

Leadership as a Determinant of EFQM Excellence: Model Implementation in Slovenian Higher Education Institutions

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One major means to address stakeholder pressures concerning the improvement of the higher education services is the use of Business Excellence Models (BEMS) which attracted attention of both academics and practitioners. In particular, this study aims to assess the applying of the leadership criterion in the higher education institutions according to European Foundation for Quality Management (EFQM) Excellence Model. The study draws upon Common Assessment Framework (CAF) 2013 and EFQM 2013 model as references to measure the key leadership dimensions. Using empirical data based on a large-scale survey among employees within Slovenian higher education institutions (HEIS) this paper utilized the Partial Least Squares Path Modeling (PLS-PM) in order to investigate the relationships between leadership dimensions and influential factors regarding the adoption of the EFQM model in HEIS. The results showed that two leadership dimensions directly influence the implementation enablers (i.e. the perception of the employees regarding the influence of the leadership dimensions on the EFQM Excellence Model implementation), while other dimension indirectly influence the implementation enablers. The main conclusion is that a greater engagement in leadership criterion serves as a driving force of the EFQM Excellence model adoption in HEIS. The paper contributes to an ongoing discussion of a need of excellence models being adapted in higher education institutions. Hence, by investigating the leadership criterion of the EFQM Excellence Model, this study reinforces previous findings highlighting the need to integrate quality management perspective within the frame of higher education sector.

Key Words: CAF, EFQM, higher education, leadership, excellence, PLS-PM

JEL Classification: M12, I21, I23

<https://doi.org/10.26493/1854-6935.18.45-66>

Introduction

Nowadays, higher education institutions (HEIS) face important challenges, such as the need of responding to diverse social demands, increase of educational spending as well as the need to adapt to the new age of information and knowledge (Calvo-Mora, Leal, and Roldan 2006). Stensaker (2007) states that the assurance of quality is becoming an important part of HEIS. According to Brennan and Shah (2000), the processes of establishing of quality assurance influences the balance of powers inside the HEI as well as has an important impact on the manner of decision-making. A transparent way of accomplishing the whole process of quality should force the leaders of HEI to make rational decisions and support the latter with evidence. Murgatroyd and Morgan (1993) insist that no approach to quality can work if there are no completely engaged leaders, who enable the emergence of philosophy and quality culture. These leaders must develop three dimensions of management, which are trust, transferring the power onto the employees and involving of other stakeholders in management.

In last decades, different approaches have been adopted for the introduction of quality management in HEIS, such as self-assessment and external assessment of the institutions, accreditation and certification systems as well as different models of Total Quality Management – TQM (Wiklund et al. 2003). Accordingly, the spread of self-evaluation, considered as the essential requirement for continuous performance improvement and benchmarking, is supported by the adoption of quality models such as the European Foundation for Quality Management (EFQM) model and Common Assessment framework (CAF) thoroughly tested in the public and private sector (Cappelli et al. 2011). It could be argued that self-assessment and quality management systems are important in HEIS (Tari 2006; Srikanthan and Dalrymple 2004). As argued by Tari (2006) the development of leadership within HEI is important in any continuous improvement process.

Prior literature has extensively addressed the leadership from a wide array of perspectives. As pointed out by Rao Tummala and Tang (1996) leaders are responsible for creating clear and visible quality values and high expectations and for integrating them into the way the organization operates. This requires their strong personal commitment and involvement. Leaders must take part as role models in the creation of strategies, systems, and methods for achieving excellence in quality. Laksh-

man (2006) highlighted that the role of leadership in managing quality is relatively unaddressed in the leadership literature. Several researchers in the quality management literature have pointed to the importance of the role of leadership in managing quality (e.g. Kaynak 2003; Sila 2007). There seems to be a strong consensus among the founders of the quality movement as far as the importance of leadership to managing quality is concerned (Dahlggaard Park 2011; Idris and Zairi 2006; Kanji 2008). The above arguments are supported by prior studies (e.g. Eskildsen and Dahlggaard 2000) which emphasise the positive association between leadership and the other key TQM implementation factors.

The importance of leadership has been discussed also in the context of the HEI environment. Prior studies (Osseo-Asare, Longbottom, and Murphy 2005; Calvo-Mora, Leal, and Roldan 2006) have highlighted that leadership is a key factor in the success of the EFQM implementation in higher education institutions. Furthermore, Flumerfelt and Banachowski (2011) identified several key leadership paradigms for improvement in higher education (e.g. allocating resources, clarifying roles and responsibilities, communication, planning etc.), especially those related to quality and business excellence models. It is argued that these paradigms eventually improve the quality of services in higher education.

