Original Article

Internal service quality and job satisfaction synergies for performance improvement: Some evidence from a B2B environment

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ABSTRACT The aim of this article is to assess the performance of business units in a business-to-business (B2B) environment, by presenting a framework including tangible (hard) and intangible (soft) elements. The intangible part encapsulates internal service quality and job satisfaction, whereas the tangible part includes quantifiable elements. In this study, the dimensionality of the INTSERVQUAL instrument is tested in a B2B environment through Confirmatory Factor Analysis (CFA), and its ability to explain job satisfaction is explored with regression analysis, both in isolation and together with other tangible elements. An optimisation framework is then proposed, with respect to the *satisfaction–internal-service quality–performance* triad in a B2B environment, based on a two-phase data-envelopment analysis model. 'Interactive' and 'physical' quality, as extracted from INTSERVQUAL, assesses internal service quality (ISQ) sufficiently and appropriately in a B2B environment. In addition, the results suggest that internal customers' job satisfaction, which depends on the soft (interactive and physical) ISQ dimensions, as well as the 'hard' ISQ dimensions, succeeds in accounting for measurable effects on the outcomes (performance) of the businesses. Managers of service firms should focus on both soft and hard dimensions of internal service quality, as they influence job satisfaction and, as a consequence, business performance. Moreover, the benchmark method (DEA) provides useful information about the efficiency of the set of decision-making units.

INTRODUCTION

The role played by human aspects inside the firm, in creating an environment conducive to production excellence and improved performance, is widely recognised as being a critical determinant of both success and sustained competitive advantage. This focuses on the sources of competitive advantage, from within the firm implicitly a resource–based view of the firm, as discussed by Barney.[1] This view involves

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the combination and integration of technology, human resources, the development and management of a customer base and, finally, the delivery of the services/products concerned. Pricing, product variety and types of service delivery can be imitated by rival firms and thus do not constitute the basis of sustainable competitive advantage.[2] By contrast, a firm's resources and capabilities, acquired knowledge, as well as the cultural and behavioural profiles, are not so easy to transfer across competing institutions.[1] This line of reasoning has led to the development of a strategic marketing paradigm based on the triad of *capabilities, service quality and performance* (C-SQ-P), which stems from the industrial organisation prototype between market structure, conduct and performance (S-C-P).[3] Thus, human capital is widely argued to be a key success factor of business operation,[4] and its role in the formation of firm's competitive advantage should be considered carefully.

Previous research in the area has concentrated on ISO and Total Quality Management (TQM) as appropriate frameworks for examining the link and relationship between the 'human' aspects of an organisation on the one hand and competitiveness and financial results on the other.[5] However, despite the considerable attention that TQM and ISO have received over the years, the results have been somewhat contradictory with respect to the impact on financial results. Some researchers reported on the positive impact on business performance,[6–9] whereas another group of researchers did not find any significant empirical relationship[10,11] or they have even identified negative effects[12,13] in companies' outputs. On the other hand, similar to quality, job satisfaction has also been linked to performance, especially with regard to services for which the role of employees in forming customer perceptions and thus satisfaction has led to a general acceptance of the term 'satisfaction mirror'. Employee satisfaction initiates a chain (a 'profit chain') of performance links between quality, productivity and customer satisfaction, which in turn drive profits and growth.[14] Many studies indicate that employee job satisfaction can be improved along with organisational

performance,[15,16] or link service quality, customer satisfaction and financial performance;[17] however, there is little clear empirical evidence exploring the effect of internal service quality on employee satisfaction and performance.

This article extends prior research and contributes to the literature in the following way. First, it introduces INTSERVQUAL as an alternative to TQM and the ISO series in capturing the human aspect and people orientation within organisations. Furthermore, it assesses the applicability of the INTSERVQUAL instrument, as introduced by Frost and Kumar,[18] as a tool for measuring internal service quality in a business-to-business (B2B) setting. Second, it introduces business performance, which is regarded as a transformation process, in which the ends (sales rate) may be the interactive outcome of the job satisfaction influenced by internal service quality. This is done through the application of an optimisation framework, referring to the relationship between internal service quality, job satisfaction and business performance. This two-stage framework aims at maximising employee satisfaction in the first stage, with the second stage concentrating on the performance (outcomes) of individual units. The analysis was facilitated through a combination of both quantitative, hard measures, and qualitative, soft measures. Evidence is drawn from the gas station industry.

