy.

Recognising the challenge of reaching both sole traders and large corporations, a mixed-mode (telephone and online) approach was adopted. Online surveys allowed efficient data collection from often hard-to-reach micro-businesses and sole traders, while CATI secured higher response rates and enabled more complex questioning for larger businesses. Critically, CATI participants could opt for online completion, capturing experiences from those who preferred to take part online.

What does a change of mode mean for trend data?

Changing or mixing survey modes can disrupt the continuity of trend data, a cornerstone of many longstanding large-scale social surveys. Indeed, often data users are less interested in the absolute numbers of respondents who feel or behave a certain way than they are in how these numbers are changing over time.

So, how should one approach the issue of trend data when considering a change of survey mode?

Understand how your data may be affected

A change of mode can disrupt trend data due to both who takes part (representation) and how they respond (measurement). These "mode effects" will affect some questions more than others. Here are three areas to focus on when considering the potential impact on your data:

Who is covered (representation)

Some modes will exclude certain individuals. For instance, an online-only survey will exclude those without internet access, and a telephone-only survey will exclude d/Deaf individuals. Sometimes the sampling frame itself will lead to exclusions, such as those experiencing homelessness or living in communal establishments when the Postcode Address File is used for address-based sampling.

Mixed-mode designs can help to mitigate the risk of exclusion by offering routes to participation, but in doing so can affect the profile of the responding sample and disrupt trend comparability.

Who responds (representation)

Even when people are not excluded, the available mode(s) will influence who chooses to participate. For example, face-to-face surveys may attract those who are more often at home, as well as initially reluctant respondents for whom only a determined and persuasive interviewer can tip the balance in favour of participation.

Online surveys might appeal more to younger, digital native individuals, while paper surveys may hold greater attraction for older individuals who are most comfortable with traditional methods.

Telephone surveys might appeal to those with limited literacy or visual impairments, but who would prefer not to let an interviewer into their home.

As with coverage considerations, these differences can affect the responding sample and disrupt trend data.

How people respond (measurement)

Each survey mode has its own profile in terms of a range of characteristics: privacy, interaction, assistance, presentation, computerisation, pace, and scheduling. Each of these can affect how people formulate and provide their answers.

Differences tend to be starkest between interviewer-administered and self-administered modes. For instance, interviewers can provide more assistance and can keep respondents engaged but might elicit more biased answers if respondents worry about how their answers will make them look (social desirability bias).

When "Don't know" and "Prefer not to say" response options are explicitly presented (as with self-administered modes) they will generally be chosen far more often than when they are only accepted when spontaneously volunteered (as with interviewer-administered modes).

For questions with long answer lists, modes using a visual presentation (face-to-face with showcards, online, and paper) can lead to "primacy effects" where initial options are chosen more often, while aural presentations (telephone) can see "recency effects" where the final options are chosen more often.

In general, these measurement-related mode effects are smallest for simple, factual questions, and greatest for complex, sensitive, and attitudinal questions.

Appreciate that disruption may be inevitable

A change of modes almost always affects trend data. Each mode — face-to-face, online, telephone, and paper — has its own associations both with *who* responds (representation) and *how* they respond (measurement), and consequently for the accuracy of the survey estimates.

If maintaining the current design is not an option, one should accept that a break in the time series is likely necessary, and this should be communicated clearly and transparently to stakeholders and data users.

In doing so, it can be helpful to make the following points:

- Even with a static design, consistent trend data is not wholly guaranteed. For instance, respondents are increasingly choosing to complete push-to-web surveys on smartphones, rather than on desktop computers or on paper. Social or cultural changes may also require surveys to change or update their questionnaires, which can affect comparability with past data.
- If a change to a new mode design is inevitable at some point in the future, it is better to make the change sooner rather than later so that a new trend series can be established. While retrospective comparability will be compromised, prospective comparability will be secured.
- Many surveys which have changed modes have broken their time series without damaging their reputation or their value to data users. Examples of such surveys which Ipsos has successfully transitioned include the Active Lives Adult Survey for Sport England (which moved from a telephone to a push-to-web design) and Food and You 2 for the Food Standards Agency (which moved from a face-to-face to a push-to-web design).

