Appendix A

A.1 Unstructured Sorting

Four researchers voluntarily participated as judges in the unstructured sorting exercise. The judges were given the 59 questions printed on cards. They were asked to sort the questions by placing related questions together and to suggest a label for each set of related questions. Besides helping to assess the fit between the constructs and questions, this exercise allowed the judges to identify ambiguous questions.

The four judges gave labels that closely corresponded to the names of the seven benefit constructs, indicating adequate content validity. Overall, they correctly placed 83% of the questions onto the intended benefit constructs (see Table A1). Several questions were reworded based on their feedback. 12 questions were dropped because at least two judges either placed the question onto an unintended benefit construct or thought the question was ambiguous. This resulted in a modified instrument with 47 questions.

Table A1 – Results of Unstructured Sorting Exercise

Target Category	Actual Category								Total Question	Hit Rate (%)
	MS	TS	SE	SA	PL	NV	AL	Other		
Monetary saving (MS)	**36**								36	100
Time saving (TS)		**24**							24	100
Self-enhancement (SE)			**25**		6			1	32	78
Social adjustment (SA)			12	**25**	1			2	40	63
Pleasure (PL)				1	**37**			2	40	93
Novelty (NV)					15	**25**			40	63
Altruism (AL)							**24**		24	100
Overall									236	83

A.2 Structured Sorting

Four researchers voluntarily participated as judges in a structured sorting exercise. This time, the judges were given the names of the seven benefit constructs together with the 47 questions

printed on cards. They were instructed to sort the questions by placing the questions onto the intended benefit constructs.

Overall, the four judges correctly placed 97% of the questions onto the intended benefit constructs (see Table A2). The agreement among the judges was excellent, with each pair of judges having a Cohen's Kappa of at least 0.89. This substantially exceeded the recommended threshold of 0.65 (Jarvenpaa 1989). Based on feedback from the judges, three questions were dropped because at least two judges either placed the question onto an unintended benefit construct or thought the question was ambiguous. This resulted in a 44-question instrument.

Table A2 – Results of Structured Sorting Exercise

Target Category	Actual Category								Total Question	Hit Rate (%)
	MS	TS	SE	SA	PL	NV	AL	Other		
Monetary saving (MS)	**32**								32	100
Time saving (TS)		**24**							24	100
Self-enhancement (SE)			**28**						28	100
Social adjustment (SA)			4	**20**					24	83
Pleasure (PL)					**31**		1		32	97
Novelty (NV)						**24**			24	100
Altruism (AL)							**24**		24	100
Overall									188	97

A.3 Exploratory Factor Analysis

The extracted factor matrix revealed that 12 questions did not load onto the intended benefit constructs. These questions were dropped and the remaining 32 questions were subjected to another exploratory factor analysis. The results showed seven distinct factors, each with an eigenvalue above one (Johnson and Wichern 1992), corresponding to the seven benefit constructs. These results further reinforced the conceptualization of the seven types of benefits listed in Table 1. All 32 questions loaded onto the intended benefit constructs, with all factor

loadings exceeding 0.50. Cronbach's alpha was computed for all the seven benefit constructs
(see Table A3).