The article is organised as follows. It commences with a literature review of the three concepts (internal service quality, job satisfaction, business performance) and a synthesis of the triad. The second section provides the hypotheses formation and research methodology. The main results and analysis are presented in the third section. Finally, the article concludes with the presentation and discussion of results.

LITERATURE REVIEW

Internal service quality
The concept of the internal customer emerged during the mid–1980s, suggesting that every employee or department within a company has customers, both internal and external, and that

employees (internal suppliers) should provide services that meet expectations of *all* their customers.[19] However, an area of disagreement among researchers is the measurement of internal service quality. Some researchers stress the need for a new instrument that is positioned closely to internal customer needs and expectations, and they attempt to investigate internal quality dimensions. Others suggest that it is appropriate to measure internal service quality by using techniques and instruments developed to measure external service quality, taking into consideration the differences between internal and external customers. In any case, SERVQUAL's usefulness for measuring internal service quality is almost universally accepted[20,21] by modifying its items to measure employee perceptions (INTSERVQUAL, Frost and Kumar[18]) in addition to, however, certain considerations regarding the confirmation of the instrument's dimensionality.[18,20–24]

Job satisfaction

Job satisfaction has been heavily researched; it has many meanings or interpretations and there is no universal definition of the concept. It is initially defined[25] either according to the characteristics of the job itself and the essentials of the work environment in which employees find rewards, fulfilment and satisfaction, or frustration and dissatisfaction, or as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experience.[27] Clark and Oswald[26] argue that a worker's level of job satisfaction can be used as a measure of relative job utility and, as such, is an important indicator of worker attitude and behaviour. Similarly, Fogarty[28] believes that job satisfaction is associated with the extent to which employees enjoy their efforts in the workplace.

The nature of job satisfaction has raised many questions as to whether it is a unitary concept, meaning that someone is generally either satisfied or dissatisfied with a job.[2] Alternatively, it may be a multidimensional construct, implying that someone can be relatively satisfied with one aspect of the job and dissatisfied with other aspects.[29] Such aspects of job satisfaction may

include corporate image, organisational vision, superiors, co-workers and work conditions,[30] job content and work environment,[31] work itself, pay, promotion, supervision, employee involvement, organisational commitment and motivation.[32]

A more analytic work in job satisfaction measurement, presented from Churchill *et al*,[25] is specifically designed for industrial salesmen. Their study identified seven factors that determine job satisfaction (the job itself, fellow workers, supervision, company policy and office support, pay and company benefits, promotion and advancement and finally the behaviour of the customers).

Business performance

Business performance can be defined as the measurement and assessment of the actual achievements of the management of a business.[33] Multiple and single, financial and non-financial indicators have been used to measure performance. During the 1970s and early 1980s, the most commonly used measure of performance was profit, as well as other financial measures (liquidity, revenue growth and so on). Progress in management science has put forward the idea that a single performance criterion cannot capture the full dynamism of a firm, and has highlighted the need for more complex and sophisticated performance measurement systems that can cope with the changing environment in which firms operate. Sink and Tuttle[34] regard organisational performance as a complex interrelationship among effectiveness (doing the right things), efficiency, quality, productivity, quality of work life, innovation and profitability. Fitzerald *et al*[35] argue that performance in the context of services should include the following six generic dimensions: competitive performance, financial performance, quality of service, flexibility, resource utilisation or productivity, and innovation. Effectiveness, efficiency and changeability have been recognised by Bredrup[36] as performance dimensions. Finally, internal marketing, organisational culture and job satisfaction have been identified by Shiu and Yu[4] as predictors of organisational performance.

FORMULATION OF HYPOTHESES

Internal service quality dimensions
Researchers have measured internal service quality in various customer-service settings, including hospitals,[24,37] banks,[38,39] hotels,[23] airlines,[18] manufactories,[40] telecommunications,[41] insurance firms,[42] entertainment and gaming complexes,[43] computer services companies,[20] and universities,[21] reporting, however, different dimensions from the original SERVQUAL instrument. Moreover, only one of these studies[44] evaluated internal service quality in a B2B environment. In their study, internal and external (SERVQUAL) dimensions of services are compared on an importance/corporate performance matrix. Their results confirm the superiority of external providers in all SERVQUAL dimensions, except reliability, thus indicating that they yield greater customer satisfaction and meet user needs more effectively. They also identified that financial aspects of the service are given more importance, when the supplier is external to the firm. Motivated on the one hand by the consensus among researchers that SERVQUAL, if adapted, may constitute a good measurement instrument for internal service quality and on the other hand by the limited empirical evidence on the stability, reliability and validity of its dimensions when measuring internal service quality, especially in a B2B environment, the first hypothesis of this study is as follows:

Hypothesis 1: The INTSERVQUAL instrument exhibits the five originally hypothesised dimensions in a B2B environment.

