The mediating effect of TQM practices on the relationship between strategic planning and productivity

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C H R O N I C L E	A B S T R A C T
	This study investigated the effect of strategic planning and total quality management practices on organisational productivity. This study employed a quantitative approach using Jamovi software. Sample data were collected from 167 respondents who are in Tanzania Zambia Railway Authority (TAZARA) management using a structured-questionnaire. Model fit and construct validity were checked using confirmatory factor analysis and correlation matrix while mediation analysis was carried out using GLM procedure. The results of study present that strategic planning has a significant effect on productivity. The results also indicate that customer focus and important innovation foster organizational productivity and partially mediate the relationship between strategic planning and productivity. The study also shows that education and training has no significant effect on productivity and does not mediate strategic planning and productivity association.

1. Introduction

The dynamic environment of the twenty-first century has prompted organisations regardless of their sizes to respond proactively to the environmental challenges being experienced today for their survival in today's tense competitive business environment. It has also become very imperative for organisations regardless of their sizes to have strategic plans in place. Management uses the process of strategic planning to set objectives (financial and strategic), set goals and plan activities that would help achieve the set objectives. Strategic planning is a management tool that assists organizations to achieve efficiency, effectiveness and competitiveness (Gichovi, 2019; Mulyaningsih et al., 2021). While most organisations regardless of their sizes do have strategic plans in place in today's modern world, some organisations fail and never benefit from having those plans. According to Bryson (2004) the failure of benefiting from strategic planning is attributed to lack necessary resources or better still engaging in practice half-heartedly. Some studies have failed to find the link between strategic planning and organisational productivity/performance (French et al. (2004; Falshaw et al., 2006; Robinson and Pearce, 1983; Miller et al., 2004). This indicates that the benefits of the strategic planning process cannot materialise not until organisations properly invest in the process of strategic planning and have a good understanding on what leads to successful implementation of strategic planning. Thus, the need for more research studies in this area.

Most and recent empirical studies have revealed and supported the integration of total quality management (TQM) with strategic planning (SP), with some arguing that when integration happens, strategic planning process provides the way for improvement in organizational business activities (see Butz, 1995; Asaari et al., 2004; Oschman, 2017). Other studies have

strongly presented the relationship between total quality management and strategic planning to have a positive significant relationship (Bolatan and Akgul, 2019; Abdallah, 2013). Nevertheless, even when studies have linked the integration of TQM with strategic planning to improved business activities, no empirical study has attempted to test the mediating effect of TQM practices on the relationship between strategic planning and organizational productivity. Therefore, this study was conducted to investigate the mediating effect of TQM practices (customer focus, important innovation and, education and training) on the relationship between strategic planning and organizational productivity in the railway sector to bridge the gap in literature.

2. Literature review and hypothesis development

2.1 Strategic planning

Strategic planning is a management tool used to find the best future and the best path to destination for an organization (Barry, 1997). It is the most frequently and extensively used management tool that guides an organization on what to do, why and how and then turns the dreams of an organization into reality. Strategic planning helps organisations to establish priorities, allocate resources and energy and make sure that all stakeholders work toward the common goals (Bazina, 2021). Strategic planning influences the choice of goals that define the organizational corporate strategy. The implementation of the strategic planning process includes: evaluating the organization's future, identifying the desired goals, designing alternative courses of action to achieve the identified goals and, selecting the course of action from the designed alternatives.

2.2 Productivity

Productivity is a measure of performance of an organization. Productivity is a measure of how resources are well combined and used to accomplish specific results that are desirable (Olusanya et al., 2012.p.38). It is the ability to transform inputs utilised in the production process into finished products and is measured by efficiency of production. Productivity is a ratio of total output out of total cost, thus, anything that may affect total annual costs negatively or better still positively affect the revenue will positively enhance productivity (Chauhan & Nema, 2017). "Productivity is a summary measure of quantity and quality of work performance, with resource utilization taken into account" (Innocent & Levi, 2017.p.2). Higher productivity can be achieved through effectiveness and efficient utilisation of resources such as capital, labour, and materials in the production of various services and goods (Škapars et al., 2017). Efficiency is doing things right whereas effectiveness is doing right things. After success has been achieved, effectiveness is required as a minimum condition for the survival of a company.

2.3 Total quality management

Quality management plays a critical role in organisation of any kind, and has in the last 20 years proven to have a significant impact on performance of business (Lori and Fallahnejad, 2015). Total quality management has become one of the survival philosophy that organizations are implementing to remain competitive and survive the fierce tense competition of this twenty-first century. Total quality management is a strategy for establishing and delivering high quality products and services to meet all the customer demands and achieve high levels of customer satisfaction (Al-Qahtani et al., 2015).

2.4 Measuring Total Quality Management

Organisations use critical success factors also known as TQM practices to measure how successful TQM is implemented. There are quite a number of TQM practices used in different organizations based on literature. However, this study has specifically adopted customer focus, important innovations and, education and training from literature (Aquilani et al., 2017; Claver et al., 2003; Ang et al., 2000), Coşkun, 2011); Prajogo and Sohal, 2006; Terziovski, 2006). These practices are used as mediators on the association between strategic planning and organisational productivity in this study.

2.5 Customer Focus

Customer focus is considered to be the one of the most relevant success factors in the successful implementation of TQM (Aquilani et al., 2017). The success of an organisation depends on its customers. Hence, focusing on ways to meet the needs and demands of customers is very important for the survival of a company in this dynamic environment.

2.6 Important Innovations

Juran (1993) did predict that the twenty-first century will be a century of quality while the twentieth century was a century of productivity (p47). The prediction was accurate as there is no guarantee of success for organisations that ignore quality. Important innovation is an important practice which is one of the driving factors of improving quality of products and services (Ang et al., 2000).

2.7 Education and Training

The quality of a product or service can be achieved when the employees are well equipped with skills, knowledge and have a good attitude. Training increases efficiency, thereby reducing operational costs. Education complements and reinforces the training efforts, and learning is the link that comes to make the two actions to be more effective and efficient (Díaz, 2002.p.21).