The importance of leadership in Slovenian educational system, can also be confirmed in the work of Sentočnik (2012) who suggests that note that leadership of HEI represents a critical lever to create and maintain an efficient HE, which encourages higher student achievements (Hallinger and Heck 1996; Leithwood et al. 2007). In recent years, dispersed leadership has achieved more attention, especially because of understanding leadership as a function that serves as interaction of all stakeholders of HEI (Spillane and Camburn 2006). The model of dispersed leadership represents powerful stress on the performance of HEI as a whole, and allows more focus on the relations between leaders of HEI, as the preparation for managing and developing HEI shows the complexity of leading roles and a rise in pressure and responsibility.

Although there are an increasing number of higher education institutions (HEIs) adopting self-assessment (Hides, Davies, and Jackson 2004; Nenadál 2015), little empirical literature exists analysing the interrelationships between leadership dimensions and the factors that influence the decision to adopt excellence model in HEI. In particular, this study examines the leadership dimensions as determinants to adopt the EFQM model within Slovenian HE environment.

The paper begins with a theoretical background regarding the quality initiatives in HEIS followed by a methodology section. Based on the studied literature, the research framework is proposed which is empirically validated by the survey results obtained among Slovenian HEIS. The empirical findings then demonstrate the interrelationships between leadership dimensions and provide insights regarding the influential factors of adopting the EFQM model in HEIS. The paper finishes with a discussion of the results and reaches a number of conclusions.

Theoretical Background and Research Framework Development

Based on extensive literature studies (e.g. Vakalopoulou, Tsiotras, and Gotzamani 2013; Cappelli et al. 2011) related to the quality initiative in public sector we have developed the research framework for investigating the interrelationships between leadership dimensions as shown in figure 1. In recent years, some scientific papers have paid attention to the relationships in the EFQM model (e.g. Calvo-Mora, Leal, and Roldan 2005; Gómez Gómez, Martínez Costa, and Martínez Lorente 2011; 2015). Previously, some other studies had analysed the relationships in the CAF model (e.g. Raharjo et al. 2015). Relying on findings demonstrated by these studies, this paper is focused on studying the relationships between leadership dimensions adopted from CAF model and their impact on the decision (noted as implementation enablers in the proposed research framework) to implement EFQM model in HEI. It can be emphasised that leaders in both the public and the private sectors have to develop their own vision, mission and values and are considered as role models of total quality excellence culture (Oakland 2011). Drawing on these arguments one could argue that leaders have the ability to create culture that stimulate employees' motivation and commitment towards quality and improvement initiatives (Calvo-Mora, Leal, and Roldan 2006). From this perspective, prior studies (Dahlgaard et al. 2013; Dahlgaard Park and Dahlgaard 2010) have pointed out the importance of building culture corporate culture and values in the path towards organizational excellence. Furthermore, based on mission and vision leaders need to establish quality policy and measurable objectives in order to successfully the implementation of the quality initiatives, such as quality management system, CAF or EFQM (Vakalopoulou, Tsiotras, and Gotzamani 2013; Tarí 2006).

Several prior studies (Davies, Hides, and Casey 2001; Hides, Davies, and Jackson 2004) have analysed how the business excellence models could serve as a framework for addressing the challenges faced by HEIS

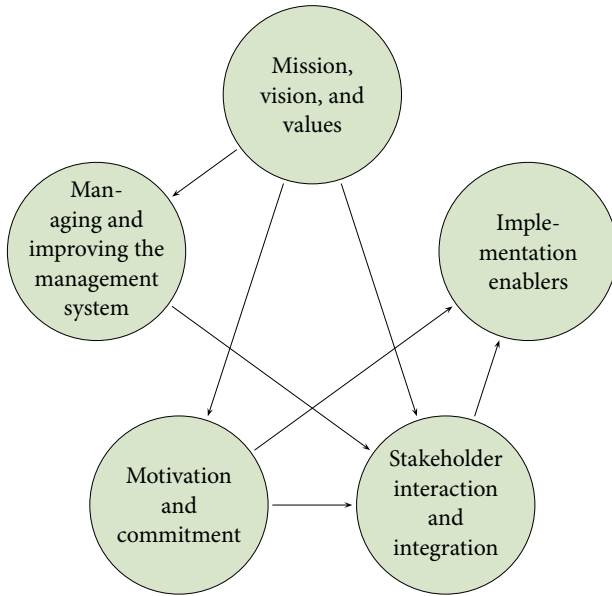


FIGURE 1
Research Framework

by the means of stakeholder pressure. As such, we argue that leadership through its efficient management system, through culture that create values, which in turn may shape the commitment of its employees, positively influence the stakeholder interaction and integration. Ultimately, this stakeholder focused strategy might have an important role in decision-making process to adopt and implement quality model, such as EFQM or CAF.