Relationships between internal service quality, job satisfaction and performance
The key success factor in today's service-oriented organisations is considered to be 'human capital', as it affects customer satisfaction and thus business performance.[15] In the service marketing literature, many scholars have found evidence supporting the view that organisations providing quality services to internal customers are *generally*

successful,[45] and that employee satisfaction can result in enhanced organisational performance.[16] Hallowell et al,[42] for example, suggest that internal service quality is related to customer service quality via employee capability. Specifically, they support the notion that job satisfaction is linked more strongly to satisfaction with internal service quality, than to satisfaction with wages and benefits. Heskett et al[14] conceptually propose the 'service-profit chain', which establishes links between profitability and customer loyalty, as well as employee satisfaction, loyalty and productivity. Bellou and Andronikidis[39] examine the effect of internal service quality on employees' prosocial customer behaviour, arguing that employees are more likely to improve their general performance and be more cooperative where there is an internal service–quality climate. Bruhn (p. 1190)[46] acknowledged that 'internal customer satisfaction is an essential prerequisite both for improving internal suppliers–customer relationship and for attaining higher external customer satisfaction, retention and long-term financial success'. Newman et al[47] supported the notion that the serving ability of a worker depends on the quality of internal processes, available resources and recognition. This ability influences employee job satisfaction, his or her willingness to remain in the organisation and the quality of services provided, thus affecting the satisfaction of external customers and, in turn, financial performance. This argument that job satisfaction makes employees work harder and more positively, thus affecting organisational performance, is further supported.[16,48,49] Accordingly, it is expected that, in an attempt to capture service provision effectiveness, internal service quality, employee satisfaction and performance form a new framework (SQ-S-P), so that a proposition can be formulated as follows:

Proposition 1: Employee satisfaction mediates the relationship between internal service quality and organisational performance.

Following the TQM rationale of the 'hard' and 'soft' sides of quality[50] and based on the

Figure 1: Input–transformation–output model.

argument that is strongly supported in the marketing literature, that tangibles are not well represented by SERVQUAL,[51] this study introduces several quantifiable variables as input resources to the gas station (such as personnel size, m^2 of land and buildings, numbers of fuel pumps). Individual units are assumed to operate a two-stage transformation process, which inputs both service quality and resources, to produce employee satisfaction, which in turn generates outputs (see Figure 1). The innovation introduced in Figure 1 concerns the resources component, which extends the 'tangibles' or 'physical evidence'[52] dimensions of the 'classic' marketing literature, as qualitatively measured by INTSERVQUAL. The effort made by the management of a particular business unit to stimulate employee satisfaction thus has a dual profile, with both tangible (hard) and intangible (soft) characteristics. Furthermore, employee satisfaction, which corresponds to individual units, plays a direct role in organisational performance. In addition to this direct role, these multi-attribute expressions about internal service quality and employee satisfaction have a latent, unobserved nature, as described by an X-efficiency (technical) frontier. This means that, when estimating the efficiency performance targets for a given unit, the improvement potential is underestimated by a certain percentage (gap), owing to the unrealised potential of employee satisfaction of this specific unit. In other words, the multi-stage transformation process is introduced here, first to estimate the maximum level of satisfaction, after controlling for the internal characteristics of the unit (hard and soft ISQ). This process in turn attempts to eliminate the inconsistencies that may exist between the perceptions of different managers across units. The second stage of the assessment focuses on

the X (or technical) efficiency of the units, after having controlled for the maximum level of satisfaction that should have been provided at the first stage. The substitution of satisfaction with maximum satisfaction feasible or requested actually yields the opportunity cost for not totally satisfied employees.[53] A set of hypotheses and equations is provided below, although the full mathematical representation is avoided *for the sake of simplicity and because of space limitations*.

$$\text{Employee Satisfaction} = f\,(\text{hard Internal Quality}, \text{soft internal quality}) \tag{1}$$

$$\text{Organisational performance}_n = g\,(\text{Employee Satisfaction}) \tag{2}$$

$$\text{Organisational performance}_{max} = h\,(\text{Max}\,(\text{Employee satisfaction})) \tag{3}$$

Or

Hypothesis 2: Employee Satisfaction is considered to be an outcome of firm strategic choices to invest in human capital, hard and soft internal quality. The introduced framework seeks to estimate the best level of employee satisfaction that corresponds to given levels of internal firm quality.