2.8 Strategic Planning and Productivity

Most studies have found that strategic planning is significantly positively correlated with productivity (Innocent and Levi, 2017), and have a significant positive effect on increasing the organisational productivity (Sara et al., 2021; Ngige, 2017; Boyne and Gould-Williams, 2003; Richardson and Nassar, 1995). However, some studies have failed to find the association between strategic planning and organisational productivity (Miller et al., 2004; Robinson and Pearce, 1983; Falshaw et al., 2006; Kohzadi and Hafezi, 2016). Based upon the above discussion, the hypothesis I hypothesis that:

Hypothesis 1: *Strategic Planning has a positive significant impact on productivity.*

2.9 Strategic Planning and Total Quality Management Practices

Most recent studies have found a positive significant correlation between strategic planning and TQM (Oschman, 2017; Bolatan and Akgul, 2019).

2.10 Strategic Planning and Customer Focus

According to Asaari et al. (2004) the linkage and integration of strategic planning with customer focus provides optimal desired results in an organisation. Sharp (1991) argues that the absence of either customer focus or strategic planning results in organisations losing their competitiveness. The two work hand in hand to deliver the desired results. Customer focus and strategic planning cannot be separated and are both necessary for the success of an organisation. Bolatan and Akgul (2019) investigated the association between strategic planning and TQM. The results of that study among others were that strategic planning has a positive significant relationship with customer satisfaction. Based upon the above description, I hypothesis that:

Hypothesis 2: *Strategic Planning has a positive significant correlation with customer focus.*

2.11 Strategic Planning and Important Innovations

Studies have shown that that strategic planning and innovation have positive significant relationship and that they both have a positive significant effect on organisational performance (Gutiérrez and Laguna, 2017); Alotaibi, 2021; Alosani et al. 2019; Bolatan and Akgul, 2019). This description led to hypothesise that:

Hypothesis 3: *Strategic Planning has a positive significant correlation with important innovation.*

2.12 Strategic Planning and Education and Training

Strategic planning cannot be well implemented if employees are not trained or oriented. This is why some organisations fail to have fruitful results despite having a good strategic plan especially if it was developed by an outsider/consultant. Bolatan and Akgul (2019) found a strong positive correlation between strategic planning, education and training. Based on this description, the following hypothesis was developed:

Hypothesis 4: *Strategic Planning has a positive significant correlation with education and training.*

2.13 Total Quality Management practices and productivity

Most studies especially the recent ones in various sectors have found that TQM has a positive significant association with productivity (Yassine et al., 2019; Liu et al., 2018; Chauhan and Nema, 2017; Siregar et al., 2017; Putrì et al., 2017; Mitreva et al., 2016; Manyinsa, 2016).

2.14 Customer Focus and Productivity

Customer focus has a significant positive effect on productivity. According to Webster (1988) American firms started losing their competitive advantage when they started shifting their attention and emphasis to strategic planning from customer focus. The study conducted by Asaari et al. (2004) revealed that customer focus has a positive significant effect on performance of organisational business. Thus, I hypothesise that:

Hypothesis 5: *Customer focus has a positive significant impact on productivity.*

2.15 Important Innovation and Productivity

Innovation is among other factors such as technology, RandD, technology investment, demand factors, qualifications of skill and labour force that influence productivity (Škapars et al., 2017; Lopez-Rodriguez and Martinez-Lopez, 2017; Minniti and Venturini, 2017; Wysokińska, 2003). Therefore, I hypothesise that:

Hypothesis 6: *Important innovations focus has a positive significant impact on productivity.*

2.16 Education and Training and, Productivity

According to Ahmad et al. (2017) training and education has an indirect influence on human resources productivity. Education and training which falls under qualifications of skill just like innovation is among other factors such as technology, RandD, technology investment, demand factors, and labour force that influence productivity (Škapars et al., 2017; Lopez-Rodriguez and Martinez-Lopez, 2017; Minniti and Venturini, 2017; Wysokińska, 2003). Therefore, I hypothesise that:

Hypothesis 7: *Education and training has a positive significant impact on productivity.*

2.17 Hypothesis on Mediation effects of TQM practices

Based on the above descriptions, and the main objective of this study, the following three hypotheses were developed:

Hypothesis 8: *Customer focus has a mediating effect on the relationship strategic planning and productivity.*

Hypothesis 9: *Important innovation has a mediating effect on the relationship between strategic planning and productivity.*

Hypothesis 10: *Education and Training has a mediating effect on the relationship between strategic planning and productivity.*

3. Conceptual Framework

Based upon the association among variables utilised in this research study, knowledge from literature review and theories, we built a conceptual framework and developed a hypothesized model as presented on Fig. 1.
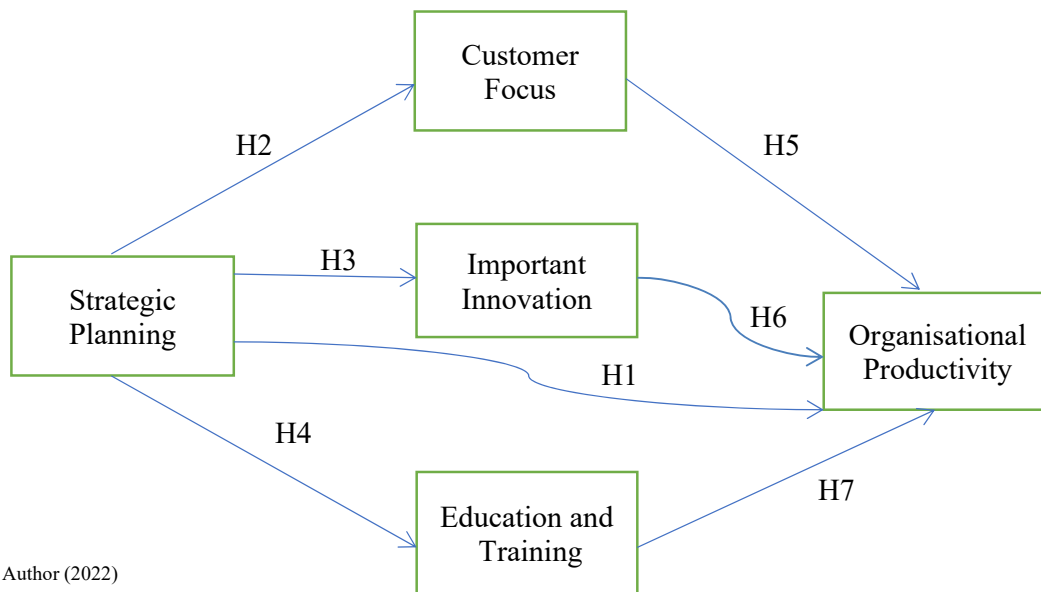
Source: Author (2022)

Fig. 1. Hypothesised Model

3. Methodology

3.1 Data Collection

Both primary and secondary data were collected and utilised for this study. Primary data were collected using a structured questionnaire from employees of TAZARA who are in management while secondary data utilised were from different sources such as the TAZARA' website, journals/articles from the university libraries and publications.