Research Framework and Methodology

MEASURES

In order to measure the key leadership dimensions, we took the Common Assessment Framework (CAF) 2013 and EFQM 2013 model as a reference. In this respect, the information included in the CAF and EFQM model is appropriate for developing measurement scales for the leadership dimension. Several topics were conceptualized to formulate the questionnaire, each tested on 7-point Likert scale. The Likert scale was based on the logic of the Plan – Do – Check – Act/Plan – Do – Check – Adjust (PDCA) system. In the subsequent empirical analysis 6-point scale was used, since the 7 corresponded to ‘Prefer not to answer.’ The following leadership dimensions were considered and validated in this study: mission, vision and values, managing and improving the management system, motivation

and commitment, stakeholder interaction and integration. These dimensions are based upon the CAF 2013 sub-criterion, namely: Sub-criterion 1.1 Provide direction for the organisation by developing its mission, vision and values; Sub-criterion 1.2 Manage the organisation, its performance and its continuous improvement; Sub-criterion 1.3 Motivate and support people in the organisation and act as a role model; Sub-criterion 1.4 Manage effective relations with political authorities and other stakeholders. Apart from leadership dimensions, questionnaire consisted of the section (implementation enablers) which intended to capture the leadership dimensions by the means of the key success factors for the EFQM excellence model implementation. The last section of the questionnaire was devoted to general questions about respondents. The corresponding items for measuring the leadership dimensions are presented in table 5.

Sample and Data Collection

This study is based on the use of internet-based survey methodology. Therefore, online questionnaire was used in order to collect the data. The survey was carried out among employees in the Slovenian public and private higher education sector. 45 Slovenian HEIS were considered for the purpose of this study. The HEIS were selected from the list of accredited HEIS that is available on the website of the directorate for Higher Education. In particular, the questionnaire was sent out to 3500 HE teachers in the period from 4th March to 11th August 2014. Out of 3500 invited participants, 205 answered the questionnaire which yields a 5.86 % response rate. The distribution of the respondents according to age shows a generally similar pattern for males and females (51.6 % of males and 48.40 % of females). Thirty-nine percent of respondents are in the 46–55 age group, followed by 20.64 % of the respondents in the 26–35 age group. The distribution of the respondents according to the obtained degree shows that 58.59 % of the respondents obtained doctoral degree. Among all the respondents, 70.23 % of the respondents declared that their employment is regular and full-time. Based on the position of the respondents, 20.0 % of the respondents were full professors, 16.48 of the respondents were classified as scientific associates and 27.27 % of the respondents were teaching assistants. The majority of the respondents (30.16 %) have between 26 and 35 years of working experience, followed by 23.02 of the respondents who have 6 to 15 years of working experience. The largest percentage of respondents (43.61) indicated that they are employed at the University of Ljubljana.

ANALYSIS METHOD

In order to assess measurement model and structural model we utilized the Partial Least Squares Path Modeling (PLS-PM) using the R package *plspm* (Sanchez 2013). PLS-PM can be viewed from a broader conceptual perspective for analysing multiple relationships between blocks of variables. It is assumed that each block of variables plays the role of a theoretical concept represented in the form of a latent (unobserved) variable. A full path model is comprised by two sub-models: the structural model also known as inner model and the measurement model also known as outer model. The inner model is the part of the model that has to do with the relationships between latent variables. The outer model is the part of the model that has to do with the relationships between each latent variable and its block of indicators (Sanchez 2013). PLS-PM is a component-based estimation method (Tenenhaus 2008). PLS-PM uses an iterative algorithm that separately solves out the blocks of the measurement model and then, in a second step, estimates the path coefficients in the structural model (Esposito Vinzi, Trinchera, and Amato 2010).

Analysis and Results

MEASUREMENT MODEL ASSESSMENT

In general, PLS Path Model is formed by two sub-models: the structural or inner model, and the measurement or outer model. The structural model is the part of the model that addresses the relationships between the latent variables. In contrast, the measurement model is the part of the model that addresses the relationships of a latent variable with its block of manifest variables (Sanchez 2013).

In order to assess the outer model one must examine the loadings and the communalities. The loadings are correlations between a latent variable and its indicators. In contrast, communalities are squared correlations and they measure the part of the variance between a latent variable and its indicator that is common to both (Sanchez 2013). According to the literature (Sanchez 2013) loadings greater than 0.7 are acceptable. Results regarding the outer model assessment are presented in table 5. As can be seen from the table 5, the majority of indicators meet the threshold criterion of 0.7. There are few exceptions of values just below 0.7. Nevertheless, these indicators were also left in the model due to content considerations.