Test and compare before committing

Parallel testing - fielding the old and new designs concurrently – allows analysis to assess how a change of mode affects survey estimates. It means that differences can be attributed to the survey design, rather than to any underlying changes in the population over time.

This evidence strengthens the case for maintaining or changing the survey design and helps to inform stakeholder discussions.

CASE STUDY: ACTIVE LIVES ADULT SURVEY

Sport England commissioned Ipsos to transition the Active People Survey, a random digit dial (RDD) telephone survey of adults in England measuring sport and physical activity, to a push-to-web design (online then paper). The shift improved coverage, which was poor due to rising households without landlines, and led to cost efficiencies. However, it required a break in the trend data. The new survey was renamed the Active Lives Adult Survey.

Ipsos has continued to refine the survey's design, driving further improvements in data quality and respondent experience. Notably, introducing QR codes on survey invitations has boosted online participation, making participation more convenient and accessible. This ongoing commitment to methodological innovation has ensured that the survey delivers robust data under a cost-effective design.

Avoid reliance on statistical adjustments

While tempting, attempts to calibrate survey data to account for a change in mode pose substantial challenges.

Weighting or statistical modelling approaches cannot fully account for mode-specific biases, especially where representation and measurement effects overlap. Adjustments can be complex and resource intensive to perform and can place additional burdens on data users. Adjustments can obscure the appropriate interpretation of the data, leading stakeholders to report results inaccurately, or even lose confidence in the findings.

Instead of chasing statistical fixes, it is important to focus on transparency: document the changes to the design, explain what this means for trend data, and let the new data stand on its own merits.

Look for discontinuities at the question level

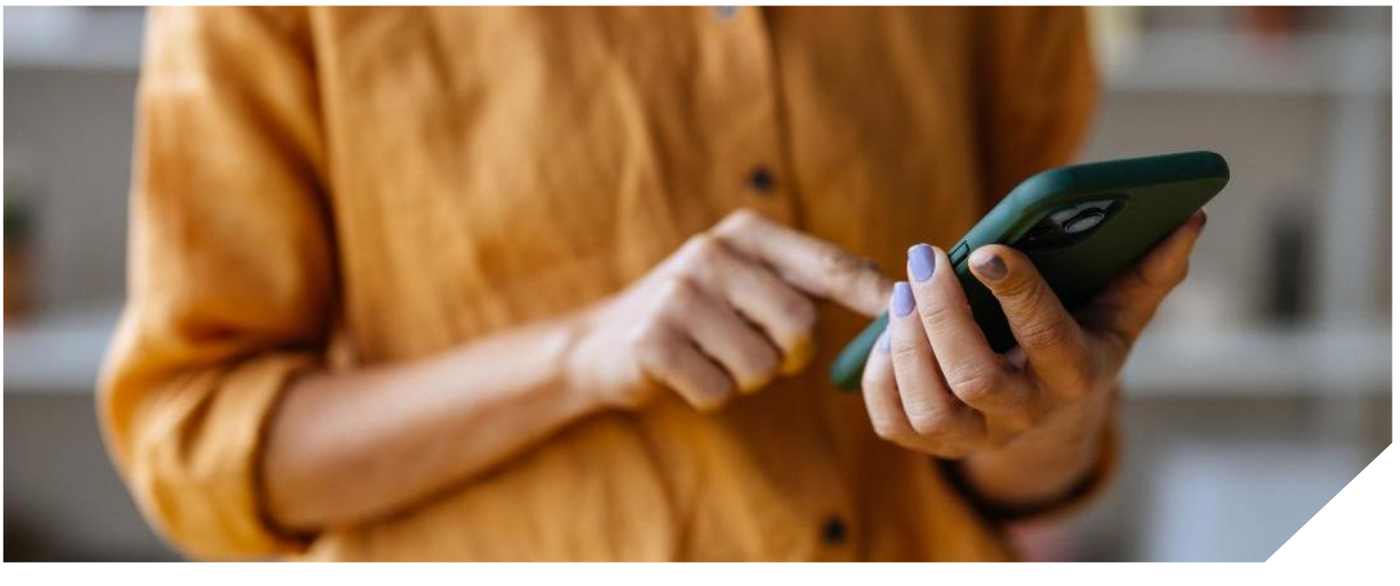
Mode effects do not influence all questions equally. From a measurement perspective, sensitive questions may elicit more honest answers online due to reduced social desirability pressures, while complex or cognitively demanding questions may yield lower quality data without an interviewer to offer clarification and encouragement. From a representation perspective, questions related to civic engagement - such as volunteering behaviour – may exhibit especially high non-response bias when response rates are low (and less when they are high) since individuals who are more socially engaged are also more inclined to participate in surveys.