3.2 Population

This study targeted 240 Tanzania Zambia Railway Authority (TAZARA) employees in management. The targeted respondents were those charged with responsibility of heading and supervising different sections and subsections of the company. The design of the study was cross-sectional which applied a method of drop and collect survey, and proved very suitable and efficient during the period with strict measures of COVID 19 pandemic.

3.3 Sample Size

One hundred sixty seven (167) questionnaires were filled and collected out of 240 that were distributed. The 167 sample size for the study was very much adequate based on the recommendation of Krejcie and Morgan (1970). According to the formula of Krejcie and Morgan (1970), this study needed only 148 sample sizes against the population target of 240. Please refer to Table 1 and the computations below based on Krejcie and Morgan (1970)'s formula for verifications.

Table 1
Table for Determining the Sample Size of a Given Population

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size.
S is sample size.

$s = R^2 NT(1-T) \div d^2 (N-1) + R^2 T(1-T)$

    s = sample size required
    R^2 = Chi-square table of values for 1 degree of freedom at .95 desired confidence level (1.96 x 1.96) = 3.8416
    N = Population size
    T = Proportion population based on assumption of .50 to provide maximum sample size.
    d = degree of accuracy which is expressed as proportion of (1/20).

s = 3.841x 240 x 0.5 x (1-0.5) / (0.05*0.05 x (240-1) + 3.841x 0.5 x (1-0.5)) = 147.944. Thus, sample size =148

The fact that this study was centred on modelling, Jamovi software was used for computation of various statistics after data were fed into computer. The validity, reliability, confirmatory factor analysis (CFA) and mediation were also computed. According to Jackson (2001), to run a CFA data should have a minimum sample size of 160. Thus, this study met and exceeds the recommended threshold.

3.4 Measures

The structured questionnaire utilised to gather data had a five-point scale response varied to strongly agree (=5) from strongly disagree (=1).There were five constructs: strategic planning; important innovation; customer focus; education and training and; productivity. The questionnaire of this study had an initial total of thirty six (36) items adopted from different literatures indicated on Table 2. The items later become thirty (30) after six (6) items dimmed redundant and useless with lower factor loading lower than 0.5 and higher modification indices of 15 were dropped after running exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

Table 2
Measurement Constructs

Construct	Components	Source
Practices of Total Quality Management (TQMP)	Customer Focus Education and Training Important Innovation	Adopted from Bolatan and Akgul, (2019), Aquilani et al. (2017), Claver et al. (2003),Ang et al. (2000), Coşkun (2011), Prajogo and Sohal (2006) and Terziovski (2006).
Strategic Planning		Ang et al. (2000), Terziovski, (2006) and Prajogo and Sohal
Productivity		Grayson et al. (2016).

Source: Author (2022)

The next section of data presentation and analysis presents the results of the data analysed using correlation matrix, regression analysis, factor analysis and confirmatory factor analysis. All computations were made possible through the use of Jamovi software application.

4. Data presentation and analysis

The analysis of results of this study is based on the statistical methods using Jamovi application. The results of the study are presented in descriptive statistics, tables, hypothesis tests, figures and appendices. The characteristics of respondents, descriptive statistics, validity and reliability, confirmatory factor analysis (CFA) and mediation effects are presented in this section.

4.1 The Rate of Response

Two hundred ten (210) questionnaires were distributed to the targeted population of 240. However, out of the total distributed, 167 respondents completed the questionnaire, representing 79.52%. The Demographic Characteristics. The demographic profile of 167 respondents who participated in this study according to their experience and gender are indicated on Table 3.

Table 3
Demographic Profile

Description	Frequency	Percent (%)
Gender		
Female	27	16.2
Male	140	83.8
Total	**167**	**100**
Work Experience(Years)		
Below 10	52	31
10-20	57	34
Above 20	58	35
Total	**167**	**100**

Source:Author(2021)

Of the total 167 respondents, 16.2% are female and 83.8% are male. On years of experience with TAZARA, out of the total of 167 respondents, 35% have over 20 years work experience with the Authority (TAZARA),34% accounted for those in the range of 10 to20 years while31% accounted for those below 10 years.

4.2 Descriptive Statistics

This study of five constructs' mean, standard deviation, skewness and kurtosis are shown on Table 4.

Table 4
Mean, Standard Deviation, Skewness, and Kurtosis of Constructs (N = 167)

	SP	CF	II	ET	P
N	167	167	167	167	167
Mean	3.26	3.23	2.94	2.77	2.84
Median	3.2	3.25	3	2.75	2.86
Standard deviation	0.752	0.763	0.822	0.913	0.746
Minimum	1	1	1	1	1
Maximum	5	4.88	5	4.75	4.86
Skewness	-0.207	-0.337	0.0399	-0.0296	0.0224
Std. error skewness	0.188	0.188	0.188	0.188	0.188
Kurtosis	0.587	0.035	0.187	-0.48	0.281
Std. error kurtosis	0.374	0.374	0.374	0.374	0.374

Source: Survey data

The mean values of all the five constructs show that the respondents did respond favourably. The kurtosis and skewness are in the standard threshold range of –2 of +2 indicating no serious deviation from normality for each of the five constructs. Table 4 also shows that the respondents did perceive customer focus (CF) among the three mediators with the highest mean

of 3.23 to be most dominant TQM practice, followed by important innovation with a mean of 2.94, then education and training with the mean of 2.77 respectively.