Hypothesis 3: Performance is an X-efficiency rationale or an input–output representation of the operating process of individual units. Units are considered as efficient, if, for a given set of inputs will maximise their outputs and/or for a given set of outputs produced, they minimise the inputs used.

METHODOLOGY

The sample
This study draws on evidence from the Greek petrol industry, which includes both the domestic

(EKO, AVINOIL) and multinational (BP, Shell and so on) companies that share the market. In this survey, gas station managers selected from all petrol companies constitute internal customers and the wholesale company is the internal supplier. The peculiarity of this sector lies in the fact that internal customers build a long-term relationship with the other component (in an exclusive collaboration contract), thus becoming 'captive customers', and their suppliers may be considered 'the only game in town'.[45,54] In addition, internal customers are knowledgeable about the services provided,[19] leading Finn et al[55] to refer to them as 'professional customers'. The survey content was based on individual interviews with managers of the gas stations. It is worth noting that every gas station operates as a separate legal entity, but following rules and accepting guidance as franchisees of the respective oil company. Participants were asked to give their views about the level of service quality provided by the internal suppliers (soft element) and their job satisfaction. Moreover, the survey included questions about their gas stations' quantifiable elements (personnel size, m^2 of land, m^2 of buildings, the number of fuel pumps). The total number (in litres) of two types of gas sold was received from the relevant petroleum companies and represents the performance outcomes. A sample of 44 usable questionnaires from gas stations was finally collected.

The instrument

The soft element of internal service quality was measured by using only the performance score of the INTSERVQUAL instrument. A few mostly semantic modifications were carried out, in order to adapt the instrument to the specifics of the gas station sector. The final instrument exhibited good internal consistency (Cronbach's α of 0.94) exceeding the common threshold value recommended by Nunnally.[56] The measurement of internal customer job satisfaction was based on two features cited in Locke[27] and Churchill et al.[25] One question tapped employee satisfaction with the job itself and the other with the environment created by the company (internal supplier), which yielded a very good reliability

score (0.81). All items were answered on a 7-point Likert scale. Next, a principal component analysis is performed and results analysed in the 'Results and Discussion' section. The observed reliability and convergent/discriminant validity suggest adequacy of the measurements used in the study.

The methods

Following the descriptive analysis of data (means, standard deviations, kurtosis, skewness), the inferential analysis of this research was conducted in three stages: (a) an exploratory and confirmatory factor analysis on the internal service quality instrument, in order to test the dimensionality of INTSERVQUAL in a B2B environment; (b) a stepwise regression to determine which variables would be the inputs in the system and which would be excluded as non-statistically significant; and (c) a Data Envelopment Analysis to evaluate the relative efficiency of a set of decision-making units (gas stations), in their use of inputs to produce outputs without specifying a specific production function.

RESULTS AND DISCUSSION

First, exploratory factor analysis (EFA) was carried out to estimate the pattern of relationship within the data, using the method of principal components analysis and a varimax rotation. Both the Kaiser–Meyer–Olkin index (sampling adequacy of 0.870) and the Bartlett test of sphericity ($P=0.000$) provided satisfactory results. The analysis revealed two clearly interpreted factors explaining 72.4 per cent of the variance and having eigenvalues exceeding 1. The first factor may be regarded as corresponding to the interactive quality (factor one; how the business offers it), whereas the second represents the physical quality (factor two; what the business offers) of internal customers' (gas station managers) evaluation of the quality of services they receive from their internal suppliers (wholesale company). These findings do not conform to the five-dimensional structure of INTSERVQUAL, presenting an alternative conceptualisation of internal service quality, and

have to be justified further with the use of CFA (AMOS 5), in order to confirm the factor structure of the observed variables, as suggested in the literature review. The latent variables were the five dimensions of INTSERVQUAL, and the observable variables were the 22 items comprising these dimensions. Four alternative solutions were evaluated, in order to identify the best model. First, the five dimensions solution of INTSERVQUAL was tested; then the number of dimensions was gradually reduced to two, based on the previous EFA results. The findings indicate that the two-dimensional solution presents the best fit among the four alternatives. With this solution, the dimensions of reliability, responsiveness, assurance and empathy were combined into one factor and only the dimension tangibles formed the second factor, in line with the EFA analysis (Table 1).