This means that a change of mode is likely to affect some survey estimates a great deal, and others hardly at all. When planning to change or add a mode, it is helpful to review key survey items and anticipate where shifts are most likely to occur. These expectations can be tested against the data collected under the new design. If questions show shifts contrary to expectations, this may point to questions that respondents are not interpreting as intended, providing an opportunity to improve the questionnaire.

Tell data users exactly what the change means for them

It is important that data users understand exactly what the change of mode design means for them, in terms of how they should go about analysing, interpreting and acting on the survey data. The guidance might take one of the following forms, depending on the nature of the change to the survey design:

- Data are not directly comparable with previous waves. Here, it is often simplest to change the name of the survey entirely, to limit the risk of comparisons being made.
- Comparisons with previous waves are to be made only for certain, specified questions. This might be appropriate where parallel testing work has found that certain survey estimates are very similar under both designs, and where there are no strong theoretical reasons to believe that the estimates should differ. Even so, it is good practice for these comparisons to note explicitly the change to the survey design.
- That comparisons with previous waves should focus only on the direction of the trend — whether it is rising, falling, or stable — rather than on point-estimates themselves. If the trend continues in the same manner under the new design, ignoring any step change at the point of transition, this is indicative of an underlying trend in the population.
- That comparisons with previous waves are to be made as usual. This might be appropriate where the change to the mode design is minor in nature, and where there is no evidence of data shifts attributable to the change of approach. Nevertheless, it is good practice for the change to the survey design to be noted explicitly in outputs.



CASE STUDY: CQC NHS PATIENT SURVEY PROGRAMME

Ipsos was commissioned to transition the NHS Patient Survey Programme for the Care Quality Commission (CQC) from a paper-only design, to a push-to-web design (sequential online then paper). This involved running parallel pilots to understand the impact of changing mode on the survey response rates, demographic profiles of respondents, and survey estimates, for the five different surveys included in the programme.

The pilots found certain differences between populations. While the Inpatient Survey, covering adults who had stayed overnight in hospital, had to break trends due to consistently different responses, the Maternity Survey, covering new mothers, found no impact on trends from the change of design.

Four keys to mixed-mode success

Mixing survey modes is fraught with potential pitfalls. Our experience of designing mixed-mode surveys, and our interviews with practitioners and methodologists working in this area, has led us to several high-level recommendations for those who are embarking on this journey.

1

Involve stakeholders throughout. This is particularly important if you are considering changing an existing survey. All relevant parties – including policy teams, analysts, academics, third-sector organisations, and fieldwork contractors – should be consulted from the outset and given the opportunity to put forward their views.

Methodological expertise will vary substantially across stakeholders. This means that the practical implications of different design decisions should be clearly explained, for instance, by describing how the survey outputs and the interpretation of the data might change. Publishing development and testing work in a timely and accessible manner and seeking feedback on it is also important.

> If you think you have communicated well enough, you haven't. If you are changing a survey that somebody relies on, you cannot ever think that you have engaged enough
>
> **Expert interviewee**

2

Stay focussed on the purpose. Surveys often include or move to mixed-mode designs to reduce costs, but there may be other drivers such as the desire for a larger sample size, more frequent or timely data, more representative samples, more accurate data, or the collection of additional types of data. The ultimate goals should be kept in mind throughout, or the focus is likely to drift, making decisions very difficult. It is useful to divide the goals between those that are desirable, and those that are essential.

Asking stakeholders at the outset how they will use the survey, and what their data needs are, is also a useful exercise as it can suggest whether more fundamental changes to the survey's design, remit, and scope might be required.