Besides checking the loadings of the indicators with their own latent variables, we must also check the cross-loadings that are available in the

TABLE 1 Summary of the Results Regarding the Block Unidimensionality

Item	(1)	(2)	(3)	(4)	(5)
LV1	A	7	0.951	0.960	5.42
LV2	A	10	0.937	0.946	6.39
LV3	A	10	0.940	0.949	6.49
LV4	A	10	0.895	0.914	5.16
LV5	A	4	0.729	0.831	2.21

NOTES Column headings are as follows: (1) mode, (2) MVS, (3) Cronbach's alpha, (4) Dillon-Goldstein's rho, (5) Eigenvalue. LV1 – mission, vision and values, LV2 – managing and improving the management system, LV3 – motivation and commitment, LV4 – stakeholder interaction and integration, LV5 – implementation enablers.

output of the plspm function. As such, we checked the cross-loadings matrix in order to identify any possible cross-loading.

Furthermore, the following indices were used to check unidimensionality: Cronbach's alpha, Dillon-Goldstein's rho and the first eigenvalue of the indicators' correlation matrix (table 1). The first column shows the type of measurement. In this case all the blocks are reflective. The Cronbach's alpha is a coefficient that is intended to evaluate how well a block of indicators measure their corresponding latent construct (Sanchez 2013). The alpha value for each block of indicators (i.e. latent variable) was well above the recommended value of 0.70, which is considered satisfactory for empirical research (Sanchez 2013; Hair et al. 2010). According to the literature Dillon-Goldstein's rho index has some advantage over the Cronbach's alpha because it takes into account to which extent the latent variable explains its block of indicators. As a rule of thumb, a block is considered as unidimensional when the Dillon-Goldstein's rho is larger than 0.7 (Sanchez 2013). As shown in table 1, Dillon-Goldstein's rho values are well above the recommended value of 0.7. The third metric includes an eigen-analysis of the correlation matrix of each set of indicators. If a block is unidimensional, then the first eigenvalue should be larger than one. It appears that eigenvalues for our blocks of interest are much larger than one.

DESCRIPTIVE STATISTICS

Prior to further statistical analysis, we first investigated the descriptive statistics for study variables. The descriptive statistics for leadership dimensions are presented in table 2. Observing the study variables, one can see that the highest mean value corresponds to the implementation enablers (4.04), while the lowest value corresponds to the mission, vision

TABLE 2 Means, Standard Deviations and Correlations

Item	M	SD	(1)	(2)	(3)	(4)	(5)
(1) LV1	3.26	1.683					
(2) LV2	3.31	1.563	0.906**				
(3) LV3	3.39	1.681	0.846**	0.878**			
(4) LV4	3.42	1.521	0.742**	0.777**	0.821**		
(5) LV5	4.04	0.918	0.256**	0.317**	0.369**	0.380**	–

NOTES ** Correlation is significant at the 0.01 level (2-tailed).

and values (3.26). Moreover, the results indicate that the point estimate for the true mean of implementation enablers in the population is 4.04, and we are 95 % confident that the true mean is between 3.86 and 4.21, while the true mean for mission, vision and values lies between 3.16 and 3.80.

The results of the *t*-tests show that there is significant difference between mean values for the mission, vision and values (3.26) and the implementation enablers (4.04) ($t = -3.399, p = 0.01$), between managing and improving the management system (3.31) and implementation enablers (4.04) ($t = -4.278, p = 0.00$), between motivation and commitment (3.39) and implementation enablers (4.04) ($t = -3.785, p = 0.00$). The results also support significant difference between mean values for the stakeholder interaction and integration (3.42) and implementation enablers (4.04) ($t = -4.820, p = 0.00$).

Moreover, the bivariate Pearson correlation was used to measure the correlations among pairs of variables (leadership dimensions and implementation enablers). The results indicated positive relationships between included variables, with correlations ranging from 0.256 to 0.906 ($p < 0.01$). For instance, mission, vision and values shows the strongest correlation with managing and improving the management system ($r = 0.906, p < 0.01$). It appears that managing and improving the management system is strongly related to the motivation and commitment ($r = 0.878, p < 0.01$). Strong correlation was also found between mission, vision and values and motivation and commitment ($r = 0.846, p < 0.01$) as well as between motivation and commitment and stakeholder interaction and integration ($r = 0.821, p < 0.01$).

