Pre-analysis plan:
ASIC ad-on insurance information sheet survey experiment

Note: this document will be pre-registered prior to trial launch and then published once the trial report is released. Therefore it should be cleared by relevant partners before finalisations.

Policy problem, trial aims and research question

Add-on insurance products are sold at the point of sale with some other product (for example, travel insurance sold at the point of buying a flight). Not all add-on insurance products are good value for money, and the **Australian Securities and Investments Commission (ASIC) is seeking to make the add-on insurance market more competitive by better enabling consumers to identify and reject poor quality products**, or seek more competitive alternatives from other providers. ASIC hopes that by better informing and empowering consumers, it will force providers to improve the competitiveness of their products.

BETA is working with ASIC to develop a key information fact sheet to help consumers identify low-value add-on insurance products and make a decision about those products that best reflects their needs. The aim of this trial is for BETA to be able to make recommendations to ASIC about the design of the information sheet.

The primary research question is: **Does an information sheet reduce sales of add-on insurance? If so, does the colour of the sheet and/or information about the quality of the product (provided by the 'claims ratio') change the rate of sale?**

Outcome measures

Primary outcome measure

The primary theoretical outcome measure is **the sale of add-on insurance**. In this trial, the primary outcome measure is operationalized as **self-reported "decision" to buy add-on insurance** (in a hypothetical scenario), where participants indicate either "yes, I would like to buy the insurance", or "no, I would not like to buy the

insurance" (0 = no, 1 = yes). From this binary measure we will calculate sample proportions.

Secondary outcome measure

ASIC is also interested in whether the information sheet will **encourage people to opt out of future sales/advertising** from the provider.

Because of this, we will also include and analyse responses to a secondary outcome measure: Participants **opting out** of receiving further advertising about the add-on insurance, by selecting an "opt out" box on the information sheet (binary: 0 = no, 1 = yes). (Note that participants who "opt out" in this manner are still offered add-on insurance in the framed field experiments; that is, they still complete the primary outcome measure.)

Interventions

Participants will complete an online survey with elements mimicking a real-world scenario, in which they purchase a primary product (e.g., plane ticket, mobile phone) and are shown an advertisement for an add-on insurance product (e.g., travel insurance, extended warranty, consumer credit insurance) towards the end of the purchase. In the treatment conditions, participants are shown the ASIC information sheet immediately before the sale of the add-on product. **The information sheet is the key intervention.**

This study uses a 2x3 factorial design: We will have two independent variables (IVs) creating six versions of the information sheet. In addition, we have a no-information-sheet control condition.

IV 1: Colour of information sheet. Participants will receive either a blue information sheet (education condition), or a red information sheet (warning condition).

IV 2: Claims ratio. The information sheet will either show *no* claims ratio for the add-on product, or it will show that the add-on product has a *low* claims ratio, or it will show a *moderate* claims ratio.

Table 1 below shows the notation used to refer to the seven individual groups formed from our two IVs plus the control condition. Since there are three separate scenarios, there are 21 cells in total in this design.

Table 1. 2x3 factorial design (excluding no-information sheet control group)			
		Type of Information Sheet	
		Warning (red): B0	Educational (blue): B1
Claims Ratio (CR)	No CR: C0	A1-B0C0	A1-B1C0
	Low CR: C1	A1-B0C1	A1-B1C1
	Moderate CR: C2	A1-B0C2	A1-B1C2

Note: A1 denotes groups receiving the information sheet; A0 denotes the no-information sheet control group.

Hypotheses

Primary hypotheses

H1: A1 < A0

Any information sheet (A1) will result in a smaller proportion of add-on insurance 'sales' than the control condition (A0).

H2: B0 < B1

Red information sheets (B0) will result in a smaller proportion of add-on insurance 'sales' than the blue information sheets (B1).