Table A3 – Results of Exploratory Factor Analysis

Factor	Question	MS	TS	SE	SA	PL	NV	AL
Monetary saving (MS)	MS1	**0.74**	0.06	0.26	0.03	0.20	0.07	0.08
$\alpha = 0.86$	MS2	**0.70**	0.19	0.04	0.06	0.12	0.07	0.11
	MS3	**0.77**	0.24	0.03	0.11	0.16	0.03	0.13
	MS4	**0.81**	0.25	0.14	0.06	0.11	0.05	0.11
	MS5	**0.70**	0.38	0.06	0.10	-0.09	0.15	0.08
Time saving (TS)	TS1	0.20	**0.68**	0.17	0.04	0.15	0.03	-0.07
$\alpha = 0.82$	TS2	0.27	**0.72**	0.09	0.07	0.24	0.04	0.05
	TS3	0.24	**0.72**	0.07	0.13	0.24	0.07	0.04
	TS4	0.24	**0.74**	0.04	0.03	0.10	0.16	0.12
Self-enhancement (SE)	SE1	0.19	0.09	**0.71**	0.04	0.29	-0.01	0.15
$\alpha = 0.85$	SE2	0.14	0.08	**0.71**	0.07	0.15	0.23	0.17
	SE3	0.15	-0.02	**0.55**	0.40	0.19	0.21	0.18
	SE4	0.07	0.15	**0.71**	0.31	0.10	0.15	0.16
	SE5	0.06	0.13	**0.72**	0.38	-0.03	0.19	0.19
Social adjustment (SA)	SA1	0.08	-0.10	0.13	**0.57**	0.20	0.43	0.14
$\alpha = 0.74$	SA2	0.10	0.12	0.05	**0.67**	0.28	0.06	0.11
	SA3	0.04	0.02	0.28	**0.58**	0.17	-0.02	0.30
	SA4	0.09	0.10	0.18	**0.64**	-0.02	0.12	0.15
	SA5	0.02	0.20	0.40	**0.58**	-0.13	0.02	0.18
Pleasure (PL)	PL1	0.20	0.27	0.25	0.01	**0.66**	0.06	0.06
$\alpha = 0.80$	PL2	0.14	0.21	0.23	0.13	**0.69**	0.17	-0.04
	PL3	0.22	0.47	-0.06	0.25	**0.56**	0.04	0.05
	PL4	0.12	0.41	0.13	0.25	**0.57**	0.08	0.15
Novelty (NV)	NV1	0.14	-0.06	0.13	0.12	0.14	**0.68**	0.14
$\alpha = 0.56$	NV2	0.05	0.23	0.20	0.09	0.24	**0.59**	0.14
	NV3	0.09	0.30	0.18	0.10	-0.15	**0.62**	0.15
Altruism (AL)	AL1	0.10	0.02	0.12	-0.03	0.06	-0.02	**0.79**
$\alpha = 0.91$	AL2	0.14	0.02	0.12	0.06	0.05	0.08	**0.82**
	AL3	0.11	-0.03	0.05	0.23	0.11	0.12	**0.80**
	AL4	0.03	0.11	0.02	0.27	0.06	0.14	**0.76**
	AL5	0.06	0.01	0.18	0.12	-0.01	0.12	**0.80**
	AL6	0.08	0.09	0.16	0.18	-0.10	0.11	**0.80**
Eigenvalue		3.78	2.32	1.50	1.17	1.13	1.04	9.50
Variance explained (%)		11.8	7.3	4.7	3.7	3.5	3.2	29.7
Cumulative variance (%)		11.8	19.1	23.8	27.5	31.0	34.2	63.9

A.4 Repeated Unstructured Sorting

Four fresh researchers voluntarily participated as judges. The judges were given the 42 questions printed on cards. Like the previous unstructured sorting exercise, they were asked to sort the questions by placing related questions together and to suggest a label for each set of related questions. They also helped to identify ambiguous questions. As before, the four judges gave labels that closely corresponded to the names of the seven benefit constructs. Overall, they correctly placed 89% of the questions onto the intended benefit constructs (see Table A4).

Table A4 – Results of Repeated Unstructured Sorting Exercise

Target Category	Actual Category								Total Question	Hit Rate (%)
	MS	TS	SE	SA	PL	NV	AL	Other		
Monetary saving (MS)	20								20	100
Time saving (TS)	1	19							20	95
Self-enhancement (SE)			19	2	2	1			24	79
Social adjustment (SA)			3	21					24	88
Pleasure (PL)	1				21	1		1	24	88
Novelty (NV)		2			2	26		2	32	81
Altruism (AL)							24		24	100
Overall									168	89

A.5 Repeated Structured Sorting

Four more fresh researchers voluntarily participated as judges. The judges were given the names of the seven benefit constructs together with the 42 questions printed on cards. Like the previous structured sorting exercise, they were asked to sort the questions by placing the questions onto the intended benefit constructs. Overall, the four judges correctly placed 96% of the questions onto the intended benefit constructs (see Table A5). Again, the agreement among the judges was excellent, with each pair of judges having a Cohen's Kappa of at least 0.88.

Table A5 – Results of Repeated Structured Sorting Exercise

Target Category	Actual Category								Total Question	Hit Rate (%)
	MS	TS	SE	SA	PL	NV	AL	Other		
Monetary saving (MS)	20								20	100
Time saving (TS)		20							20	100
Self-enhancement (SE)			22	2					24	92
Social adjustment (SA)				24					24	100
Pleasure (PL)					24				24	100
Novelty (NV)			4			28			32	88
Altruism (AL)							24		24	100
Overall									168	96