STRUCTURAL MODEL ASSESSMENT

The results regarding the assessment of the structural (inner) model are presented in table 3. One can inspect the R^2 that are the coefficients of de-

TABLE 3 Summary of the Results Regarding the Inner Model Assessment

Item	(1)	(2)	(3)	(4)	(5)
LV1	Exogenous	0.000	0.775	0.0000	0.775
LV2	Endogenous	0.683	0.639	0.4365	0.639
LV3	Endogenous	0.561	0.649	0.3639	0.649
LV4	Endogenous	0.647	0.515	0.3330	0.515
LV5	Endogenous	0.103	0.551	0.0566	0.551

NOTES Column headings are as follows: (1) type, (2) R^2 , (3) block communality, (4) mean redundancy, (5) average variance extracted.

termination of the endogenous latent variables. The R^2 for ‘Managing and improving the management system (LV2)’ and ‘Stakeholder interaction and integration (LV4)’ are above 0.6 which under the PLS-PM standards can be considered as high value (Sanchez 2013). According to the results, lower amount of variance (10.3 %) in the ‘Implementation enablers (LV5)’ is explained by its independent latent variables.

Furthermore, average communality indicates how much of the block variability is reproducible by the latent variable. It seems that the highest value in this respect achieved the latent variable ‘Mission, vision and values (LV1)’, while the lowest value corresponds to the ‘Stakeholder interaction and integration (LV4)’. Mean redundancy represents the percentage of the variance in the endogenous block that is predicted from the independent latent variables. High redundancy indicates ability to predict. For example, ‘Mission, vision and values (LV1)’ predicts 43.65 % of the variability of ‘Managing and improving the management system (LV2)’ indicators.

AVE is the Average Variance Extracted which measures the amount of variance that a latent variable captures from its indicators in relation to the amount of variance due to measurement error (Sanchez 2013). As a rule of thumb, AVE greater than 0.50 is acceptable. According to the results, the AVE values for our inner model are above recommended value of 0.5.

Furthermore, the results of the inner model, that is, the path coefficients are presented in table 4 and visualized in figure 2. The path coefficients are calculated by ordinary least squares regressions between latent variables (Sanchez 2013). The direct effects are given by the path coefficients. The indirect effects are obtained as the product of the path coefficients by taking an indirect path. According to the results ‘Mission,

TABLE 4 Path Coefficients

(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
LV1→LV2	0.8265	0.0000	0.8265	LV2→LV5	0.0000	0.0719	0.0719
LV1→LV3	0.7487	0.0000	0.7487	LV3→LV4	0.5728	0.0000	0.5728
LV1→LV4	0.0268	0.6286	0.6554	LV3→LV5	0.0284	0.1705	0.1989
LV1→LV5	0.0000	0.2163	0.2163	LV4→LV5	0.2976	0.0000	0.2976
LV2→LV4	0.2417	0.0000	0.2417				

NOTES Column headings are as follows: (1) relationships, (2) direct, (3) indirect, (4) total.

vision and values (LV1)’ has a strong effect (0.8265) on ‘Managing and improving the management system (LV2).’ Mission, vision and values (LV1) also strongly effect (0.7487) the ‘Motivation and commitment (LV3).’ It appears that ‘Motivation and commitment (LV3)’ as well as ‘Stakeholder interaction and integration (LV4)’ influence the decision regarding the EFQM excellence model implementation in HEI, captured by the latent variable ‘Implementation enablers (LV5).’

Observing the indirect effect, one can see that ‘Mission, vision and values (LV1)’ indirectly through LV2 and LV3 effects the ‘Stakeholder interaction and integration (LV4)’ (calculated as $0.8265 \times 0.2417 + 0.7487 \times 0.5728 = 0.6286$). Mission, vision and values (LV1) also indirectly effects (0.2163) the ‘Implementation enablers (LV5).’

Overall, the findings suggest that ‘Mission, vision and values (LV1)’ is the most dominant among all the studied leadership dimensions. It significantly and directly relates to the three leadership dimensions.

Discussion and Conclusions

Recently, researchers have shown increasing interest in applying quality management models or excellence models in public sector (Raharjo et al. 2015). From this perspective, prior studies have investigated the applicability of these quality systems and models in higher education institutions (Mehralizadeh and Safaemoghaddam 2010). This study, therefore, draws upon prior studies indicating that quality management practices, in particular the leadership practices, are at the core of an organization. Conceptually, leadership can be conceived as that combination of traits, values, attitudes, and behaviours that ultimately lead to the effective long-term performance of organizations (Lakshman 2006). This study is not solely focused on the issue of how to measure leadership excellence (Kanji