With the two-factor solution, each factor exhibited good internal consistency and tests show that the variance of the two factors exceeds the 0.50 threshold, thus yielding convergent validity. Finally, a discriminant validity test reveals that the factors are distinct from each other. Hence, the two-dimensional model (one representing the physical and the other the interactive) should be accepted for the measurement of internal service quality in a B2B environment. The results thus mean rejecting our first hypothesis for the dimensionality of INTSERVQUAL instrument in a B2B environment, advocating in favour of a more parsimonious two-factor model.

In order to test our second hypothesis, regarding the explanatory ability of the ISQ with respect to employee satisfaction, regression analysis (Table 2) was then used as the most appropriate technique for selecting the variables (inputs and outputs) and overcome the *potential* inefficiencies of the DEA method. The dependent variable was job satisfaction (the sum of individual scores to simulate discrete variable behaviour) and the independent variables were

Table 1: Confirmatory factor analysis for testing INTSERVQUAL dimensionality

	Five-dimensional solution	Four-dimensional solution	Three-dimensional solution	Two-dimensional solution
CMIN/DF	1.551	1.546	1.540	1.277
RMSEA	0.103	0.102	0.168	0.073
RMR	0.169	0.170	0.102	0.126
TLI	0.866	0.867	0.868	0.960
CFI	0.884	0.883	0.883	0.968
AIC	416.576	413.745	411.325	179.239
ECVI	8.011	7.957	7.910	3.447

Table 2: Regression analysis results

Model	Unstandardised coefficients		Standardised coefficients	T	Sig.	Collinearly statistics	
	B	SE	Beta			Tolerance	VIF
(Constant)	11.764	0.771	—	15.256	0.000	—	—
Interactive dimension	1.361	0.238	0.610	5.718	0.000	0.973	1.028
Physical dimension	0.675	0.274	0.287	2.468	0.018	0.821	1.218
Personnel size	0.100	0.191	0.059	0.520	0.606	0.870	1.149
m^2 of land	−0.010	0.004	−0.402	−2.791	0.008	0.533	1.876
m^2 of buildings	−0.247	0.128	−0.244	−1.933	0.048	0.695	1.439
Numbers of fuel pumps	0.002	0.001	0.399	2.950	0.005	0.604	1.655

Predictors: (Constant), interactive and physical internal service quality, personnel size, m^2 of land, m^2 of buildings, numbers of fuel pumps.

Dependent variable: job satisfaction.

the soft (INTSERVQUAL) and hard (personnel size, m² of land, m² of buildings, numbers of fuel pumps) dimensions of internal service quality. Stepwise regression analysis was then used to verify the results of the correlation analysis and determine the inputs and outputs of the DEA model (Table 3). This *indicates* that there is a strong positive link between job satisfaction and the two dimensions of internal service quality (interactive and physical) together with some 'quantifiable' elements (m² of land, m² of buildings and the number of fuel pumps). The explanatory ability of the combined use of soft and hard resources ($R^2 = 0.513$) outperforms any other combination of soft or hard resources alone. Hence, this study suggests that internal customers' job satisfaction is best explained by a

combination of soft and hard dimensions of internal services quality. Therefore our second hypothesis seems to be supported.

Following the results of the regression analysis and in order to verify our third hypothesis, the DEA approach was then applied, progressing through three steps, as previously explained:

Step 1: Application of the DEA model to each gas station, using the hard and soft dimensions (resources) of internal service quality as the inputs and job satisfaction as the output. Table 4 presents the input–output profiles of three extreme cases (minimum, average and maximum) and their corresponding level of improvement. The above results do not relate to any directly observed gas station in the study.