4.3 Model Fit

Before estimating the model proposed, confirmatory factor analysis (CFA) testing was run independently. Prior modelling the inter-association in the model structure of the study, CFA was performed for the latent constructs involved in this study. The sample size of one hundred sixty seven (167) was very much adequate to run CFA to determine the goodness of fit of the model by having met the minimum threshold of 160 recommended by Jackson (2001). The Pooled-CFA (Pooled measurement models) were run at once to evaluate the model measurements of constructs. According to Awang (2015) running CFA for pooled measurement models is highly efficient and more suggested than running CFA separate for every measurement model (p.54). Five (5) model fit indices were used to assess overall goodness of fit of the model: Comparative Fit Index (CFI), Root of Mean Square Error (RMSEA), Tucker Lewis Index (TLI), Chi square Minimum by Degree of Freedom (CMIN/DF) and Standardized Root Mean Squared Residual (SRMR): The fit indices did meet and exceed the thresholds suggested by earlier research studies (Gefen et al., 2000; Lei and Wu, 2007; Bentler, 1990; Hu and Bentler, 1999; Bentler and Bonett,1980; Marsh and Hocevar, 1985), implying adequate model fit. Table 5 shows all the fit-indices of this very study.

Table 5
Results of Confirmatory Factor Analysis Overall Goodness of Fit Model

Category	Index Name	Acceptance level	Results of Model Calculations		Comments
			First Stage	Second final Stage	
Parsimonious fit	Chi square Minimum by Degree of Freedom (CMIN/DF)	$\chi^2/df < 3.00$	1.493	1.417	Acceptable level achieved
Incremental fit	Tucker Lewis Index (TLI)	TLI > 0.90	0.871	0.911	Acceptable level achieved
	Comparative Fit Index (CFI)	CFI > 0.90	0.880	0.919	Acceptable level achieved
Absolute fit	Standardized Root Mean Squared Residual (SRMR)	SRMR < 0.08	0.0615	0.0561	Acceptable level achieved
	Root of Mean Square Error (RMSEA)	RMSEA < 0.06	0.0543	0.0500	Acceptable level achieved
	Chi-Square(P-Value)	P-value > 0.05. Not applicable for sample size (>200)	< 0.001	< 0.001	Acceptable level not achieved

Computed using Jamovi app
Source: Data Survey

The model second stage final calculations results as shown on Table 5 show an overall model fit based upon the model fit indices that show that the model fits the data well, to enable testing of the hypotheses. The second final stage was arrived at after six out of thirty six items with modification indices above 15 and very low factor loading were deemed to be redundant and then dropped. The number of items dropped did not exceed 20% of the total number of items in the model as suggested by Awang (2015). Overall model is within the acceptable range. RMSEA fit the threshold less than 0.06 (Hu and Bentler, 1999). The model indicates a good fit as SRMR is less than 0.08 according to Hu and Bentler (1999). Chi-square divided by the degree of freedom is a better measure if it is less than 3 (Marsh and Hocevar, 1985; Gefen et al., 2000). The Chi square Minimum divided by Degree of Freedom (CMIN/DF) meet the required threshold of less than 3.

4.4 Internal Consistency Reliability

Each scale's Cronbach Alpha was carried out using reliability analysis. Cronbach alpha is mostly and widely used to determine measurement reliability. All constructs used in this research study (strategic planning, productivity, customer focus, important innovation and, education and training), recorded Cronbach Alpha values of 0.860, 0.810, 0.836, 0.752 and 0.805 respectively, as shown on Table 6. This confirmed reliability of measurement model since coefficients of Cronbach's alpha for the instrument were all in the acceptable range and way above the acceptable minimum threshold of 0.7 (Hair et al., 2006; Nunnally 1978). To counter some critiques of Cronbach's alpha on its sensitivity to number of items in scale (Crutzen and Peters, 2017; Ravinder and Saraswathi, 2020), the scale of composite reliability (CR) was employed to assess internal consistency reliability of the model as indicated in Table 6. The CR of the five measures ranges from 0.806 to 0.891 meeting and exceeding the acceptable level of 0.6 (Bagozzi and Yi, 1988; Fornell and Larcker, 1981).

Average Variance Extracted (AVE) is mostly used to measure convergent validity and should not be less than 0.5. Neverthe-less, convergent validity is considered adequate even if AVE is less than 0.5 if the composite reliability (CR) exceeds 0.6 (Fornell and Larcker, 1981. p. 46). Table 6 indicates the values of Average Variance Extracted of strategic planning, important innovation, productivity, customer focus and, education and training being 0.509, 0.511, 0.454, 0.492 and 0.674 respectively. Even though productivity and customer focus recorded AVE of less than 0.5, we conclude that convergent validity was es-tablished based on the fact that CR for all the constructs exceeded the minimum threshold of 0.6(see Fornell and Larcker, 1981. p. 46).

Table 6
Reliability and Validity Instrument

Construct	Item	Range of Factor Loadings	Cronbach's α	Composite Reliability (CR)	Average Variance Extracted (AVE)
Strategic Planning	7	0.663-0.758	0.860	0.879	0.509
Productivity	7	0.601-0.766	0.810	0.852	0.454
Customer focus	8	0.528 - 0.869	0.836	0.884	0.492
Important Innovation	4	0.647-0.777	0.752	0.806	0.511
Education and Training	4	0.708-0.911	0.805	0.891	0.674

Source: Data Survey

4.5 Discriminant Validity

Discriminant validity test is carried out to evaluate the association among constructs in order to determine whether measures are distinct from each other. To have a free discriminant validity, the correlation among the constructs should be less than 0.85 (Hair et al. (2010). This study evaluated discriminant validity by investigating the association among the constructs. And based upon the statistical analysis as indicated on Table 7, all constructs among themselves recorded a correlation of less than 0.85: the correlation between strategic planning and productivity was 0.652; the correlation between strategic planning and important innovation was 0.768; the correlation between strategic planning and education and training was 0.521;the correlation between strategic planning and customer focus was 0.615; the correlation between productivity and important innovation was 0.632; the correlation between productivity and education and training was 0.450; the correlation between productivity and customer focus was 0.580; the correlation between important innovation and education and training was 0.490; the correlation between important innovation and customer focus was 0.523 and; the correlation between education and training, and customer focus was 0.485. These correlations indicate discriminant validity among the constructs and that they are all different.