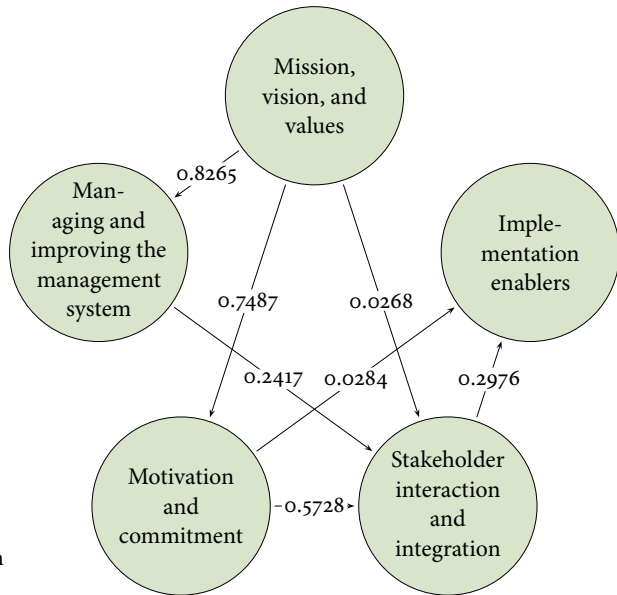


FIGURE 2
Inner Model with Path
Coefficients

2008). Rather, the study explores how the dimensions of leadership criterion affect key success factors (i.e. implementation enablers) of the EFQM Excellence Model implementation in Slovenian higher education institutions. In this regard, this study contributes to the prior studies suggesting that the leadership criterion is one of the main contributor to the business excellence models (Karimi et al. 2013; Calvo-Mora, Leal, and Roldan 2005).

PLS-PM analysis was used to arrive at these conclusions, which seemed to be quite compelling. We have tested and found support for the interpretation that leadership dimensions positively impact the implementation enablers. In particular, results of the PLS-PM model suggest that the leadership dimension 'Mission, vision and values (LV1)' positively and directly influence three dimensions of leadership, namely: 'Managing and improving the management system (LV2)', 'Motivation and commitment (LV3)' and 'Stakeholder interaction and integration (LV4)'. Therefore, it could be suggested that within higher education institutions where leadership is recognized as an important determinant of the EFQM excellence model implementation, there is stronger focus of their leaders to build proper quality culture, to develop management system as well as to integrate diverse range of stakeholders in their decisions. These findings provide further confirmation of previous studies (Kern

Pipan, Gomišček, and Kljajić 2014; Dahlggaard et al. 2013; Gómez Gómez, Martínez Costa, and Martínez Lorente 2011) that have emphasised the importance of management commitment, organizational culture, team work, values and communication in the successful introduction of TQM and business excellence models (BEMS) in the organizations. As suggested by Anyaleme (2007), the maintenance and improvement of the quality of higher education institutions must be the responsibility and full commitment of institutional leadership. Although our study is primarily focused on the leadership criterion, it should be noted that prior studies highlighted the inconsistency between leadership intention and the practices (Dahlggaard et al. 2013). Authors suggested that the culture aspect in terms of value, vision and mission building is explicitly focused under the leadership criterion, while this focus is more or less ignored in other enablers, such as strategy, partnership & resources as well as in the process criterion.

Likewise, our results provided evidence to support that 'Stakeholder interaction and integration (LV4)' positively and significantly effects the 'Implementation enablers (LV5)'. It is argued that stakeholders' involvement is crucial for successful implementation of the EFQM Excellence Model. Accordingly, policy and strategy must be based on the needs and the expectations of key stakeholders of an organization (Calvo-Mora, Leal, and Roldan 2006). Successful implementation of the EFQM Excellence Model is not dependent just on stakeholder interaction and integration. Drawing on Davies (2008) one can conclude that EFQM Excellence Model should be integrated into the strategic planning systems of the organization as well as into other aspects of the organization. Moreover, Jackson (2001) argues that every effort must be made to actively involve all employees as fully as possible in continuous improvement activities. Furthermore, it is argued that internal evaluation process within HEI is potentially valuable, especially if this process becomes an integral part of each department and is performed on a continuous basis (Mehralizadeh et al. 2007).

Drawing on the results of the study, one can highlight several recommendations for the improvement of the leadership in Slovenian HE as well as the recommendations for the improvement of the different circumstances that are perceived as prerequisite for the implementation of the EFQM excellence model in Slovenian HE environment. Fundamental changes that are required for the successful implementation of the EFQM excellence model in Slovenian HE can be divided into several ar-

eas. It is argued that leadership is an essential element for the successful integration of the quality principles into the HE. Moreover, leadership is the important element for the transition from the existing quality systems to EFQM excellence model in Slovenian HE (Pungeršek et al. 2015). Leadership can be further classified into the following categories: public leadership and governance and leadership within HEI. Leadership in HEI is especially important in the context of achieving desired quality in all levels of the HEI. As suggested by the Dean and Bowen (1994), the management's commitment and leadership in quality must be visible, permanent and present on all management levels, since it acts as the guide and promoter of the total quality management implementation process. Furthermore, employees are also considered as an important element of the successful implementation of the EFQM excellence model in HEI. One can argue that EFQM excellence model should be in accordance with other organizational systems as well as its implementation and deployment should be based on full and active involvement of all employees (Davies 2008).

