International Journal of Business and Systems Research

ISSN online: 1751-2018 - ISSN print: 1751-200X
https://www.inderscience.com/ijbsr

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DOI: 10.1504/IJBSR.2024.10049723

Article History:

Received:	23 December 2020
Accepted:	27 May 2022
Published online:	05 January 2024

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Abstract: The purpose of this research is to examine the impact of used management tools (MTs) and techniques on enterprises performance. For this purpose, the structural equation model (SEM) is developed, which is based on a sample of 139 Slovenian medium and large enterprises (MLE) that completed the questionnaire. In the empirical analysis, the in-depth survey data for an enterprise are combined with the Gvin accountancy database of indicators. The MLE performance is being measured with the return on equity (ROE). The empirical results partially confirmed the impact of the used MTs on the enterprises ROE, which can be increased with the proper use and managers' satisfaction with MTs. To the best of the authors' knowledge, no empirical study has been conducted to examine the relationship among use of MTs and ROE for Slovenian ML enterprises.

Keywords: enterprise performance; business and systems research; management tool; MTs; management tools and techniques; return on equity; ROE; structural equation model; SEM; Slovenia.

Reference to this paper should be made as follows: Kreslin, D., Bojnec, Š., Markič, M. and Janeš, A. (2024) 'Empirical model of management tools impact on the enterprise performance', *Int. J. Business and Systems Research*, Vol. 18, No. 1, pp.85–110.

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This paper is a revised and expanded version of a paper entitled 'Collection of abstracts' presented at 4th Scientific Conference New Paradigms of Organizational Theories 2019, Novo Mesto: Faculty of Organizational Studies, Šmarješke Toplice, 25 April 2019.

1 Introduction

From the lessons learned in the literature, management tools (MTs) and techniques are being defined as tools which support the accomplishment of managerial ideas. Namely, several terms are used interchangeably when referring to the same tools and techniques that are aimed at helping with strategising (Koseoglu et al., 2019). For the sake of terminological simplification, hereafter is referred to MTs and techniques only as the MTs. The research on the use of MTs has largely relied on studies by Rigby (2001) and Rigby and Bilodeau (2015, 2018). Rigby (1993, 2001) initiated the Bain & Company's annual senior executive survey of MTs use in 1993 and has directed the effort ever since. Rigby and Bilodeau (2015, p.5) identified 25 most common MTs. Many authors as Pokharel et al. (2019) and Van Horne and Wachowicz (2005) focused only partially on the impact of the use of MTs on return on equity (ROE) or have not studied the consequences of knowledge and use of MTs and their impact on the ROE of enterprises. In this research, ROE as a measure of economic performance was used which represents the value creation and economic performance of the enterprise. Similar approach was used by Acheampong and Epperson (2002) and McCormack and Johnson (2001).

This research investigates the impact of used MTs and techniques on enterprises performance. The main goal of this research was to design an original model of the selected 25 MTs impact on the enterprise performance which was measured by ROE in selected 139 medium and large Slovenian enterprises (MLE). Designed and empirically tested model enables new theoretical and practical comprehension.

The remainder of this paper is structured as follows: Section 2 presents literature review of various MTs to perform managers' tasks, which enables them to work faster and better. Section 3 describes in detail the design of conceptual model, research question

and hypotheses. Section 4 presents methodology and data sample whose evaluation is discussed in empirical findings and discussion in Section 5. Finally, Section 6 summarises the findings, research limitations and highlights its future research directions.

2 Literature review

Management can play the crucial role as a holder of sustainable enterprise performance (Catalfo and Wulf, 2016; Faganel and Trnavčević, 2012; Northouse, 2010; Schermerhorn and Wright, 2014). Various authors (Barnard, 1968; Daft and Marcic, 2017; Dessler, 2001; Fayol, 1949; Mintzberg, 1973) believe that the task of managers is the realisation of basic managerial functions, whereby they can use various MTs to perform their tasks, which enables them to work faster and better. Various authors believe that if managers are satisfied with their choice and use of MTs, their use will help them work more efficiently (Biloslavo et al., 2018; Have et al., 2003; Tsang, 2002).

There is no uniform definition of MTs in the literature (Megginson et al., 1992; Mondy and Premeaux, 1993; Sutherland and Canwell, 2004). Several authors defines MTs as a set of concepts, processes, tasks and analytic frameworks for executing managerial tasks in enterprises, i.e., MTs are being defined as support to realise managers ideas (Bamford and Greatbanks, 2005; Rigby, 2001; Volk and Zerfass, 2020).

The right chose of MTs, with more than 100 available, should help enterprises and other organisations to improve their business performance (Jarzabkowski and Kaplan, 2015; Rigby, 2017; Schawel and Billing, 2018). The number of tools used by managers is also related to the cost of their purchase, use and maintenance. More MTs should also mean greater use of resources and therefore lower economic performance. Various authors consider that managers are satisfied with the use of MTs when they enable them to effectively achieve their goals in several areas of activity (Fullerton and Wempe, 2009; Gošnik and Stubelj, 2022; Heo and Han, 2003; Petter et al., 2008; Venkatraman and Ramanujam, 1987).

Given the variety of available MTs, it is necessary to decide which one to use in the research or practice. In the field of organisational and managerial professional literature, managers are faced with the frequent emergence of new organisational forms and MTs. Since a single complete MT does not exist, managers should be able to choose the right combination of available tools [Rigby, (2001), p.10]. The rapid flow and accessibility of information make it easier for managers to learn about new tools, and they need to have more knowledge and skills when using and assessing of their performance (Odar et al., 2012). When selecting a MT, the key role should be played by the manager's understanding of when, how, and which tool to choose, i.e., why and how the tool is being used and adapted with defined tangible goals and constant monitoring for measurable results [Rigby, (2001), p.10]. Managers willing to participate in lifelong learning and its development should also play an important role in this choice of MTs (Nonaka et al., 2000).

Researches on the use of MTs have largely relied on studies by Rigby (2001) which are performed since 1993 (Dabić et al., 2013; Koseoglu et al., 2019; Pors, 2008; Rigby, 1993; Volk and Zerfass, 2020). Among the currently most common MTs as outlined in the yearly Bain & Company reports were identified 25 [Rigby and Bilodeau, (2015), p.5]

which represent the most utilised tools throughout the world [see Table 1 (Kumar and Harris, 2020; Madsen et al., 2017; Rigby and Bilodeau, 2018].