Table 7
Constructs Correlation Matrix of Strategic Planning, Productivity, Important Innovation Education and Training, and Cus-tomer Focus

		SP		P		II		ET		CF
SP	Pearson's r	—								
	p-value	—								
	N	—								
P	Pearson's r	0.652	***	—						
	p-value	<.001		—						
	N	167		—						
II	Pearson's r	0.768	***	0.632	***	—				
	p-value	<.001		<.001		—				
	N	167		167		—				
ET	Pearson's r	0.521	***	0.45	***	0.49	***	—		
	p-value	<.001		<.001		<.001		—		
	N	167		167		167		—		
CF	Pearson's r	0.615	***	0.58	***	0.523	***	0.485	***	—
	p-value	<.001		<.001		<.001		<.001		—
	N	167		167		167		167		—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Computed using Jamovi app
Source: Data Survey

4.6 Regression Assumptions

The multicollinearity, independence of observations, normality of residual distribution, homogeneity of variance, linearity, outliers and other case assumptions were assessed using multiple regression analysis. The plots output from the Jamovi app are well shown on the appendices.

4.7 Hypothesis Testing

This study undertook ten hypotheses concerning a direct association and indirect effect (mediating effects). The following Tables 8 and 9 show the results of hypotheses.

Table 8
Indirect and Total Effects

Type	Effect	Estimate	SE	95% C.I. (a) Lower	Upper	β	z	p
Indirect	SP ⇒ CF ⇒ P	0.1552	0.0446	0.0678	0.2425	0.1579	3.48	< .001
	SP ⇒ II ⇒ P	0.2206	0.0649	0.0934	0.3477	0.2244	3.4	< .001
	SP ⇒ ET ⇒ P	0.0346	0.0317	-0.0275	0.0967	0.0352	1.09	0.275
Component	SP ⇒ CF	0.6219	0.062	0.5005	0.7434	0.6135	10.04	< .001
	CF ⇒ P	0.2495	0.0672	0.1178	0.3812	0.2573	3.71	< .001
	SP ⇒ II	0.8319	0.0548	0.7245	0.9392	0.7616	15.19	< .001
	II ⇒ P	0.2652	0.076	0.1162	0.4141	0.2946	3.49	< .001
	SP ⇒ ET	0.6111	0.0811	0.4521	0.7701	0.5036	7.53	< .001
	ET ⇒ P	0.0566	0.0513	-0.044	0.1572	0.0699	1.1	0.27
Direct	SP ⇒ P	0.2253	0.0981	0.0331	0.4176	0.2292	2.3	0.022
Total	SP ⇒ P	0.6357	0.0591	0.5198	0.7516	0.6406	10.75	< .001

Note. Confidence intervals computed with method: Standard (Delta method)
Note. Betas are completely standardized effect sizes

Computed using Jamovi app
Source: Data Survey

Table 9
Hypothesis Summary

No	Hypothesis	Results
1.	Hypothesis 1: Strategic Planning has a positive significant impact on productivity	Supported
2.	Hypothesis 2: Strategic Planning has a positive significant correlation with customer focus	Supported
3.	Hypothesis 3: Strategic Planning has a positive significant correlation with important innovation.	Supported
4.	Hypothesis 4: Strategic Planning has a positive significant correlation with education and training	Supported
5.	Hypothesis 5: Customer focus has a positive significant impact on productivity	Supported
6.	Hypothesis 6: Important innovations focus has a positive significant impact on productivity	Supported
7.	Hypothesis 7: Education and training has a positive significant impact on productivity	Not Supported
8.	Hypothesis 8: Customer focus has a mediating effect on the relationship strategic planning and productivity.	Supported
9.	Hypothesis 9: Important innovation has a mediating effect on the relationship between strategic planning and productivity	Supported
10.	Hypothesis 10: Education and Training has a mediating effect on the relationship between strategic planning and productivity	Not Supported

Source: Author (2022)

The path coefficients and significance for the model under this research study are shown on Table 8. All the relationships hypothesised in this study except for hypotheses 5 and 9 are supported.

The first hypothesis 1, a direct effect between strategic planning and productivity (SP ⇒ P) shows that it is statistically positively significant (γ = 0.2253, p=0.022), hence, hypothesis 1 is supported. The total effect of the same relationship (SP ⇒ P) is positively statistically significant (γ = 0.6357, p< .001). Strategic Planning has a positive significant correlation with customer focus (γ =0.6219, p<0.001), thus, hypothesis 2 supported.Strategic Planning has a positive significant correlation with important innovation (γ =0.8319, p<0.001), therefore, hypothesis 3 supported. Strategic Planning has a positive significant correlation with education and training (γ =0.6111, p<0.001), therefore, hypothesis 4 is supported. Customer focus has a positive significant impact on productivity (γ =0.2495, p<0.001), hence, hypothesis 5 supported. Important innovation has a positive significant impact on productivity (γ =0.2652, p<0.001), hence, hypothesis 6 supported. Education and training has no positive significant impact on productivity (γ =0.0566, p=0.270), thus hypothesis 7 is not supported.

4.8 The analysis of mediating effects

The indirect effect of strategic planning on productivity through customer focus (SP⇒ CF ⇒ P) indicates a positive statistically significant (p<0.001, γ = 0.1552; 95% CI: [0.0678, 0.2425]; ratio effect=0.244). This shows a partial mediation effect of customer focus, therefore, hypothesis 8 supported. The indirect effect of strategic planning on productivity through important innovation (SP ⇒ II ⇒ P) shows a statistically positive significance (p< 0.001, γ = 0.2206; 95% CI: [0.0934, 0.3477]; ratio effect = 0.347). This shows a partial mediation effect of important innovation, therefore, hypothesis 9 supported. The indirect effect of strategic planning on productivity through education and training (SP ⇒ ET ⇒ P) is not statistically significant (p=0.275, γ = 0.0346; 95% CI: [0.0275, 0.0967]; ratio effect=0.054). This shows that there is no mediating effect of education and training, thus, hypothesis 10 not supported. Overall, the model shows that the three mediators (customer focus, important innovation and education and training) partially mediate the relationship between strategic planning and productivity based on the direct effect that is statistically significant (γ = 0.2253, p=0.022) with a ratio effect of 0.354. The mediator with the highest effect is important innovation followed by customer focus.