Political authorities and other key stakeholder should also be outlined when discussing the possibilities of improving the quality in HE. Ultimately, quality in HE is essentially a socio-cultural and political issue with underlying economical, technological and social implications (Mehralizadeh 2005; Stensaker 2007).

Furthermore, within the Slovenian HE environment it is essential to recognize the requirements of the Slovenian Quality Assurance Agency for Higher Education, since these can also influence the decision of whether the EFQM excellence model is suitable for the Slovenian HE. Indeed, as has been elaborated in prior studies (Prašnikar and Kern-Pipan 2011) this model can be successfully used as a tool to manage changes and improve the quality of HEIS. Likewise, Zeps, Iljins, and Ribickis (2017) suggest that integration of EFQM excellence model and Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) into university strategy is considered as beneficial for further development of university.

As with all empirical studies, there are a number of limitations and directions for future research. We acknowledge that there are possible sources of bias concerning the sample distribution. As such, one boundary condition for our study pertains to the generalizability of our findings beyond the population from which our sample respondents are drawn. Accordingly, future studies could increase the generalisability of the re-

TABLE 5 Questionnaire Items and Outer Model Assessment Statistics

Mission, vision and values	(1)	(2)	(3)	(4)
Leaders develop the mission and vision of HEI by involving employees and other key stakeholders.	0.178	0.927	0.860	0.0000
Leaders shape values in accordance with the mission and vision of HEI and respect general framework of values in public sector.	0.167	0.910	0.828	0.0000
Leaders ensure that mission, vision, values, strategic and operative goals are articulated to the employees and other key stakeholders.	0.160	0.878	0.770	0.0000
Leaders regularly review mission, vision, and values in accordance with the changes in external environment (e.g. economic change, political change, socio cultural change).	0.161	0.862	0.742	0.0000
Leaders develop management system which prevents the unethical behaviour and simultaneously supports employees at solving the ethical dilemmas.	0.158	0.869	0.755	0.0000
Leaders manage the prevention of corruption by identifying the potential areas of conflicts of interest and establishing guidelines for employees.	0.143	0.840	0.705	0.0000
Leaders strengthen mutual trust, loyalty and respect among themselves and employees and regularly evaluate and propose the standards of good leadership.	0.166	0.873	0.761	0.0000

Continued on the next page

sults by taking caution in controlling for possible extraneous variation. Several control variables could be used for this purpose, such as institution’s size, governance structure and many other contextual factors. One research opportunity is to examine the factors (i.e. antecedents) that drive or hinder the business excellence framework deployment.

One of the limitations of this study is low response rate (5.86 %). Although low response rate is one of the major limitations of web-based surveys in general (Eysenbach 2005), it still reflects the unwillingness of potential respondents to express their point of view regarding the studied topic. In this regard, one can conclude that general attitude in Slovenian HE might hinder the implementation of the crucial changes concerning the improvement of the quality of HEIS and ultimately the image of the institutions. From this perspective, future studies could use several contextual variables to better explain the quality movement phenomenon in Slovenian HE.

TABLE 5 *Continued from the previous page*

Managing and improving the management system	(1)	(2)	(3)	(4)
Leaders define the appropriate forms of governance (levels, responsibility, and accountability) and enable process management system in compliance with the strategy and stakeholders' demands.	0.134	0.842	0.709	0.4843
Leaders recognize and prioritize actions regarding the change in structure, operations and management of HEI.	0.136	0.823	0.678	0.4630
Leaders establish measurable targets – specific objectives concerning the outcomes in all levels of HEI.	0.125	0.810	0.656	0.4479
Leaders develop information management system, with the inputs emerging from the risk management and internal control system and continuously monitor the achievement of the HEI objectives (e.g. by using the balanced scorecard – BSC).	0.125	0.769	0.592	0.4042
Leaders deploy the principles of total quality management principles and implement the quality management system/model (e.g. CAF, EFQM, ISO 9001).	0.116	0.745	0.556	0.3797
Leaders develop and adapt the strategy of e-education with the strategic and performance goals of HEI.	0.101	0.742	0.550	0.3758
Leaders create proper factors/frameworks for managing of processes, project management and teamwork.	0.122	0.804	0.647	0.4419
Leaders create the conditions for effective communication inside and outside the HEI based on the recognition of communication as one of the most important key success factors of HEI.	0.121	0.829	0.688	0.4698
Leaders show the commitment to continuous improvement of HEI and commitment to build innovation culture by actively engaging the employees.	0.139	0.831	0.690	0.4715
Leaders communicate the reasons for change programs and effects of these changes on employees and key stakeholders.	0.130	0.791	0.625	0.4269

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Apart from leadership dimension, future studies could be focused on investigation of other EFQM enabler criteria in HE. For instance, future studies could focus on searching the possible mediation mechanisms in the relation between leadership criterion and results.