3

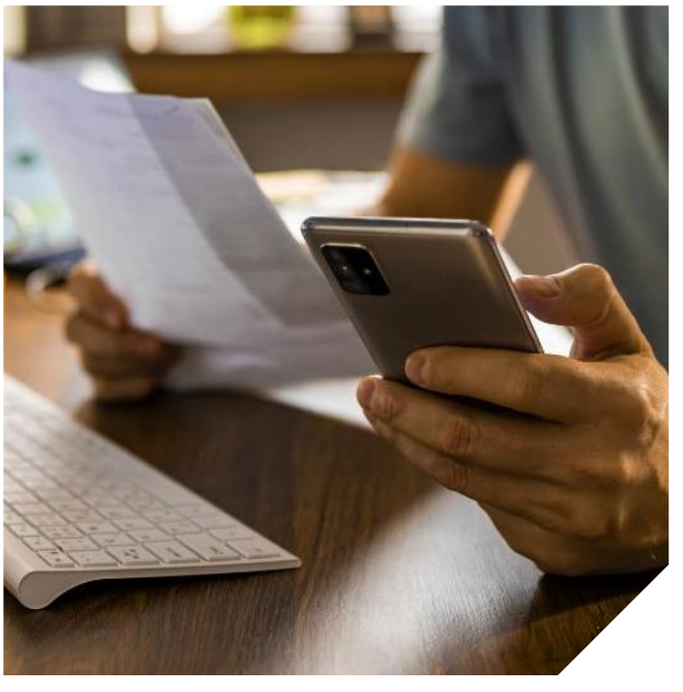
Plan for development, piloting and testing work.

It can be easy to underestimate the challenge of creating a new mixed mode survey, and ensuring the approach is best suited to the audience and data need. Changing a survey's mode design should also not be taken lightly, and it is common for large-scale surveys to transition to a new design over the course of several years, during which time development, piloting and testing work is carried out. The sudden mode changes enacted during the COVID-19 pandemic were born of necessity and are exceptions to this general rule.

This work can include exploring the feasibility of different sampling strategies, conducting cognitive testing to develop questionnaire content, testing response rate assumptions and experimenting with different incentive strategies, and fielding split-ballot experiments to understand how different question formulations affect survey estimates. This might also involve consulting with data users to understand what their data needs are, followed by development and testing work using a **Respondent Centred Design** approach, to ensure that questions are both understood and answered as intended[3].

As previously mentioned, the 'gold standard' approach when moving or adding modes is to conduct a parallel run of the existing and the new design. This approach is costly however and may not be necessary especially where there is general agreement for a new time series to be initiated.

> Longer and slower is better!
>
> **Expert interviewee**



3. Wilson, L., & Dickinson, E. (2021). Respondent Centred Surveys: Stop, Listen, and Then Design. SAGE.

4

Strive to future proof the survey design. This means thinking through whether the design is likely to remain fit for the medium to long-term, how it might be vulnerable, and what mitigation strategies are available.

Consider the sample frame's longevity - is it likely to remain available for use, and to continue to provide good coverage of the survey population? How resilient is the budget, and will it absorb any sudden shocks such as rising postage, printing, or interviewer costs?

How will the survey fare given the ever-increasing tendency for respondents to complete surveys online, and on smartphones in particular? Might there be ad-hoc or special requirements for given survey years – for instance, increases to the sample size, sub-group boosts, or new data collection instruments – and if so, will the design have the flexibility to accommodate these? What disruption-proof measures can be put in place, reflecting on COVID-19's impact on face-to-face interviewing, and how postal strikes might threaten push-to-web approaches? Might there be a need to link data to administrative datasets and will this be possible?

Scenario planning and regular design reviews which consider these points can ensure that the survey is resilient, responsive, and enjoys a long future providing valued data which has a meaningful impact.

About Us

In our world of rapid change, the need for reliable information to make confident decisions has never been greater. At Ipsos we believe our clients need more than a data supplier, they need a partner who can produce accurate and relevant information and turn it into actionable truth. This is why our passionately curious experts not only provide the most precise measurement, but shape it to provide a True Understanding of Society, Markets and People. To do this we use the best of science, technology and know-how and apply the principles of security, simplicity, speed and substance to everything we do. So that our clients can act faster, smarter and bolder. Ultimately, success comes down to a simple truth: You act better when you are sure.

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