5. Discussion

The results of this study show that male gender in managerial roles are more compared to females with men accounting for 83.8 and women 16.2% respectively. Majority of employees in managerial positions have over 20 years work experience with the company, followed by those with 10 to 20 years work experience and then those with below 10 years work experience. The results also indicate that among the three TQM practices, customer focus (CF) has the highest implementation, followed by important innovation (II), then education and training. The results of hypothesis testing have been addressed in chronological order bellow:

Hypothesis one was tested to determine if strategic planning has a positive significant impact on productivity. The results show that strategic planning has a significant positive impact on productivity with or without mediation of all mediators (customer focus, important innovation and education and training). Hence, either in direct or total effect, strategic planning has a positive effect on productivity. These findings are consistent with studies that supported and presented these similar findings (Sara et al., 2021; Ngige, 2017; Boyne and Gould-Williams, 2003; Richardson and Nassar, 1995).

Hypothesis two was tested to determine if strategic planning has a positive significant relationship with customer focus. The results indicate that strategic planning has a significant positive relationship with customer focus. The results are consistent with the findings of Asaari et al. (2004) and Bolatan and Akgul (2019) whose results revealed similar outcomes.

Hypothesis three attempted to determine whether strategic planning and important innovation shares a significant positive relationship. The findings indicate that strategic planning and important innovation have a positive significant association. This is consistent with the studies carried out by Alotaibi (2021), Alosani et al. (2019) and Bolatan and Akgul (2019).

Hypothesis four was tested to determine whether strategic planning has a positive relationship with education and training. The findings indicate that strategic planning, education and training share a positive significant association. The results are consistent with the results found by Bolatan and Akgul (2019).

Hypothesis five attempted to determine if customer focus has a positive significant impact on productivity. The results indicate that customer focus has a positive significant impact on productivity. This is consistent with the findings of Asaari et al. (2004).

Hypothesis six was attempting to ascertain if important innovation has a positive impact on productivity. The results indicate that important innovation has a positive effect on productivity. The findings were consistent with quite a number of studies that presented the existence of this association (Škapars et al., 2017; Lopez-Rodriguez and Martinez-Lopez, 2017; Minniti and Venturini, 2017; Wysokińska, 2003).

Hypothesis seven attempted to determine if education and training has a positive significant impact on productivity. The results indicate that training and education has no positive significant impact on productivity. These findings are inconsistent with a number of studies that proved that education and training has a positive significant relationship (Gutiérrez and Laguna, 2017; Ahmad et al., 2017; Škapars et al., 2017; Lopez-Rodriguez and Martinez-Lopez, 2017; Minniti and Venturini, 2017; Wysokińska, 2003; Díaz, 2002). These results correspond with the results of this study that showed that the implementation of training and education in TAZARA is the lowest. This can also be attributed to the fact that most employees have spent half of their lives working for TAZARA and have vast work experience hence attaching little significance to this practice. A deeper study regarding this practice in TAZARA would also help gain more insights and understanding.

Hypothesis eight was conducted to determine if customer focus has a mediating effect on the relationship between strategic planning and productivity. The findings indicate that customer focus partially mediates the relationship between strategic planning and productivity. This result is also a great contribution to literature as it is the first empirical test to be conducted on this association (strategic planning, customer focus and productivity.

Hypothesis nine was tested to determine whether important innovation has a mediating effect on the relationship between strategic planning and productivity. The findings indicate that important innovation partially mediates the relationship between strategic planning and productivity. This is a positive contribution to literature as it is the first empirical test to be conducted among the three constructs (strategic planning, important innovation and productivity). The results of this study also shows that important innovation as a mediator has a greater effect on the relationship between strategic planning and productivity compared to customer focus.

Hypothesis ten attempted to determine whether education and training has a mediating effect on the association between strategic planning and productivity. The results indicate that education and training does not mediate the relationship between strategic planning and productivity. This result was unexpected and calls for more studies to be conducted in the same and different industrial sectors. The result might be unique to the organisation under study as training and education was the least implemented TQM practice in the organisation. Therefore, there is a need for more and further investigations and studies in other companies.

Overall, the multiple mediation effect of the three mediators (customer focus, important innovation and, education and training) on the relationship between strategic planning and productivity indicate a partial mediation effect. This leaves room for more TQM practices to be included and tested on this association.

6. Theoretical managerial implications

The results of this study give some important managerial practical practice. The results call for TAZARA and other companies to give attention to customer focus and important innovation whenever they are implementing or initiating a strategic planning process. This is consistent with Sharp (1991) who strongly emphasized the need to integrate customer focus in strategic planning.

7. Conclusion

This study is the first to explore the relationships among strategic planning, important innovation, customer focus, education and training, and productivity. we did find a partial mediating effect on the multiple mediation effect of the three mediators (customer focus, important innovation and, education and training) on the pathway from strategic planning to productivity. Customer focus plays a partial mediating role in the relationship between strategic planning and productivity so does important innovation. The study gives empirical evidence on the nature of the association between strategic planning and productivity. The main contribution of this study is toward an understanding of the nature of the impact that strategic planning has on organisational productivity. This research provides evidence that customer focus and important innovation play a critical role in the successful implementation of organisational strategic plan and have a meaningful effect on organisational productivity. I do recommend that employees (especially managers and planners) of TAZARA and other railway companies should be taught and sensitized more on the relevance of integrating customer focus and important innovations in strategic planning to guarantee higher productivity in their organisation in this dynamic twenty first century environment.

8. The Limitations and Future Research

The study only focused on TAZARA, thereby narrowing the generalisation of this study to other railway companies and other industrial sectors. Therefore, we recommend that a replication should be carried out in other companies/different industrial sectors to get a better understanding on the subject matter. I also recommend that future studies should attempt to include other TQM practices as mediators as well as including moderating variables. Lastly, I urge a consideration of a mixed research approach.

References

Abdallah, A. B. (2013). The influence of 'soft' and 'hard'total quality management (TQM) practices on total productive maintenance (TPM) in Jordanian manufacturing companies. *International Journal of Business and Management, 8*(21), 1–13.

Alosani, M. S., Yusoff, R., & Al-Dhaafri, H. (2019). The effect of innovation and strategic planning on enhancing organizational performance of Dubai Police. *Innovation and Management Review*.

Alotaibi, H. J. (2021). The Impact of Strategic Planning on Innovation in Saudi SMEs. مجلة الجامعة الإسلامية للدراسات الاقتصادية والإدارية, *29*(1).