The issue of MTs is at the core of the theoretical, empirical and practitioners' interests since 1982, when the first survey on excellence in Japanese and American and then in European enterprises were conducted by Peters and Waterman (1982) and Goldsmith and Clutterbuck (1984). The research followed by Pascale (1991), Collins and Porras (1994), Collins (2005) and De Waal (2009), aimed to identify the MTs and the characteristics of successful enterprises. Abeer and Jones (2014) investigated whether the use of MT to control costs, assets, and income affects the return on assets in 199 information and communication enterprises in Egypt. Hallowell (1996) investigated whether the use of customer relationship management can increase bank profitability in the USA. Nedelko et al. (2015) investigated satisfaction with the use and use of MTs and their impact on the future use of MTs in 155 Slovenian and 185 Croatian enterprises. Powell (1995) investigated how the use of the TQM tool affects the sustainable competitive advantage of 54 north-eastern enterprises in the USA. Raz and Erez (2001) investigated the association between the performance of different projects and the use of MTs to manage risks in projects on a sample of 84 Israeli project managers. Rigby (2001) studied satisfaction with the use of MTS in 214 companies in North America. Šoster and Markič (2013) investigated the impact of the use of selected MTs on value added in 89 Slovenian companies for the disabled. All quoted authors have not yet studied the consequences of knowing and using MTs and their impact on the ROE of enterprises.

In the presented research, ROE as a measure of the economic performance was used [Figure 1 (Acheampong and Epperson, 2002; Pokharel et al., 2019)]. Several authors such as Cokins (2009), McCormack and Johnson (2001) and Van Horne and Wachowicz (2005) claim that this indicator shows the value creation and economic performance of the enterprise. Based on the literature review, a research gap was identified that there is lack of knowledge about the impact of using MTs on company ROE, which was addressed in presented research.

3 Design of conceptual model and hypotheses

3.1 Conceptual model

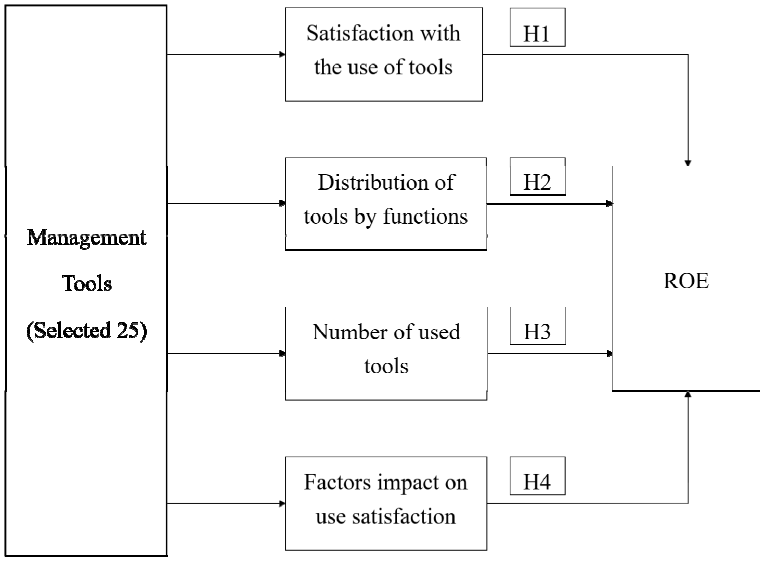
Based on the purpose, the main goal of this study was to design an original model of the selected 25 MTs [Rigby and Bilodeau, (2015), p.5] and its impact on enterprise performance measured by ROE.

Although lack of empirical evidence, which is evident from analysis and synthesis of previous research studies (see Section 2), it is presumed that managers can influence enterprises results (Hernaus et al., 2012) through use of MTs. By adequately adapting various MTs to enterprise needs, managers send a clear message about what is being expected. In order to test MTs impact on enterprises ROE and gain a better understanding of presumed relationships between satisfaction, use, functions and factors a conceptual model (Figure 1) had been developed.

In accordance with the main goal of the research, we identified the following research question:

- How are economically successful enterprises where management is satisfied with the use of MTs?

Figure 1 Conceptual model of the selected MTs impact on ROE



3.2 Research hypotheses

Based on the perception of a large number of the top used MTs (Jarzabkowski and Kaplan, 2015; Rigby, 2001; Rigby and Bilodeau, 2015, 2018; Schawel and Billing, 2018), we questioned whether these MTs could provide a useful approach for enterprises.

Based on the conceptual model (Figure 1), the following hypotheses were developed:

H1 Above-average satisfaction with the use of MTs has a statistically positive impact on an enterprise's ROE.

Irrespective on the satisfaction with the use of MTs, MTs are being used arbitrarily by managers (Šoster and Markič, 2013; Rigby, 2017). If managers' satisfaction (Mansoori et al., 2019) with the use of MTs is above-average, this should be followed by enterprise effective performance (Knott, 2008) or vice versa. With greater manager satisfaction (Mansoori et al., 2019; Volk and Zerfass, 2020) also greater usage effectiveness would be expected and therefore, a positive impact on an enterprise's ROE. Accordingly, the first Hypothesis H1 was proposed.

Because owners empower managers to pursue the enterprise's goals, various theoretical, research, and practical approaches have emerged that have attributed to management a rounded set of tasks and roles (Kralj, 2005; Daft and Marcic, 2017). As early as Fayol (1949) described the tasks of managers as a set of tasks in the areas of: planning, organising, coordinating (Faganel and Trnavčević, 2012) and controlling. Nevertheless, the tasks, roles and responsibilities of managers remain largely the same in both for-profit and non-profit organisations [Drucker, (2001), p.77] and their activity

should be focused on the constant search for better and more effective methods for solving problems in an enterprise (Proctor, 2014).

Based on the above cited authors' findings, MTs were broken down by fundamental management functions which supposedly have different effects on an enterprise's ROE and second Hypothesis H2 was developed.

H2 MTs broken down by fundamental management functions have different effects on an enterprise's ROE.

When performing activities, managers have many MTs at their disposal (Rigby, 1993, 2001; Schawel and Billing, 2018), which should help enterprises to improve their business performance (Jarzabkowski and Kaplan, 2015). Rigby and Bilodeau (2015) ascertain that in the EU enterprises, on average, 6.6 MTs per organisation are being used and the number of tools used increased from 2014 (Rigby and Bilodeau, 2018). With the proposed conceptual model, we investigated if above-average or under-average number of MTs used has statistically significant impacts on ROE and accordingly Hypothesis H3 was proposed.

H3 Using more than six of the selected 25 MTs has a statistically significant and positive impact on an enterprise's ROE.

With greater user satisfaction (Knott, 2008; Mansoori et al., 2019; Volk and Zerfass, 2020) also greater MTs use effectiveness would be expected. In the conceptual model proposed in this paper, we considered factors that have an impact on managers' satisfaction with used MTs. Those are used for pursuing enterprises goals. Based on these assumptions, Hypothesis H4 was proposed.

H4 The impact of factors on satisfaction with MTs has a statistically significant and positive impact on an enterprise's ROE.

4 Methodology and data sample

The research relied upon our own designed questionnaire to collect primary data on the enterprise and the position of the person being inquired; management and benchmarking data (management knowledge in relation to business results), use of MTs, competition benchmarking data (self-evaluation versus competition), and some generic data about the person being inquired (gender, age, education, see Appendix). The questionnaire was tailored to the answers we needed to design the conceptual model. First, a questionnaire was developed and sent to the respondents, then a conceptual model was developed.

The questionnaire was pre-tested with the help of five managers of selected enterprises who were not subsequently included in the survey. With their involvement, the questionnaire was improved to the final form.

