

Exploratory factor analysis (EFA)

Exploratory factor analysis (EFA) is a statistical technique used to reduce data to a smaller set of summary variables and to explore the theoretical structure of the phenomena. In order to determine underlying dimensions of multi-item measurement scales used in this study, principal components analysis with varimax rotation using SPSS 20.0 was performed for all constructs in the analysis: Tangibility, Assurance, Empathy, Reliability and Responsiveness. Minimum eigenvalues of 1.0 were used to determine the number of factors for each scale and with loading above 0.40 on a single factor was retained. Initially, the factorability of 27 items was examined.

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Functional quality items	Component					% variance explained
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
Tangibility						
TG5	.875					64.25
TG4	.871					
TG2	.848					
TG7	.838					
TG1	.833					
TG3	.826					
Assurance						
AS1		.977				81.96
AS4		.975				
AS6		.949				
AS3		.946				
AS5		.935				
Empathy						
EM6			.819			87.87
EM3			.774			
EM5			.759			
EM4			.746			
EM1			.718			
Reliability						
RL6				.745		
RL1				.736		

RL4				.719		91.39
RL3				.718		
RL2				.709		
RL8				.688		
Responsiveness						
RE4					.756	94.10
RE2					.755	
RE5					.725	
RE1					.712	
RE6					.573	

- Exploratory factor analysis (EFA) is a statistical technique used to reduce data to a smaller set of summary variables and to explore the theoretical structure of the phenomena. In order to determine underlying dimensions of multi-item measurement scales used in this study. Six items with inputs from customers were loaded under Factor one with loading ranging from 0.826 to 0.875. Hence it is named as “Tangibility” for functional quality.
- Five items were loaded under Factor Two with loading ranging from 0.935 to 0.977. Hence it is named as “Assurance” for functional quality.
- Five items were loaded under Factor Three with loading ranging from 0.718 to 0.819. Hence it is named as “Empathy” for functional quality.
- Six items were loaded under Factor Four with loading ranging from 0.688 to 0.745. Hence it is named as “Reliability” for functional quality.
- Five items were loaded under Factor Five with loading ranging from 0.573 to 0.756. Hence it is named as “Responsiveness” for functional quality.

Table 2: Eigen values in the Functional Quality (n=43)

Factors	EIGENVALUE S	% TOTAL VARIANCE	CUMULATIVE EIGENVALUES	CUMULATIVE PERCENTAGE
1	9.244	64.248	9.244	64.248
2	5.129	17.710	14.373	81.958
3	4.685	5.911	19.058	87.869
4	3.822	3.518	22.880	91.387
5	2.426	2.716	25.306	94.103

Exploratory factor analysis (EFA) is a statistical technique used to reduce data to a smaller set of summary variables and to explore the theoretical structure of the phenomena. In order to determine underlying dimensions of multi-item measurement scales used in this study, must be greater than one. Thus factors with eigenvalues greater than one were retained for subsequent analysis. All the factors accounted for 64-94% of the variance.

Confirmatory Factor Analysis (CFA)

Using the result of EFA with the shortlisted 42 items (Table 4), a questionnaire was prepared and sent to 552 respondents, of which the data of 352 respondents was considered clean and taken for further analysis. Confirmatory Factor Analysis was carried out on this data. The CFA was performed with *perceived (experienced) service quality* data which were received from 352 wind turbine customers.

First order model

In contrast to a first-order CFA model, which comprises only a measurement component, and a second-order CFA model for which the higher order level is represented by a reduced form of the structural model, hence the full structural equation model comprises of both a measurement and structural model. In the full SEM model, certain latent variables are connected by one way arrows, the directionality of which reflects hypotheses in the study bearing on the

Exploratory factor analysis (EFA) is a statistical technique used to reduce data to a smaller set of summary variables and to explore the theoretical structure of the phenomena. In order to determine underlying dimensions of multi-item measurement scales used in this study; Figure 4.

1: First-order model for functional quality, technical quality and corporate quality

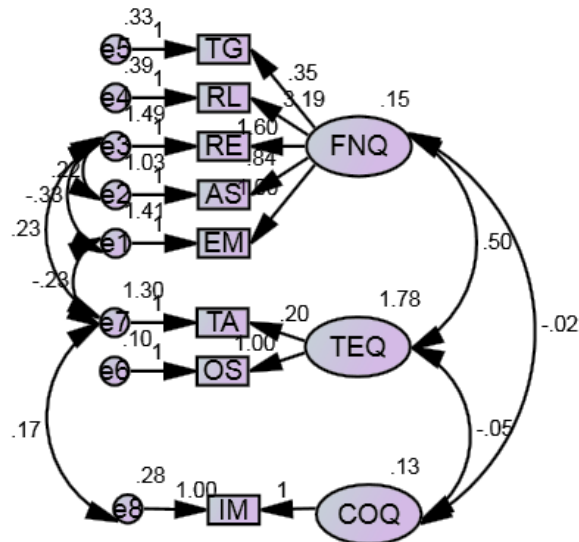


Table 10: CFA for First-order Model for dimensions of functional quality (FNQ), Technical quality (TEQ) and corporate quality

			Unstandardized coefficients	S.E.	Standardized coefficients	P value
EM	<---	FNQ	1.000		0.310	
AS	<---	FNQ	0.837	0.205	0.303	<0.001**
RE	<---	FNQ	1.597	0.358	0.451	<0.001**
RL	<---	FNQ	3.190	0.556	0.893	<0.001**
TG	<---	FNQ	0.346	0.102	0.226	<0.001**
OS	<---	TEQ	1.000		0.972	
TA	<---	TEQ	0.200	0.053	0.228	<0.001**
IM	<---	e8	1.000		0.822	