Al-Qahtani, N. D., Alshehri, S. S. A., & Aziz, A. A. (2015). The impact of Total Quality Management on organizational performance. *European Journal of Business and Management*, 7(36), 119-127.

Asaari, M. H., Karia, N., Kassim, S., & Yahya, S. (2004). Business Performance of Small and Medium Enterprise: Strategic Planning and Customer Focus. *Information Technology and Organizations in the 21st Century*, 113-116.

Awang, Z. (2015). *SEM made simple: A gentle approach to learning Structural Equation Modeling*. MPWS Rich Publication.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the academy of marketing science*, *16*(1), 74-94.

Barry, B. W. (1997). *Strategic planning workbook for nonprofit organizations*. Amherst H. Wilder Foundation.

Bazina, A.(2021). Strategic planning and its impact on persistent profitability and productivity in African agriculture sector. *Multi-Knowledge Electronic Comprehensive Journal for Education and Science Publications*. mecsj.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*, *107*(2), 238.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*, *88*(3), 588.

Bolatan, G. İ. S., & Akgul, A. K. (2019) Analysis of the Relationship between Strategic Planning and Total Quality Management. *Çağ Üniversitesi Sosyal Bilimler Dergisi*, *16*(2), 1-19.

Bornia, A. C. (2002). *Análise gerencial de custos: aplicação em empresas modernas*. Porto Alegre: Bookman.

Boyne, G. A. and Gould- Williams, J. S. (2003). Planning and Performance in Public Organizations, *Public Management Review*, 5 (1).

Bryson, J. M. (2004). *Strategic Planning for Public and nonprofit Organizations*, San Francisco, CA: Jossey- Bass.

Bryson, J. M. (2018). *Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement*. John Wiley and Sons.

Butz Jr, H. E. (1995). Strategic planning: the missing link in TQM. *Quality Progress*, *28*(5), 105.

Chauhan, G., & Nema, G. (2017). Study of the Role of Total Quality Management in Productivity Enhancement in Indian Insurance Sector. *Pacific Business Review International*, *9*(11), 75-85.

Crutzen, R., & Peters, G. J. Y. (2017). Scale quality: alpha is an inadequate estimate and factor-analytic evidence is needed first of all. *Health psychology review*, *11*(3), 242-247.

Díaz, J. E. C. (2002). Importance of training, learning and education for total quality management (TQM) implementation. In *A paper presented at VI Congreso Nacional y Primero Internacional de Investigación en Ciencias Administrativa Mesa 2*, 1-25.

Falshaw, J. R., Glaister, K. W., & Tatoglu, E. (2006). Evidence on formal strategic planning and company performance. *Management decision, 44*(1), 9-30.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, *18*(1), 39-50.

French, S.J., Kelly, S.J. & Harrison, J.L. (2004). The Role of Strategic Planning in the Performance of Small Professional Service Firms: A Research Note, *Journal of Management Development, 23(*8),765-776. https://doi.org/10.1108/02621710410549611

Gefen, D., Straub, D., & Boudreau, M. C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the association for information systems*, *4*(1), 7.

Gichovi, P. M. (2019). *Strategic planning and competitive advantage at family bank limited* (Doctoral dissertation, university of Nairobi).

Gutiérrez, K. S. B., & Laguna, O. A. F. (2017). Association Model Among Competitive Advantage Factors and Corporate Performance. *Journal of Modern Accounting and Auditing, 13*(12), 521-530.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Canonical correlation: A supplement to multivariate data analysis. *Multivariate data analysis: a global perspective. 7th edn. Pearson Prentice Hall Publishing, Upper Saddle River*.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Structural equation modeling: An introduction. *Multivariate data analysis. 6th Edition. New Jersey: Pearson Prentice Hall*, 752-753.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55.

Innocent, I. E., & Levi, N. N. (2017). Effects of strategic planning on organizational performance (A Study of Nigerian Bottling Company, Enugu). *International Journal of Economics and Business Management*, *3*(9), 1-12.

Jackson, D. L. (2001). Sample size and number of parameter estimates in maximum likelihood confirmatory factor analysis: A Monte Carlo investigation. *Structural Equation Modeling*, *8*(2), 205-223.

Juran, J.M. (1993). Made in U.S.A.: a renaissance in quality. *Harvard business review, 71 4*, 42-7, 50.

Kohzadi, M., & Hafezi, S. (2016). The effect of strategic planning on organizational performance in industrial estate companies of Gachsaran 2014-2015 years. *International Journal of Humanities and Cultural Studies (IJHCS) ISSN 2356-5926*, *1*(1), 1098-1108.

Lei, P. W., & Wu, Q. (2007). Introduction to structural equation modeling: Issues and practical considerations. *Educational Measurement: issues and practice*, *26*(3), 33-43.

Liu, Y., Yu, Y., Zeng, Z., & Zhang, Y. (2018). Study on Construction of Performance Appraisal System for Railway Grassroots Units Based on TQM. In *2nd International Conference on Education Science and Economic Management (ICESEM 2018)*. atlantis-press.

Lopez-Rodriguez, J., & Martinez-Lopez, D. (2017). Looking beyond the RandD effects on innovation: The contribution of non-RandD activities to total factor productivity growth in the EU. *Structural Change and Economic Dynamics*, *40*, 37-45.

Lori, E. S., & Fallahnejad, M. (2015). A framework for connection between Total Quality Management and Innovation Processes. *Cumhuriyet Üniversitesi Fen Edebiyat Fakültesi Fen Bilimleri Dergisi*, *36*(3), 1515-1524.

Manyinsa, M. (2016). *Total quality management practices and performance of passenger transport Sacco's in Kenya* (Doctoral dissertation, University of Nairobi).

Marsh, H. W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First-and higher order factor models and their invariance across groups. *Psychological bulletin*, *97*(3), 562.

Miller, S., Wilson, D., & Hickson, D. (2004). Beyond planning: Strategies for successfully implementing strategic decisions. *Long range planning*, *37*(3), 201-218.

Minniti, A., & Venturini, F. (2017). The long-run growth effects of RandD policy. *Research Policy*, *46*(1), 316-326.

Mitreva, E., Nikolov, E., & Nikolova, B. (2016). Application of Total Quality Management (TQM) in the Macedonian Railways-transport in the Republic of Macedonia. *Calitatea-acces la succes*, *17*(151), 55-60.