The questionnaire, which concerned the period from 2013 to 2015 of MTs usage, was sent in 2017 and addressed top managers, directors and procurators of medium and large enterprise (MLE). Reason for the selected period is in the availability of data (data of surveyed enterprises were available from the Gvin.com database for 2013, 2014 and 2015 at that time). Out of the 1,397 operating MLE, e-mail addresses of 1,234 MLEs managers were obtained. The questionnaire was sent in physical form by post to 100 managers, while the 63 questionnaires were delivered personally. In the survey were finally

included 1,397 MLE managers, of which 487 managers in large and 910 managers in medium-sized enterprises. The survey was primarily conducted in the form of an online survey. To selected respondents, i.e., top managers, an invitation to participate in the survey by e-mail with the included web link to the questionnaire was sent. Altruistic motivation of the respondents was used, and their anonymity was ensured.

The questionnaire was completed by 153 recipients; the overall responsiveness of the respondents was 10.95%, which is in line with similar research studies (Dabić et al., 2013; Rigby and Bilodeau, 2015, 2018). Among 153 fully completed questionnaires, 139 were used for the analysis. Namely, the data on economic efficiency of the 139 surveyed enterprises were available from the Gvin.com database for 2013, 2014 and 2015 at that time. Therefore, the value of profit and average capital were obtained, from which the net ROE indicator was calculated.

The collected survey data were processed with the statistical package SPSS, using the following methods: descriptive analysis, Spearman's ρ-correlation test, and Pearson $\chi 2$-test, Cronbach α-test, principal component method, multiple linear regressions and multiple logistic regression. In the processing of the collected data and the construction of the original model (Figures 1 and 2), the method of structural equation model (SEM) and AMOS software package for testing was used.

5 Empirical findings and discussion

5.1 Survey findings

In order to determine the economic efficiency of the surveyed 139 MLEs, their data of the value of profit and average capital, were obtained from Gvin.com database. In the next step, ROE was calculated. Among respondents were predominating large enterprises (50.4%) against medium-sized enterprises (49.6%).

Table 1 presents application of the selected 25 MTs. According to available data, the observed years from 2013 to 2015 were included into questionnaire. The presented values are calculated as the total average response value of respondents for the observed years. In order to calculate the average value for the tool usage, each tool was evaluated with the Likert scale: 1 completely disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 completely agree. The higher the value of the arithmetic mean of MTs usage meant better knowledge of the tool. The results confirmed that the number of MTs used has been increasing over the analysed years (Rigby and Bilodeau, 2018).

Respondents are arranged into categories according to share and the number of used MTs in the period from 2013 to 2015: the majority of respondents (49.6%) used from 7 to 13 MT, followed by 22.3% of the respondents who used from 1 to 6 MTs, next followed by 21.5% of the respondents who used from 14 to 20 managerial tools and finally 6.4% of the respondents who used more than 20 MTs. Satisfaction of respondents using MTs is shown in Table 2. The respondents are most satisfied with strategic planning (average value 4.21), digital transformation (4.19) and mission and vision statements (4.17), and the least satisfied with complexity reduction (3.80). However, differences in average values regarding satisfaction of respondents using different MTs are relatively small.

Table 1 Usage of MTs by respondents, 2013–2015

Usage of MTs	*Frequency*			*Share in %*		
	2013	*2014*	*2015*	*2013*	*2014*	*2015*
Big data analytics	34	41	46	3.7	4.2	3.8
Balanced scorecard	34	36	37	3.7	3.6	3.0
Benchmarking	70	72	85	7.6	7.3	7.0
Business processes reengineering	37	37	49	4.0	3.7	4.0
Change management programs	31	34	41	3.3	3.4	3.4
Customer relationship management	57	66	86	6.1	6.7	7.1
Mission and vision statements	65	59	78	7.0	6.0	6.4
Digital transformation	12	19	34	1.3	1.9	2.8
Disruptive innovation labs	4	4	6	0.4	0.4	0.5
Core competencies	39	53	61	4.2	5.4	5.0
Mergers and acquisitions	25	19	26	2.7	1.9	2.1
Organisational time management	18	23	28	1.9	2.3	2.3
Outsourcing	86	85	98	9.3	8.6	8.0
Price optimisation models	20	21	34	2.2	2.1	2.8
Complexity reduction	5	8	13	0.5	0.8	1.1
Satisfaction and loyalty management	36	38	45	3.9	3.9	3.7
Scenario and contingency planning	31	39	46	3.3	4.0	3.8
Customer segmentation	56	65	79	6.0	6.6	6.5
Strategic alliances	26	25	34	2.8	2.5	2.8
Strategic planning	70	68	83	7.6	6.9	6.8
Supply chain management	42	41	49	4.5	4.2	4.0
Employee engagement surveys	58	67	80	6.3	6.8	6.6
Decision rights tools	14	13	16	1.5	1.3	1.3
Total quality management	44	44	49	4.7	4.5	4.0
Zero-based budgeting	13	10	15	1.4	1.0	1.2
Total	*927*	*987*	*1,218*			

Note: Selected 25 MTs according to Rigby and Bilodeau (2015, p.5)

In Table 3, the proportion of achieving enterprise external, competence, process, finance and other goals that the respondents pursue using MTs is presented. Not all possible goals of the respondents were stated in the survey. The question was open-ended and allowed respondents to further state one or more goals. The most used MTs for pursuing external goals are big data analytics (36.8%) and benchmarking (30.4%) and the least used mt is zero-based budgeting (3%). Competence goals are being pursued with core competencies (42.6%) and disruptive innovation labs (33%) and least pursued with price optimisation models (10%). Organisational time management (42.2%) and business processes reengineering (37.2%) are most used for pursuing process goals and disruptive innovation labs (13.3%) are used least. For achieving financial goals, the most used MTs are zero-based budgeting (54.5%), price optimisation models (48.3%) and outsourcing (40.4%). Employee engagement surveys (6.9%) is least used tool in this context. For

achieving other goals most frequently used MTs are employee engagement surveys (22%), disruptive innovation labs (20%) and satisfaction and loyalty management (17.8%), and the least used is zero-based budgeting (3%).