Note: 1. ** Denotes significant at 1% level

Exploratory factor analysis (EFA) is a statistical technique used to reduce data to a smaller set of summary variables and to explore the theoretical structure of the phenomena. In order to determine underlying dimensions of multi-item measurement scales used in this study, into the model. The fit indices show a model is a good fit as the factors are found to be significant at the $p < 0.05$ (Table 11). The model fit, which was assessed using global fit (seven different fit indices) and 'r' to identify the degree to which the hypothesized model is consistent with the data in hand. In other words, the degree to which the implicit matrix of co variances, (based on the hypothesized model), and the sample covariance matrix, based on data it seems to

fit (Bollen, 1989). The structural model, the quality of fit was acceptable representation of the sample data ($\chi^2(13) = 24.744$, GFI (Goodness of Fit Index) = 0.982; AGFI (Adjusted Goodness of Fit Index) = 0.951 which is much larger than the 0.90 criteria as suggested by Exploratory factor analysis (EFA) is a statistical technique used to reduce data to a smaller set of summary variables and to explore the theoretical structure of the phenomena. In order to determine underlying dimensions of multi-item measurement scales used in this study, Table 11: Model fit summary

Variable	Value	Suggested value
Chi-square value	24.744	
Degrees of freedom (df)	13	
P value	0.025	P-value > 0.05 Hair et al. (2006)
GFI	0.982	> 0.90 Hair et al. (2006)
AGFI	0.951	> 0.90 Daire et al. (2008)
CFI	0.982	> 0.90 Hu and Bentler, 1999a)
RMR	0.039	< 0.08 Hair et al. (2006)
RMSEA	0.051	< 0.08 Hair et al. (2006)

4.4.2 Second order model

Figure 2: Second-order model for functional quality, technical quality and corporate quality with customer satisfaction

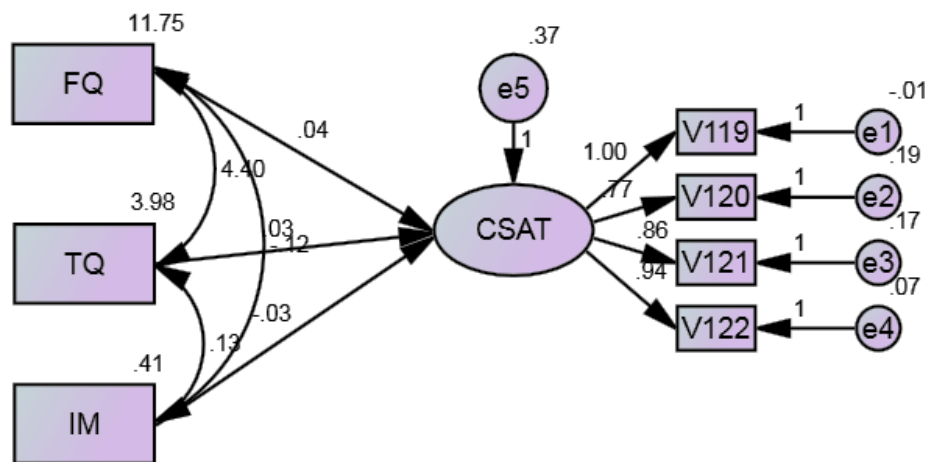


Table 12: Second-order Model for dimensions of functional quality, technical quality and corporate quality with customer satisfaction

			Unstandardized coefficients	S.E.	Standardized coefficients	P value
CSAT	<---	FQ	0.039	0.012	0.208	0.002
CSAT	<---	TQ	0.031	0.021	0.096	0.151
CSAT	<---	IM	-0.033	0.051	-0.033	0.515
V119	<---	CSAT	1.000		1.013	
V120	<---	CSAT	0.770	0.037	0.750	<0.001**
V121	<---	CSAT	0.864	0.035	0.801	<0.001**
V122	<---	CSAT	0.938	0.023	0.913	<0.001**

Note: 1. ** Denotes significant at 1% level

Exploratory factor analysis (EFA) is a statistical technique used to reduce data to a smaller set of summary variables and to explore the theoretical structure of the phenomena. In order to determine underlying dimensions of multi-item measurement scales used in this study, measurements errors and feedbacks are included directly into the model. The fit indices show a model is a good fit as the factors are found to be significant at the $p < 0.05$ (Table 13). The model fit, which was assessed using global fit (seven different fit indices) and 'r' to identify the degree to which the hypothesized model is consistent with the data in hand. In other words, the degree to which the implicit matrix of co variances, (based on the hypothesized model), and the sample covariance matrix, based on data it seems to fit (Bollen, 1989). The structural model, the quality of fit was acceptable representation of the sample data ($\chi^2(11) = 38.516$, GFI (Goodness of Fit Index) = 0.970; AGFI (Adjusted Goodness of Fit Index) = 0.923 which is much larger than the 0. Exploratory factor analysis (EFA) is a statistical technique used to reduce data to a smaller set of summary variables and to explore the theoretical structure of the phenomena. In order to determine underlying dimensions of multi-item measurement scales used in this study.

Variable	Value	Suggested value
Chi-square value	38.516	
Degrees of freedom (df)	11	
P value	0.000	P-value >0.05 Hair et al. (2006)
GFI	0.970	>0.90 Hair et al. (2006)
AGFI	0.923	> 0.90 Daire et al. (2008)
CFI	0.983	>0.90 Hu and Bentler, 1999a)
RMR	0.043	< 0.08 Hair et al. (2006)
RMSEA	0.084	< 0.08 Hair et al. (2006)