H3a: C1+C2 ≠ C0

H3b: C1 < C2

Information sheets with a claims ratio (C1 + C2, pooled) will result in a differed proportion of add-on insurance 'sales' than will information sheets with no claims ratio (C0). A low claims ratio (C1) will result in a lower proportion of add-on insurance 'sales' than will information sheets with a moderate claims ratio (C2).

We will test the three scenarios together (see also Method of Analysis). For H1, H2, and H3b we will conduct one-sided tests. For H3a we will conduct a two-sided test.

Secondary hypotheses

We also expect the information sheets to vary in the extent to which they result in participants opting out of further follow-up about the insurance product. The following hypotheses concern this secondary outcome measure.

H4: $B1 < B0$

Blue information sheets (B1) will result in a smaller proportion of participants opting out than the red information sheet (B0).

H5a: $C1 + C2 \neq C0$

H5b: $C2 < C1$

As above, information sheets with a claims ratio (C1 + C2, pooled) will result in a different proportion of people opting out than will information sheets without a claims ratio (C0). And, information sheets with a moderate claims ratio will result in a smaller proportion of people opting out than information sheets with a lower claims ratio.

We will test the three scenarios together (see also Method of Analysis). For H4 and H5b we will conduct one-sided tests. For H5a we will conduct a two-sided test.

Sample and randomization

This trial is an individually randomized framed field experiment. Participants will be recruited by Dynata from their participant pool, and will be between 18 and 65 years old. They will otherwise be representative of the Australian population on gender, age (three bands: 18-34, 35-49, 50-64), and location (by state).

In addition, we will have 'working in the insurance industry' as an exclusion criterion. We will set up this exclusion in collaboration with Dynata, so that our final sample consists of only people who do *not* work in the insurance industry.

Participants will be randomised to 1 of 21 cells (2x3 factorial + 1 control, x3 scenarios). Randomisation will be done by Qualtrics, by giving each participant a 1/21 probability of being assigned to each trial arm. This means that we may not get *exactly* the same number of people in each arm. However, Qualtrics also provides an option to "ensure even allocation", which ensures that the allocation does not become too uneven.

Sample size and power calculations

We plan to recruit a sample of 300 people per cell of the design, for a total of 6300 participants (see Table 1 above). We will average across all three scenarios. In all cases, we will use conventional thresholds for the significance level (alpha = 0.05) and desired power (80%). There are only seven key comparisons, so problems with multiple comparisons are less of an issue (and so we don't feel the need to lower

alpha for that reason). As each of the hypotheses involves comparing different subgroups of the sample, this means we will be able to detect the following effect sizes for each hypothesis.

H1: When comparing any information sheet (N = 5400) to no information sheet (N = 900), we will have 80% power to detect a small effect (Cohen's h = 0.09) in a one-sided test of proportions. This involves averaging across all scenarios.

H2 and **H4:** When comparing the blue information sheet (N = 2700) to the red information sheet (N = 2700), we will have 80% power to detect a small effect (Cohen's h = 0.07) in a one-sided test of proportions. This involves averaging across all scenarios.

H3a and **H5a**: When comparing any claims ratio (N = 3600) to no claims ratio (N = 1800), we will have 80% power to detect a small effect (Cohen's h = 0.08) in a two-sided test of proportions. This involves averaging across all scenarios.

H3b and **H5b:** When comparing a low claims ratio (N = 1800) to a moderate claims ratio (N = 1800) we will have 80% power to detect a small effect (Cohen's h = 0.08) in a one-sided test of proportions.

Trial Threats (Internal Validity)

Blinding

Participants will be aware that they are in an experiment, but they will not know which aspect of the hypothetical scenario forms part of the intervention. They will also not know what information the other cells of the experiment include. (They might be able to figure it out by the end, when we ask more questions about the information sheet, but this will be *after* they have responded to the outcome measures.) The intervention will be delivered online, and BETA will perform the analysis using a de-identified dataset.