Table 2 Satisfaction of respondents using MTs, 2013–2015

Satisfaction with the use of MTs	*Average value (1–5)*	*Standard deviation*	*Skewness*	*Kurtosis*
Big data analytics	4.09	0.086	–0.648	2.567
Balanced scorecard	4.02	0.113	–0.434	0.066
Benchmarking	4.13	0.073	–0.361	–0.254
Business processes reengineering	3.93	0.081	0.057	–0.512
Change management programs	4.02	0.125	–0.924	1.871
Customer relationship management	4.12	0.074	–0.325	–0.190
Mission and vision statements	4.17	0.071	–0.467	0.080
Digital transformation	4.19	0.142	–0.631	0.097
Disruptive innovation labs	3.81	0.453	–1.560	3.028
Core competencies	4.03	0.081	–0.227	–0.096
Mergers and acquisitions	4.04	0.125	–0.046	–0.934
Organisational time management	4.07	0.115	–0.438	0.679
Outsourcing	3.97	0.070	–0.732	1.955
Price optimisation models	4.04	0.119	–0.040	–0.894
Complexity reduction	3.80	0.192	0.227	–0.970
Satisfaction and loyalty management	4.01	0.111	–0.219	–0.532
Scenario and contingency planning	3.93	0.087	0.034	–0.166
Customer segmentation	4.05	0.077	–0.253	–0.210
Strategic alliances	4.04	0.125	–0.434	–0.034
Strategic planning	4.21	0.077	–0.418	–0.514
Supply chain management	4.03	0.091	0.020	–0.642
Employee engagement surveys	4.08	0.065	–0.065	–0.444
Decision rights tools	4.03	0.160	0.057	–0.314
Total quality management	4.03	0.090	–0.431	0.803
Zero-based budgeting	3.88	0.174	–0.609	0.346

The respondents also rated their enterprises against the competition. Because of extensive data, only the key results are presented in the following. The survey showed that the vast majority of respondents (44.6%) agree that they achieve better financial results than the competitors. A slightly more than fifth of respondents (20.9%) strongly agree that they achieve better financial results than the competitors. Therefore, a total of around two thirds (65.5%) think that they are more financially successful than the competitors. To be financially comparable (undecided) with the competitors think a slightly more than a quarter of them (27.3%), while a minority (7.2%) considers themselves to operate financially worse than competitors.

Table 3 Achieving enterprise goals using MTs, 2013–2015 (%)

Achieving enterprise goals	*External*	*Competence*	*Process*	*Finance*	*Other*
Big data analytics	36.8	11.3	21.1	24.8	6.0
Balanced scorecard	11.7	13.8	26.6	33.0	14.9
Benchmarking	30.4	15.7	17.8	29.8	6.3
Business processes reengineering	8.8	20.4	37.2	26.3	7.3
Change management programs	8.2	21.6	35.1	22.7	12.4
Customer relationship management	12.1	13.3	24.9	38.2	11.6
Mission and vision statements	23.8	18.8	19.9	22.7	14.9
Digital transformation	14.5	25.0	32.9	18.4	9.2
Disruptive innovation labs	20.0	33.0	13.3	13.3	20.0
Core competencies	14.0	42.6	24.3	11.0	8.1
Mergers and acquisitions	14.9	12.6	14.9	40.2	17.2
Organisational time management	9.4	15.6	42.2	26.6	6.3
Outsourcing	9.1	15.2	25.3	40.4	10.1
Price optimisation models	13.3	10.0	18.3	48.3	10.0
Complexity reduction	3.6	17.9	32.1	32.1	14.3
Satisfaction and loyalty management	13.3	23.3	20.0	25.6	17.8
Scenario and contingency planning	5.7	12.5	30.7	39.8	11.4
Customer segmentation	11.8	14.4	24.2	37.3	12.4
Strategic alliances	11.3	23.8	20.0	30.0	15.0
Strategic planning	14.7	15.8	23.7	31.6	14.1
Supply chain management	8.2	13.6	30.0	38.2	10.0
Employee engagement surveys	11.9	32.1	27.0	6.9	22.0
Decision rights tools	8.8	20.6	32.4	29.4	8.8
Total quality management	14.2	19.5	32.7	23.9	9.7
Zero-based budgeting	3.0	12.1	27.3	54.5	3.0

The majority of respondents (55.4%) agree that they have better organised business process than the competitors. Less than one-fifths strongly agree (17.3%) on the same statement. Altogether, less than three quarters (72.7%) think that their business process organisation is better than of the competitors. To be organisationally comparable to competitors think a bit more than one fifth of them (22.3%), while 5% of respondents expressed opinion that they have worse organised business process than the competitors

Investigation revealed that, a slightly less than half of respondents (46.8%) agree of having more competence knowledge and skills than their competitors and a slightly more than a quarter strongly agrees (25.9%) on the same statement. Altogether, less than three quarters (72.7%) believe that their competence knowledge and skills are better than competitors. A slightly more than a fifth (25.2%) of respondents expressed opinion of being comparable with competitors, regarding competence, knowledge and skills. Only 2.1% of respondents expressed that their competence, knowledge and skills are inferior in comparison with competitors.

In the following was found that a slightly less than half of the respondents (47.5%) believe that they have approximately the same share of outsourcing as competitors. Less than one fifth of the respondents (18.7%) think that they use more external services, while 2.9% completely agreed that they have a greater share of outsourcing than competitors. Less than one third of respondents (30.9%) expressed that they use less outsourcing of services than competitors.

5.2 Structural equation model

For the purpose of analysing the relationships between several variables in a system of regression equations, a structural model using linear structural equation modelling was developed. This was further enhanced by certain relationships between the variables in the different regression equations (Figures 2, A1, A2 and A3).

Variables of *satisfaction* with the use of tools, *use* (number) of tools, managerial *functions* and *factors* (*satisfaction with the use of tools in achieving various goals*) are indirectly measurable variables (Figure 2), which were measured using respondents answers. Respondents' satisfaction with the use of MTs in 2013–2015 was measured by the Likert scale (1–5). Based on the respondents 'answers, above-average and below-average respondents' satisfaction was determined.

Therefore, the variable of *satisfaction* was measured with the following variables:

- above-average satisfaction with the use of tools (aboveaver_m)
- under-average satisfaction with the use of tools (underaver_m)

The aboveaver_m and underaver_m variables were used based on the average of the number of MTs used as reported by Rigby and Bilodeau (2015, p.16), because of comparability between EU and Slovenian enterprises. The use of 6 or less MTs was considered below average, and the use of 7 or more MTs was considered above average. It is being assumed that managers using above average number of MTs will be more satisfied, efficient and ROE will be higher. Similar is the case with below-average use of MT; namely, managers using a below-average number of MTs will be less satisfied and efficient, and ROE will be lower.

As a rule, if managers are satisfied with the use of MTs then they also use a larger number of MTs.