Mulyaningsih, M., Danial, R., Komariah, K., Firdausijah, R., & Yuniarti, Y. (2021). The effect of strategic planning on competitive advantages of small and medium enterprises. *Management Science Letters*, *11*(2), 411-416.

Ngige, C. D. (2017). Strategic Planning and Productivity in Organizations: A Study of Selected SMEs in Anambra State. *African Journal of Education*, *3*(4), 122.

Nunnally, J.D. (1978). *Psychometric Theory* (2nd ed), New York: McGraw-Hill.

Ojha, D., Patel, P. C., & Sridharan, S. V. (2020). Dynamic strategic planning and firm competitive performance: A conceptualization and an empirical test. *International Journal of Production Economics*, *222*, 107509.

Olusanya, S. O., Awotungase, S. A., & Ohadebere, E. C. (2012). Effective planning and organizational productivity: A case study of Sterling Bank Nigeria Plc. *Journal of Humanities and Social Sciences*, *5*(5), 31-39.

Oschman, J. J. (2017). The role of strategic planning in implementing a total quality management framework: An empirical view. *Quality Management Journal*, *24*(2), 41-53.

Putrì, N.T., Yusof, S., Hasan, A., & Darma, H.S. (2017). A structural equation model for evaluating the relationship between total quality management and employees' productivity. *International Journal of Quality and Reliability Management, 34*, 1138-1151.

Ravinder, E. B., & Saraswathi, D. A. (2020). Literature Review of Cronbach alpha coefficient (A) And Mcdonald's Omega Coefficient (Ω). *European Journal of Molecular and Clinical Medicine*, *7*(6), 2943-2949.

Richardson, C., & Nassar, C. M. (1995). Increasing staff productivity through strategic planning. *Journal of the American Dietetic Association*, *95*(9), A26.

Robinson Jr, R. B., & Pearce, J. A. (1983). The impact of formalized strategic planning on financial performance in small organizations. *Strategic management journal*, *4*(3), 197-207.

Sara, I., Saputra, K. A. K., & Utama, I. W. K. J. (2021). The Effects of Strategic Planning, Human Resource and Asset Management on Economic Productivity: A Case Study in Indonesia. *The Journal of Asian Finance, Economics and Business*, *8*(4), 381-389.

Shan, A. W., Ahmad, M. F., & Nor, N. H. M. (2017). The mediating effect of innovation between total quality management (TQM) and business performance. In *IOP Conference Series: Materials Science and engineering,160*(1), 012011.

Sharp, B. (1991). Marketing orientation: more than just customer focus. *International Marketing Review*.

Siregar, I., Nasution, A. A., & Sari, R. M. (2017). Effect of total quality management on the quality and productivity of human resources. In *IOP Conference Series: Materials Science and Engineering, 180(1),* 012116). IOP Publishing.

Škapars, R., Jēkabsone, S., Priede, J., & Skribāne, I. (2017). Productivity and its Impact on the Competitiveness of Latvia. *European Research Studies Journal, 20*, 920-930.

Webster Jr, F. E. (1988). The rediscovery of the marketing concept. *Business horizons*, *31*(3), 29-39.

Wysokińska, Z. (2003). Competitiveness and its relationships with productivity and sustainable development. *Fibres and Textiles in Eastern Europe*, *11*(3), 42.

Yassine, M., Fadel, F., & Diab, M. (2019). Impact of Total Quality Management (TQM) on Productivity in the Hospitality Sector: The Case of Lebanon. *Management Science, 9*, 63-72.

Appendix

Confirmatory Factor Analysis

Factor Loadings

Factor	Indicator	Estimate	SE	95% Confidence Interval		Z	p
				Lower	Upper		
SP	SP1	0.665	0.0767	0.515	0.815	8.67	< .001
	SP2	0.713	0.0717	0.572	0.853	9.94	< .001
	SP3	0.715	0.0758	0.566	0.864	9.43	< .001
	SP5	0.759	0.0728	0.617	0.902	10.43	< .001
	SP6	0.755	0.0702	0.618	0.893	10.75	< .001
	SP7	0.704	0.0829	0.542	0.867	8.49	< .001
	SP8	0.677	0.0665	0.547	0.808	10.18	< .001
II	II1	0.777	0.0892	0.602	0.952	8.71	< .001
	II2	0.750	0.0777	0.598	0.903	9.66	< .001
	II4	0.643	0.0763	0.493	0.792	8.42	< .001
	II5	0.680	0.0747	0.534	0.827	9.10	< .001
P	P1	0.635	0.0855	0.467	0.802	7.42	< .001
	P2	0.783	0.0822	0.622	0.944	9.52	< .001
	P3	0.796	0.0837	0.632	0.960	9.50	< .001
	P7	0.587	0.0808	0.429	0.746	7.27	< .001
	P8	0.600	0.0803	0.443	0.758	7.48	< .001
	P9	0.701	0.0812	0.542	0.861	8.63	< .001
CF	CF1	0.870	0.0858	0.702	1.038	10.13	< .001
	CF2	0.793	0.0776	0.641	0.945	10.22	< .001
	CF4	0.630	0.0774	0.478	0.782	8.13	< .001

Factor Loadings

Factor	Indicator	Estimate	SE	95% Confidence Interval		Z	p
				Lower	Upper		
	CF6	0.677	0.0734	0.534	0.821	9.23	< .001
	CF7	0.642	0.0816	0.482	0.802	7.86	< .001
	CF8	0.691	0.0856	0.523	0.858	8.07	< .001
	CF9	0.523	0.0920	0.343	0.704	5.69	< .001
	CF10	0.728	0.0853	0.561	0.896	8.54	< .001
ET	ET1	0.708	0.0844	0.542	0.873	8.38	< .001
	ET2	0.911	0.0815	0.751	1.070	11.18	< .001
	ET3	0.755	0.0875	0.584	0.927	8.63	< .001
	ET4	0.891	0.0799	0.735	1.048	11.15	< .001

Computed using Jamovi app

Model Fit

Test for Exact Fit

χ^2	Df	P
520	367	< .001

Fit Measures

CFI	TLI	SRMR	RMSEA	RMSEA 90% CI	
				Lower	Upper
0.919	0.911	0.0561	0.0500	0.0398	0.0596

Plot