Missing Data and Exclusions from Analysis

We will discard the data from any participant who drops out before completing the whole experiment. We expect minimal attrition for such a short survey. Participants will not be able to skip the main outcome (choice to 'purchase' the add-on insurance or not), but data from any participants who do not complete this question will be discarded. We are not planning to exclude any other participants.

Balance checks

We will examine the descriptive statistics of the sample (age, gender, location, income) for each cell of the experiment (pooling the three scenarios) in order to diagnose any potential problems with the randomisation.

Method of analysis

We will use ordinary least squares (OLS) regression to estimate our main effects. We will conduct these analyses on all three scenarios together (i.e., averaged across scenarios). Effect estimates, confidence intervals and *p*-values will be derived from three models, with the following specifications:

1) $y = \alpha + \tau_1 A + \epsilon$
2) $y = \alpha + \tau_2 B + \tau_3 C + \epsilon$
3) $y = \alpha + \tau_4 D + \epsilon$

Model 1 will be used to test H1. Here y is our primary outcome, α is the intercept, τ_1 is the main effect of an information sheet (vs none), and ε is an error term which picks up variance not explainable by treatment indicators.

Model 2 will be used to test H2 and H3a (and H4 and H5a). For this analysis, we will use only the subset of the data from the treatment conditions. Here y is our outcome, τ_2 is the main effect of a red (vs blue) information sheet, τ_3 is the main effect of any claims ratio (vs no claims ratio), and ε is an error term which picks up variance not explainable by treatment indicators.

Model 3 will be used to test H3b (and H5b). For this analysis, we will use only the subset of the data from the treatment conditions in which the information sheet included a claims ratio (C1 and C2). Here y is our outcome, τ_4 is the main effect of a moderate claims ratio (vs low claims ratio), and ε is an error term which picks up variance not explainable by treatment indicators.

We will also estimate a further model, which will be the same as the second model but will include the interaction term for $B \times C$. (Interactions between colour and claims ratio.) We do not expect interactions, and have not powered the trial to detect them. Any evidence of strong interaction effects will be incorporated into our interpretation.

Interpretation

The main question for ASIC is whether the information sheet can reduce sales of add-on insurance. We will make use of *p*-values associated with the coefficient on A to provide the first 'yes/no' answer to this question (across all scenarios). We will

make use of *p*-values to aid the interpretation of our results. However, we will consider the *p*-value together with effect size, robustness checks and design limitations to assess the strength of a finding. ASIC is likely to mandate an information sheet for the sale of add-on insurance regardless of what BETA finds. Varying the exact details of this information sheet therefore has a very low cost, and even small effects could be practically meaningful. The intervention is low risk, so there is little consequence in acting upon a false-positive result.

As ASIC's main question is about the effect of the information sheet, if we *do not* see a significant effect of an information sheet (compared to no information sheet, H1), we will conduct an equivalence test to assess or confidence in this null result. For this equivalence test, our smallest effect size of interest (SESOI) will be set to Cohen's $h = 0.09$. This effect size corresponds to a ~3-5 percentage points difference in proportions (of add-on insurance 'sales') across the two conditions.

The second question for ASIC concerns whether the colour of the sheet and/or information about the quality of the product (provided by the 'claims ratio') change the rate of add-on sale. Again, we will consider the *p*-value together with effect size, robustness checks and design limitations to assess the strength of this finding.

Further, we will conduct the same analyses on each scenario separately as well, in order to qualitatively comment on any differences in the effect of the information sheet (and features of the information sheet) across the scenarios.

We also have a few sources of qualitative data (about how participants perceive and interact with the information sheet) that will be used in interpreting the main effects and providing recommendations to ASIC. These are outlined in a separate note.

Pre-analysis plan commitments

No trial data have been collected and no analysis has been undertaken prior to the completion of this pre-analysis plan.

We will be transparent about, and provide justification for, any deviations (additions or omissions) from this plan.