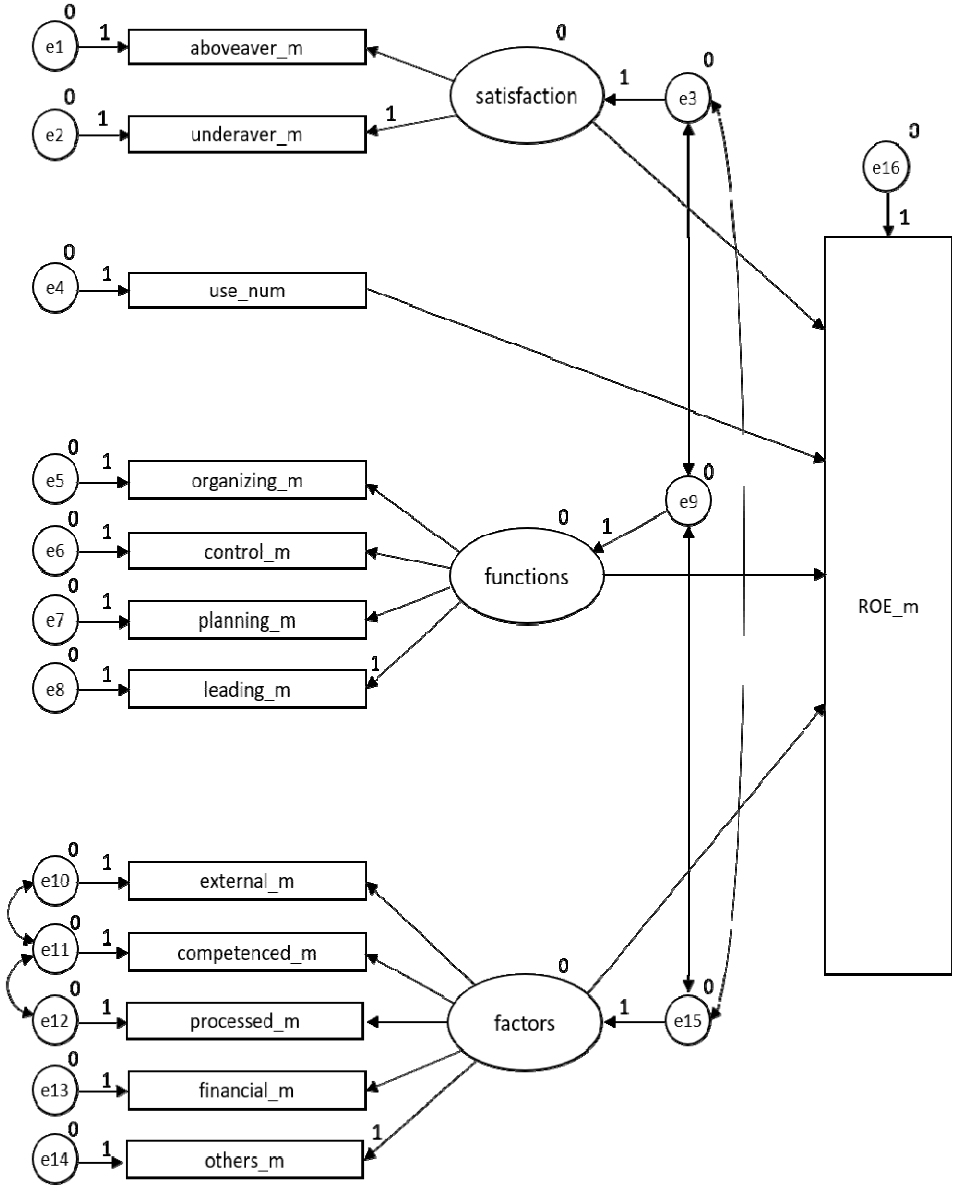
We designed the dichotomous variables use of tools (use_num), where a value of 1 means above average and a value of 0 means below average use of MTs. Regarding the average number of MTs use, we were only interested in the deviation from Rigby and Bilodeau (2015, p.16) average. For the variable of use (number), the following dichotomous variable was used: use of tools (use_num).

It is assumed that a greater number of used MTs support greater extent of business. The variable of *use* supports the above variable of *satisfaction*.

All 25 selected MTs were divided into four groups (organising, control, planning, leading). The values of the MTs were divided into four groups according to the average answers of the respondents. The new variables were designed by calculating the average satisfaction values of the MTs used, which were previously classified according to managerial core functions according to literature (Have et al., 2003; Rigby and Bilodeau, 2015; van Assen et al., 2010; Van den Berg and Pietersma, 2015). The construct of *functions* was measured with the following variables:

- managerial function organising (organising_m)
- managerial function control (control_m)
- managerial function planning (planning_m)
- managerial function leading (leading_m).

Figure 2 Structural model



Note: The letter ‘e’ indicates a measurement error.

This established classification of the MTs into four groups according to basic management functions was followed.

The construct of factors focused on the goals that enterprises pursue while using MTs. In this context, the construct of factors was measured with the following variables:

- use of the tool in achieving external goals (external_m)
- use of the tool in achieving competency goals (competenced_m)
- use of the tool in achieving the process goals (processed_m)
- use of the tool in achieving financial goals (financial_m)
- use of the tool in achieving other goals (others_m).

In the structural model (Figure 2) were included models developed from individual hypotheses. Therefore, variables from Hypothesis 1 were included; satisfaction as a dependent variable, while aboveaver_m and underaver_m as independent variables. In the context of Hypothesis 2, the structural model included dependent variable of function and independent variables organising_m, control_m, planning_m and leading_m. In the context of Hypothesis 3, the structural model contained the dependent dichotomous variable use (use_num). Regarding context of Hypothesis 4, the structural model included the dependent variable of factors and independent variables external_m, competenced_m, processed_m, financial_m and others_m.

The verification of hypotheses was performed by regression analysis, on the data for individual years from 2013 to 2015 and the average of three years period. If it was found that the regression model was not good enough for prediction and therefore the obtained values of the regression coefficients were not of sufficient quality for hypothesis testing, then the quality of the formed regression model, the statistical significance of the individual variables impacts, and the correlations of the variables were checked.

Based on the hypotheses verification, it was found that as follows.

Regarding Hypothesis 1, it was verified that the above-average satisfaction with the use of MTs has a statistically significant and positive impact on ROE.

Hypothesis 2, which considered that MTs broken down by fundamental management functions have different effects on the enterprise's ROE, was partially confirmed, i.e., except in 2014 and 2015, there is a positive impact on the increase of an enterprise's ROE.

Hypothesis 3, considered using more than 6 of the selected 25 MTs would have a statistically significant and positive impact on ROE, was not confirmed. Regression analysis showed that results were not statistically significant in any of observed year.

Hypothesis 4 was partially confirmed that the impact of factors on satisfaction with MTs has a statistically significant and positive impact on ROE. Regression analysis showed that the results were statistically significant in the years 2013 and 2015 and not statistically significant in 2014.

The basic structural model was upgraded with the links between variables *satisfaction*, *functions* and *factors*, and between variables external_m and competenced_m, and processed_m and competenced_m (Figure 2). By upgrading the structural model, five key relationships between variables in different regression equations were highlighted, which helped to improve the fit of the model to the data (Table 4). Several authors (Baird et al., 2004; Van den Berg and Pietersma, 2015; Have

et al., 2003; Mijoč et al., 2014; Rigby and Bilodeau, 2018) see the MTs in the enterprises as factors for connecting different stakeholders and goals in order to improve business results.

Table 4 Fit dimensions (structural model)

Fit measures	*Value*
χ^2 (p)	0.007
RMSEA	0.081
CFI	*0.967*
NFI	*0.911*

Note: Note limits for good model fit are for RMSEA < 0.08, CFI > 0.9 and NFI > 0.9.