In addition, our results have also significant managerial implications. Accordingly, practical implications that arise from this study emphasise the need for institutional leaders to manage and balance the leadership

TABLE 5 *Continued from the previous page*

Motivation and commitment	(1)	(2)	(3)	(4)
Leaders lead by an example; therefore, as a role model and in accordance with established goals and values.	0.131	0.815	0.664	0.3720
Leaders encourage the culture of mutual trust and respect among employees based on actions that discourage any forms of discrimination.	0.121	0.795	0.632	0.3544
Leaders regularly inform and consult with employees regarding the key issues related to the HEI.	0.122	0.799	0.638	0.3579
Leaders support the employees, so that they effectively perform their tasks, plans and achieve the common goals of HEI.	0.125	0.796	0.634	0.3555
Leaders provide feedback to employees in order to improve the performance of teams and individual employees.	0.128	0.840	0.706	0.3957
Leaders stimulate, encourage and empower employees with delegating the authority, responsibilities and accountability.	0.118	0.814	0.663	0.3717
Leaders encourage the learning culture and stimulate employees to develop their own competencies.	0.126	0.814	0.663	0.3716
Leaders express personal readiness to accept recommendations/proposals from employees, responding constructively to feedback.	0.131	0.835	0.698	0.3912
Leaders give recognitions and awards to teams and individuals for their efforts.	0.122	0.784	0.614	0.3444
Leaders consider and address the specific needs and private circumstances of employees.	0.116	0.761	0.579	0.3246
Leaders analyse the stakeholders' current and future needs and share this information within HEI.	0.164	0.761	0.579	0.3746

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dimensions in a way that this successfully facilitates implementation as well as sustained use of the EFQM Excellence Model. Seen in this way, for the implementation of any quality improvement initiative, it is necessary to have the commitment from the HEI management. Management commitment to quality should be reflected through a well-defined policy and strategy, implemented and communicated on all levels of the HEI. By engaging stakeholders in quality improvement initiatives, one can ensure that the initiatives are implemented effectively, achieve intended outcomes, and contribute to sustainable changes in the quality of the

TABLE 5 *Continued from the previous page*

Stakeholder interaction and integration	(1)	(2)	(3)	(4)
Leaders give support to political authorities during the development of public policies related to HEI.	0.128	0.761	0.580	0.3751
Leaders recognize and integrate public policies that are important to HEI.	0.118	0.713	0.509	0.3293
Leaders assure that the goals of HEI are in accordance with the results and impact of public policies and political decisions and make agreements with policy authorities regarding the required resources.	0.146	0.774	0.599	0.3874
Leaders integrate political authorities and other stakeholders into the development of the governance system of HEI.	0.117	0.639	0.408	0.2641
Leaders maintain regular and proactive relations with political authorities on the respective executive and legislation areas.	0.122	0.682	0.466	0.3014
Leaders develop and maintain partnerships and networks with the relevant stakeholders (e.g. students, local community, and professional associations).	0.152	0.774	0.599	0.3878
Leaders participate in the activities of professional associations, representational organizations and other key interest groups.	0.154	0.709	0.502	0.3251
Leaders build and enhance public awareness, image and recognition of HEI and its services.	0.134	0.656	0.430	0.2781
Leaders develop service oriented marketing principle which is focused on the stakeholders needs.	0.157	0.689	0.475	0.3071
Engagement of the leaders in the field of managing the organization based on the development of its mission, vision and values is the key success factor of the EFQM excellence model implementation in HEI.	0.371	0.797	0.635	0.0652

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HE. Nonetheless, proper measures (key performance indicators) should be established in order to monitor the progress towards achieving HEI goals.

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TABLE 5 Continued from the previous page

Implementation enablers	(1)	(2)	(3)	(4)
Engagement of the leaders in the field of managing the organization based on its performance and continuous improvement is the key success factor of the EFQM excellence model implementation in HEI.	0.393	0.797	0.635	0.0653
Engagement of the leaders in the field of motivation and support of the employees as well as acting as a role model is the key success factor of the EFQM excellence model implementation in HEI.	0.317	0.701	0.491	0.0504
Engagement of the leaders in the field of managing the relationships with political authorities and other stakeholders is the key success factor of the EFQM excellence model implementation in HEI.	0.254	0.665	0.442	0.0454

NOTES Column headings are as follows: (1) weight, (2) loading, (3) communality, (4) redundancy.

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