A.6 Confirmatory Factor Analysis

Based on a procedure prescribed by Anderson and Gerbing (1988), the proposed measurement model comprising the seven benefit constructs was compared with an alternative measurement model comprising one benefit construct (i.e., including all seven types of benefits), an alternative measurement model comprising two benefit constructs (extrinsic and intrinsic benefits), and 21 alternative measurement models comprising six benefit constructs (obtained by combining two different benefit constructs at a time). Computed based on its parsimony and explanatory power for the data, each measurement model would have a chi-square goodness-of-fit statistic. Hence, the proposed measurement model could be compared with each alternative measurement model using a chi-square difference test. Table A6 reveals that the proposed measurement model with the seven benefit constructs could account for the data better than all the other competing measurement models.[1]

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[1] For brevity, comparison of the proposed measurement model with the 21 alternative measurement models comprising six benefit constructs had not been presented. All 21 chi-square difference test statistics were larger than 150 (with 6 degrees of freedom) and were statistically significant ($p < 0.01$).

Table A6 – Comparison of Proposed with Alternative Measurement Models

	Seven-Construct (Proposed) Model	Two-Construct Model	One-Construct Model
Chi-square statistic (degrees of freedom)	2338.98** (798)	7389.53** (818)	8762.06** (819)
Difference (degrees of freedom)		5050.55** (20)	6423.08** (21)

** p < 0.01

Since the chi-square goodness-of-fit statistic is sensitive to sample size (Bentler and Bonnet 1980), the proposed measurement model had to be evaluated using other fit indexes as well. The goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), non-centralized normed fit index (NCNFI), normed fit index (NFI), and non-normed fit index (NNFI) of the proposed measurement model were all way below the suggested value of 0.90 (Bentler and Bonnet 1980) (see Table 2). These fit indexes indicated that the proposed measurement model was not satisfactory and had to undergo re-specifications.

During re-specifications, the proposed measurement model was refined iteratively by dropping questions that had standardized factor loadings of less than 0.50, large negative shared standardized residuals with other questions measuring the same benefit construct (indicating overfitting), or large positive shared standardized residuals with questions for other benefit constructs (indicating underfitting) (Anderson and Gerbing 1988). The re-specification process continued until there were less than 5% of standardized residuals exceeding 2.58 (in absolute terms) (Hair et al. 1995). The final fit indexes are reported in Table 2.

Appendix B

The final instrument for consumer preferences comprises the following 26 questions.

Monetary saving (MS)

MS1   When Web sites collect my personal information, they should offer me monetary rewards.

MS2   Web sites that collect my personal details should offer me rebates.

MS3   If I give my personal particulars to Web sites, I should receive free gifts.

MS4   I should be given complimentary gifts when I provide my personal details to Web sites.

Time saving (TS)

TS1   I should gain convenience if I provide my personal information to Web sites.

TS2   For the same activities, I should be able to spend less time at Web sites that collect my personal details.

TS3   Web sites that collect my personal particulars should reduce my effort needed to perform the same tasks.

Self-enhancement (SE)

SE1   When Web sites collect my personal information, they should give me opportunities to make myself appear impressive.

SE2   Web sites that collect my personal particulars should offer me means to boost my self-confidence.

SE3   Web sites should have means to remind others about my abilities when they collect my personal particulars.

Social adjustment (SA)

SA1   I should be given opportunities to obtain things that my peers expect me to have when Web sites collect my personal particulars.

SA2   Web sites that collect my personal details should offer me things that like-minded others appreciate.

SA3   I should be given chances to interact with like-minded others when I provide my personal particulars to Web sites.

Pleasure (PL)

PL1   Web sites that collect my personal details should provide means for me to feel happy.

PL2   I should be given things that I enjoy when Web sites collect my personal information.

PL3   Web sites that collect my personal details should provide means for me to have fun.

Novelty (NV)

NV1   I should be given chances to gain new ideas when I provide my personal details to Web sites.

NV2   Web sites that collect my personal particulars should provide me with information that I am interested in.

NV3   When I give my personal particulars to Web sites, they should offer me options to perform tasks in different ways.

NV4   Web sites should expose me to more options of performing tasks when they collect my personal information.

NV5   Web sites should provide me with opportunities to learn when I give my personal particulars to them.

Altruism (AL)

AL1   Web sites that collect my personal details should let me fulfill my desire to assist others.

AL2   When Web sites collect my personal information, they should let me serve others.

AL3   I should be given opportunities to extend a helping hand to others when I provide my personal particulars to Web sites.

AL4   I should be given chances to improve the well being of others when Web sites collect my personal information.

AL5   When I provide my personal details to Web sites, they should let me help others achieve their goals.