Source: Hair et al. (2009)

To evaluate model fit, the most commonly used maximum likelihood method was applied, which is also relatively robust into breaking data assumptions. For the measurement of model fit the RMSEA, CFI, and NFI were chosen. In doing so, the results of each model as a whole were considered, allowing for a possible slight deviation of each dimension from the criterion. As can be seen in Table 4, the model fits perfectly into the data in two dimensions of fit, namely CFI and NFI, which is sufficient that the model can be accepted. For the third RMSEA fit, the model is still acceptable.

Table 5 Standardised regression coefficients between SEM variables

Variable	*Structural path*	*Variable*	*Standardised regression coefficient or weight*	*Level of significance (p)*
others_m	<---	Factors	0.848	Fixed
financial_m	<---	Factors	0.966	***
processed_m	<---	Factors	0.902	***
competenced_m	<---	Factors	0.814	***
external_m	<---	Factors	0.835	***
leading_m	<---	Functions	0.364	Fixed
planning_m	<---	Functions	0.606	***
control_m	<---	Functions	0.563	***
organising_m	<---	Functions	0.697	***
underaver_m	<---	Satisfaction	0.681	Fixed
aboveaver_m	<---	Satisfaction	0.725	***
ROE_m	<---	Use_num	–0.043	0.667
ROE_m	<---	Functions	–0.203	0.198
ROE_m	<---	Factors	0.933	0.008
ROE_m	<---	Satisfaction	–0.267	0.083

Note: ***p ≤ 0.001, fixed – standardised regression coefficient was fixed at 1 and it was not estimated.

Figure 2 and Table 5 presents that the most positive influence on ROE_m has the variable of *factors* and the other three variables (*use_num*, *functions* and *satisfaction*) have negative impact. Variable of factors is also the only statistically significant factor with a

significance level minor than 0.05 (Table 5). The data can be interpreted in a way that enterprises increase their net ROE by meeting their goals. Namely the variable of factors explains 93% of the variability in net ROE, which puts the achievement of the enterprise's goals at the forefront. The statistical correlation between business performance and achievement of given set of goals is also confirmed by Bloom et al. (2012), Kannaiah (2015), Schermerhorn and Wright (2014) and Van der Berg and Pietersma (2015). All the authors emphasise the importance of making the right choice and achieving the goals for a successful business.

The original basic model was designed, which was the main goal of the presented research, and tested with upgraded models in consecutive years from 2013 to 2015. The basic structural model includes' models developed from individual hypotheses. This was further enhanced by different relationships between the variables (*satisfaction*, *functions* and *factors*, external_m and competenced_m, processed_m and competeced_m) in different regression equations. By upgrading the structural model, five key relationships between variables in different regression equations that helped to improve model were highlighted (Figure 2 and Table 4).

The structural model (Figures A1, A2 and A3) shows that *factors* construct has the greatest positive impact on the financial_m, indicating that achieving a financial goal is paramount in achieving a firm's net ROE. Also variables others_m, processed_m, competenced_m and external_m, are highly positive impacted by *factors* construct with statistical significance at $p \leq 0.001$, which indicates the importance of achieving enterprise goals using MTs (as presented in Table 3).

The structural model (Table 5 and Annex) shows that variable ROE_m is negatively impacted by the variables *satisfaction*, *use_num* and *functions*. Findings indicate that satisfaction with used MTs has a negative impact on the ROE of the enterprise. Satisfaction is a subjective category, which often means that from the manager perspective (Knott, 2008) the used MT is technically and substantively mastered. Wagner and Paton (2014) findings among the German executives, especially those with a predominantly engineering background, showed lack of knowledge and understanding of MTs in general and strategic tools in particular. Interestingly, educational background, in association with MTs usage, appears to enhance organisational performance (Jarzabkowski and Kaplan, 2015).

An objective effectiveness assessment of using MTs and thus the reasonability of use can be gained by measuring the results of used tools. Table A1 (see Annex) shows that in average only 36.4% of managers' measure the impact of using MTs on enterprise's ROE. The negative impact of the *satisfaction*, *use_num*, and *functions* variables can also be explained by the need to introduce new tools (Schawel and Billing, 2018) that are more effective in achieving the given set of goals, which is also confirmed by Baird et al. (2004) and Čičak et al. (2010). Dynamic market conditions require continuous and agile improvement from management.

Further, *functions* variable in the structural model (Figures A1, A2 and A3) have a negative impact on ROE_m variable. The tools are not always used for the same managerial function, as they can be partially customised and used for different managerial functions. Magretta (2002), Rigby (2001) and Wirtz et al. (2015) also confirmed that particular tool can be used to help with the wrong managerial function, which negatively affects the ROE of the enterprise. Frezatti (2007) performed analysis of the five stages of International Management Accounting Practice 1 (IMAP 1). In the fifth

stage, the accepted MTs were: ROE and balanced scorecard (BSC), with a significance level of 90%. Knowledge of the purpose and use of MTs prior to their implementation definitely plays an important role.

By testing the upgraded structural model for 2013, 2014 and 2015, it was tested if there are significant differences between the individual variables included in the model or if the structure of the model withstands over several consecutive years. As can be seen from Figures A1, A2 and A3, there are some differences, which do not affect the conceptual model. These differences are mainly the links between variables external_m, competenced_m, processed_m, financial_m, and others_m in the variable of *factors*. Some links change over the years, which are not included in the basic model, but it should be emphasised that these differences between the models are minor. It was found that there are no significant differences between tested models (Figures A1, A2 and A3) and basic structural model (Figure 2), so the structural model was accepted.

5.3 Implications for managers

Empirical results of multiple regression suggest indicate that greater satisfaction with the use of MTs increases net ROE. In this way, proven tools (e.g., mission and vision statements, strategic planning and strategic alliances) are used over longer period of time and are more effective in supporting the achievement of goals (Table 3). Regarding the satisfaction of managers, the tools for strategic planning, digital transformation, mission and vision statements and benchmarking, business processes reengineering, customers management and employee engagement surveys can be highlighted (Table 2).

Managers are also well-versed in business process optimisation tools such as digital transformation, organisational time management, supply chain management and benchmarking, which allow them to manage business processes and adapt them to the needs of the enterprise.

These tools are followed by the price optimisation, big data analytics, customer relationship management and customer segmentation, which are related to customers and are increasingly being put at the heart of the business, and are increasingly used and known among managers. They are also interested in the opinions of employees, as evidenced by their satisfaction with the employee engagement surveys. By using it, managers can direct the activities of employees and monitor their efficiency and effectiveness, make changes in the enterprise according to the requirements of the environment in which it operates, and provide correct, accurate and understandable information.

Managers have less acquaintance and therefore less use of modern MTs to stimulate ideas, redesign the business environment and thus increase value added, i.e., decision rights tools and total quality management (Tables 2 and A1).

Regarding the research question, ‘How are economically successful enterprises where management is satisfied with the use of MTs?’, we can conclude that the above-average satisfaction with the use of MTs has a statistically significant and positive impact on ROE.