Table 3: Correlation analysis

	Personnel size	m² of land	m² of buldings	No. of pumps	INTANGIBLES	TANGIBLES	Job satisfaction
Personnel size							
Pearson corr.	1	0.214	0.334*	0.362*	0.054	0.123	0.670**
Sig. (two-tailed)	—	0.174	0.028	0.016	0.730	0.426	0.001
N	44	42	43	44	44	44	44
m² of land							
Pearson corr.	0.214	1	0.532**	0.543**	0.030	−0.091	0.720**
Sig. (two-tailed)	0.174	—	0.000	0.000	0.853	0.566	0.015
N	42	42	42	42	42	42	42
m² of Buldings							
Pearson corr.	0.334*	0.532**	1	0.527**	0.054	0.312*	0.714**
Sig. (two-tailed)	0.028	0.000	—	0.000	0.729	0.041	0.002
N	43	42	43	43	43	43	43
No. of pumps							
Pearson corr.	0.362*	0.543**	0.527**	1	0.039	0.022	0.654**
Sig. (two-tailed)	0.016	0.000	0.000	—	0.800	0.887	0.020
N	44	42	43	44	44	44	44
INTANGIBLES							
Pearson corr.	0.054	0.030	0.054	0.039	1	0.000	0.701**
Sig. (two-tailed)	0.730	0.853	0.729	0.800	—	1.000	0.007
N	44	42	43	44	44	44	44
TANGIBLES							
Pearson corr.	0.123	−0.091	0.312*	0.022	0.000	1	0.698**
Sig. (two-tailed)	0.426	0.566	0.041	0.887	1.000	—	0.001
N	44	42	43	44	44	44	44
JOB satisfaction							
Pearson corr.	0.670**	0.720**	0.714**	0.654**	0.701**	0.698**	1
Sig. (two-tailed)	0.001	0.015	0.002	0.020	0.007	0.001	—
N	44	42	43	44	44	44	44

*Correlation is significant at the 0.05 level (two-tailed).

**Correlation is significant at the 0.01 level (two-tailed).

Table 4: Optimal level of job satisfaction

Variables	Minimum		Average		Maximum	
	Observed	Targeted	Observed	Targeted	Observed	Targeted
Interactive dimension	25	25	73	72.9	88.9	88.9
Physical dimension	5	5	16.8	17.1	21	21
m^2 of land	82	72.4	665.5	388.6	2000	279.9
m^2 of buildings	15	15	128.5	84.5	450	134.9
Numbers of fuel pumps	3	3	5.25	4.6	14	5.68
Job satisfaction	5	5	11.4	14	17.9	49.8

Table 5: X-efficiency targets

Variables	Average (step 2)		Average (step 3)	
	Observed	Targeted	Observed	Targeted
Business sales (product 1)	1 338 407	2 051 349	1 338 407	4 932 765
Business sales (product 2)	175 683	250 672	175 683	800 592.3
Job satisfaction	10.8	5.6	13.6	13.6

Step 2: In this step, the model's input was job satisfaction and the output was business sales.

Step 3: Job satisfaction takes its maximised values (from DEA), which are then used as an input, and business sales as an output. The output maximisation aims primarily at identifying inefficient units, that is, units that should produce the same mix and level of services, but with fewer inputs, compared with actual operations of other units. The input–output mix from the examples in Table 5 does not relate to any directly observed gas station in the study. The two cases correspond to the average observed level of each input/output and their corresponding efficient targets.

The difference between targeted and observed performance in Step 2 contains information on the inputs (satisfaction) and outputs (business sales 1, 2 representation of average unit had it utilised its corresponding resources in full. The targeted result in Step 2 is then used as an input for Step 3, in order to define the improvement potential of this unit. This improvement potential gap (targeted Step 3–targeted Step 2) would have been underestimated without the adjustment made in previous steps. This gap further represents the opportunity costs of not providing appropriate levels of satisfaction to employees or

to internal customers, and provides an indication of the losses in sales from this action.

The performance of the gas station can be qualified further, by assessing the relative efficiency scores and for the three steps under consideration. Observing the results of Table 6, the extent to which the lack or underprovision of job satisfaction alters the efficiencies and the ranking of gas stations was identified. Almost in every case, gas stations that were ranked low in Step 1 improved their position in the subsequent steps. This may be attributed to the trade-off with the provision of job satisfaction to its employees and thus considered as a long-term opportunity of the gas station to sustain its development and survive.