The results of the survey showed that the net ROE is most influenced by the tools used by the management’s organising function, followed by the planning, control and leading functions. The survey findings pointed out that managers utilise tools such as change management programs, customer relationship management, supply chain management, time management (Tables 2 and 3) in order to take care of the managerial

function of organising business processes inside and outside the enterprise with the aim of optimising time, cost and quality. This may indicate the use of intuitive decision making, which may be the subject of further research.

Surveyed managers are most satisfied with MTs for achieving financial goals, which is understandable, since managers' income is also most often associated with achieving financial goals. This is followed by process, other, external and competency goals (Table 5). Regarding the satisfaction with the achievement of competency goals, requires of management to recognise its competence strengths as key to achieving better results in the market. Considering that this is at the last position among *factors* variables (Table 5; 0.814), it can be concluded that management does not see an opportunity to use its competence as the main advantage in the market and thus to achieve higher added value. Employee knowledge and technological process management can be a great opportunity from the point of view of production optimisation, but also as a new activity that enables revenue from consulting services (Table 5).

5.4 Research validity

Internal validity of the research was assured by controlled data collection, i.e., questionnaires were submitted to respondents in agreement and with the support of the enterprises managers. The questionnaire was pre-tested with the help of five managers of selected enterprises who were not subsequently included in the survey. External validity was enhanced with general conclusions on the basis of the questionnaire used and data collected within the sample of 139 MLE managers. Results can be generalised to the target population and compared internationally but exclusively based on further investigation in the EUs' MLE. Another important circumstance is the time validity; part of the MLE was at the time in financial difficulties, which raised issues of restructuring and further development of some of the enterprises. Last but not least is the environmental validity which indicates international generalisability and should be addressed in future researches [Abernethy et al., 1999; Ryan et al., (2002), pp.122–124 as cited in Ihantola and Kihn, 2011].

Validity threats could be diminished with conducting research in more stabilised period and splitting the sample(s) into smaller groups and re-estimate the conceptual model and further upgrading the basic structural model (Hair et al., 2009). However, the sample of the survey respondents for such analysis should be much greater than 139 fully completed questionnaires. Validity threats of presented research could also be diminished with conducting interviews with selected managers and focused groups (Fontana and Frey, 2000; Ihantola and Kihn, 2011; Madriz, 2000). According to Ihantola and Kihn (2011), the quantitative data collection and analysis, in one or more stages, in the research process and to different degrees, can be combined with qualitative data collection and analysis.

6 Conclusions

The purpose of the research was to design and empirically verify an original model on the impact of MTs use on an enterprise's ROE, i.e., the impact of using the 25 [Rigby and Bilodeau, (2015), p.5] most common MTs on enterprises performance from the perspective of ROE was verified (Figure 2).

Based on modelling with linear structured equations, the structured model was developed and upgraded. The latter can be used for analysis of multiple variables in the regression equations system. Upgrading the model lead to key links for model improvement or its adaptation at data. It is being found that a major positive impact on the firm's net ROE (dependent variable) is delivered from financial goal which is followed by process, others, external and competences goals. Weidman et al. (2019) analysed the elasticity of ROE to changes in net profit margin, total assets turnover and equity multiplier in the USA, German and Japanese manufacturing firms. The authors found that the most important determinant of ROE is net profit margin in all three countries.

By testing the upgraded structural model for 2013, 2014 and 2015, it is being established that there are no significant differences between the individual variables links which are included in the model. So the model withstands its reliability.

The results of the survey in period from 2013 to 2015 of the four surveyed periods (fourth period was the average of three years period) indicate that the enterprise is increasing its ROE if users of the MTs are satisfied with their use (Hypothesis 1 was confirmed). Dividing MTs by fundamental management functions (Hypothesis 2 was partially confirmed) and pursuing satisfaction (Hypothesis 4 was partially confirmed) with their use in some of the investigated years has an impact on increasing the ROE in the enterprise. It was found that number of used MTs has no impact on the ROE of enterprises (Hypothesis 3 was not confirmed).

However, it should be emphasised some research limitations; the sample was restricted to Slovenian MLEs; investigation was restricted to exploring the impact of using the selected 25 MTs according to Rigby and Bilodeau (2015, p.5); there could be used MTs that are different from those used in the questionnaire; the sample of enterprises was not randomly selected; only top managers or board members were surveyed because they are competent and responsible and have the greatest impact on the design and use of MTs; beside the net ROE, the survey did not examined the impact of MTs on other financial and non-financial indicators. Research should be extended over the impact of MTs on other financial and non-financial indicators as well as much greater sample of surveyed MLE. Further investigation should be performed on the MLEs in several EU states for comparison. In the used questionnaire the wider spectrum for MTs definition and usage indication should be considered.

Acknowledgements

The Research Programme No. P5-0049 was co-financed by the Slovenian Research Agency.

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Annex

Table A1 Measurements of MTs impact on enterprise ROE, 2013–2015

Measurements of MTs impact	*Measurement*		*No measurement*	
	Frequency	*Share %*	*Frequency*	*Share %*
Big data analytics	18	37.5	30	62.5
Balanced scorecard	22	46.8	25	53.2
Benchmarking	41	44.6	51	55.4
Business processes reengineering	20	31.2	44	68.8
Change management programs	13	28.3	33	71.7
Customer relationship management	35	38.5	53	59.6
Mission and vision statements	25	27.5	66	72.5
Digital transformation	9	25.7	26	74.3
Disruptive innovation labs	1	11.1	8	88.9
Core competencies	18	25.0	54	75.0
Mergers and acquisitions	18	41.9	25	58.1
Organisational time management	11	31.4	24	68.6
Outsourcing	43	40.6	63	59.4
Price optimisation models	21	58.3	15	41.7
Complexity reduction	7	46.7	8	53.3
Satisfaction and loyalty management	19	39.6	29	60.4
Scenario and contingency planning	17	34.0	33	66.0
Customer segmentation	34	41.5	48	58.5
Strategic alliances	13	31.0	29	69.0
Strategic planning	36	38.5	56	61.5
Supply chain management	24	40.4	29	54.7
Employee engagement surveys	31	32.6	64	67.4
Decision rights tools	3	16.7	15	83.3
Total quality management	27	50.9	26	49.1
Zero-based budgeting	9	40.9	13	59.1

Figure A1 Upgraded structured model for 2013

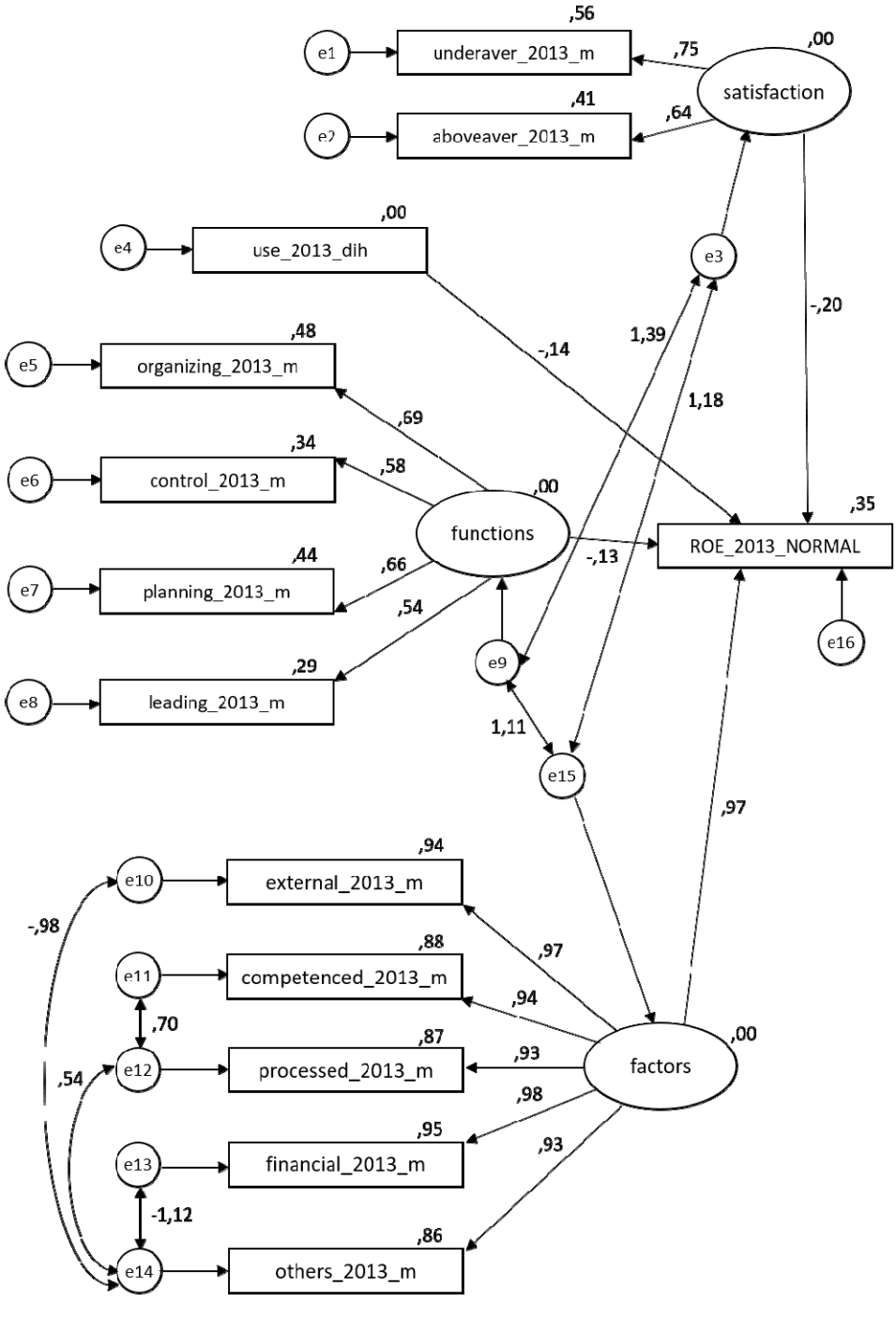

Figure A2 Upgraded structured model for 2014

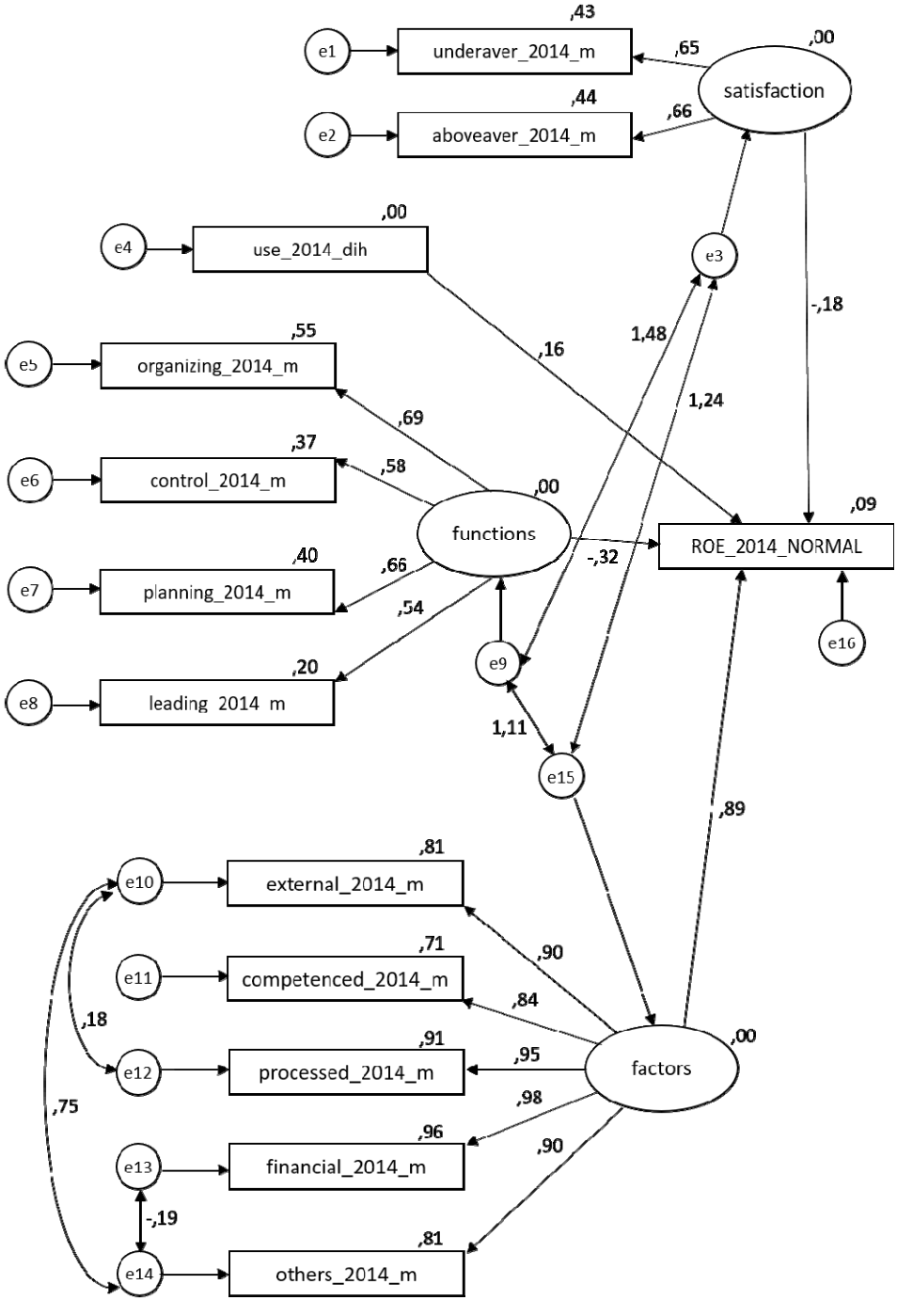

Figure A3 Upgraded structured model for 2015