CONCLUSIONS

This preliminary research investigated some theoretical and conceptual questions central to business performance. The conceptual issues related to the ways that certain factors are likely to affect a firm in achieving the desired results. Performance is regarded as a transformation process, in which the ends (sales rate) may be the interactive outcome of the job satisfaction influenced by internal service quality. The study advances an alternative theoretical framework for the measurement and assessment of internal

Table 6: Efficiency scores and ranking for gas stations

Unit	Step 1		Step 2		Step 3	
	Efficiency scores	Rank	Efficiency scores	Rank	Efficiency scores	Rank
1	100	27	63.16	8	0.84	2
2	71.43	3	66.67	23	0.37	1
3	89.19	21	64.71	15	4.53	35
4	72.58	6	66.67	24	3	3
5	100	28	60.87	1	6.31	39
6	79.96	10	64.71	16	5.92	38
7	100	29	100	40	19.23	26
8	100	30	66.67	25	18.22	25
9	92.53	22	63.16	9	5.14	37
10	87.22	20	63.53	12	13.76	13
11	100	31	60.87	2	11.96	7
12	86.5	19	64.71	17	10.15	5
13	100	23	61.90	5	10.09	4
14	92.86	26	64.71	18	12.43	11
15	97.81	4	66.67	26	12.09	8
16	71.43	32	72.73	35	12.38	10
17	100	33	60.87	3	13.20	12
18	100	34	72.73	36	30.80	31
19	100	7	67.63	30	16.89	21
20	73.77	24	61.90	6	12.24	9
21	92.86	2	69.23	32	16.16	18
22	66.39	35	64.71	19	16.76	19
23	100	36	63.16	10	16.02	16
24	100	37	64.71	20	10.53	6
25	100	8	64.71	21	15.09	14
26	78.57	14	63.16	11	15.89	15
27	85.71	38	61.11	4	16.09	17
28	100	13	66.72	27	20.79	27
29	81.48	25	66.88	28	23.17	29
30	97.79	15	63.60	13	16.85	20
31	85.71	16	63.64	14	17.58	22
32	85.71	5	67.18	29	18.09	23
33	71.43	12	65.24	22	18.13	24
34	81.15	39	100	41	100	42
35	100	40	62.08	7	22.02	28
36	100	1	100	42	26.86	30
37	35.71	11	71.12	34	31.27	32
38	79.96	9	73.43	37	34.49	33
39	78.57	41	69.12	31	40.16	36
40	100	17	70.90	33	38.17	34
41	85.71	42	83.61	39	84.87	41
42	100	43	82.88	38	76.59	40
43	85.96	18	100	43	100	43
44	100	44	100	44	100	44

service quality, regarding it as a composition of soft and hard elements. Regarding the soft elements, the study provides evidence that internal customers evaluate the quality of services they receive from their internal suppliers, based on both the interactive quality and physical quality. The two-dimensional solution of INTSERVQUAL may be more appropriate for the measurement of internal service quality in a B2B environment. The DEA application was preferred, in order to examine the previous arguments and to benchmark their characteristics. By elaborating on the findings, an exploration was undertaken of the degree to which a (not really existing) unit, created by averaging all units, would have sacrificed some of its inputs, in order to provide better job satisfaction. Specifically, Table 5 reveals that that most of the gas stations waste resources; they could use fewer fuel pumps (decrease of 14.4 per cent) and less space − m^2 of land (decrease of 71.3 per cent) and buildings (decrease of 52.1 per cent) − to

produce similar or even higher levels of job satisfaction (increase of 22.8 per cent). Managers should take these findings into consideration regarding re-engineering, thus ensuring the same or higher levels of job satisfaction, but using fewer resources. The proposed reduction in some of these inputs, therefore, corresponds to potential (slack) improvements, that identify areas where particular gas stations are over-resourced. Without losing track of the main objective of the assessment, which is clearly to maximise job satisfaction, the model can be used to spot suitable candidates for resource reallocation. On the job satisfaction (outcome) side, the estimation of targets reveals the extent to which the aggregated sums of job satisfaction offered to employees can improve within gas stations, without altering their capabilities in terms of resources provided. This finding is confirmed by the third step maximisation process followed in the empirical part of this article. A marginal increase in job satisfaction (22.8 per cent) will result in *far* better outputs; profits will increase by 268.5 per cent and 335.7 per cent (Table 6).

As with any study, there are several potential limitations to this one, which may provide guidance for future research. First and foremost, the sample size was quite small, as only 44 questionnaires were selected. Another limitation is related to use of the DEA method, in that there is no random error that treats all variations as reflecting inefficiencies. A second disadvantage is that DEA inefficiency computations can be very sensitive to the number of exogenous constraints placed on the problem. Moreover, the methodology cannot necessarily locate all inefficient gas stations or indicate a cause or remedy for the identified inefficiencies.

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