Influences of Implementing the Learning Organisation on Companies' Financial and Non-Financial Performances

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The learning organisation (LO) concept as one of the numerous management tools available has been significantly gaining in popularity around the globe. Yet few models have been implemented to assess the LO's influences on companies' non-financial and financial performances. Therefore, at the USP Institute a Learning Organisation Assessing Model (LOAM) was developed and implemented over a period of five years. The empirical research presented in this article reveals positive non-financial and financial effects on the performances of companies with a more developed LO concept according to the LOAM. Research findings reveal the critical success factors in the implementation of the LO and provide tangible advice to management in helping them to achieve the best results possible when applying the LO concept.

Key Words: management tools and techniques, learning organisation, financial and non-financial performances
JEL *Classification:* D83, M1, M5, O31

Introduction

Management has various management techniques available in order to respond to challenges stemming from the environment and to improve business efficiency. According to the research Bain & Company carried out in the 1993–2007 period (Rigby and Bilodeau 2008) management used at least 65 different techniques like Total Quality Management, Business Process Reengineering, Customer Relationship Management, Balanced Scorecard etc. to realise their company policies. Grint (1997) indicated that in the last 40 years at least one new management technique has appeared every year. In a study by the Harvard Business School on the use of management techniques, 75% of American companies were dissatisfied with the results of applying their technique. The reason for this lies in the mechanical application of approaches that promised significant benefits while neglecting the critical selection of techniques and

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creative adjustment of a technique to suit specific circumstances (Nohria and Berkley 1996; Micklethwait and Woolridge 1998). It is therefore extremely important for management to know the basic codes of a technique, along with their critiques, limitations and potential benefits.

In the last decade the learning organisation (LO) concept, as one of the many management techniques available today, has been dramatically gaining in popularity around the globe. In order to help management implement the LO, the Learning Organisation Assessing Model (LOAM) was developed at the USP Institute. Over the years the model yielded the results described in this article that show the influences of applying the LO management approach on companies' performances.

The purpose of this article is to present an empirical study performed with the LOAM over a five-year time period. The results could be highly beneficial for managers because they systematically show the most important parameters in the LO concept implementation and organisation change, which allows the management a more efficient implementation of LO and better business results.

For assessing the level of LO concept development, 32 qualitative and 23 quantitative measures were used and combined in eight groups of constructs. To find out whether the LO concept implementation has a positive effect on company performance, the influence of eight groups constructs on financial and non-financial indicators was calculated with a discriminant, variance and linear and multiple regression analysis.

In order to acquire information, a written survey focused on 500 biggest companies in Slovenia and an extensive follow-up interview was used. Data for calculation of the LO concept influence on the financial results of the companies was gathered from an independent business information database.

Theoretical Starting Points

KEY CHARACTERISTICS OF THE LEARNING ORGANISATION

There are many definitions of the term learning organisation. Most frequently cited authors Argyris, Garvin, Geus, Nonanka and Senge (Argyris and Schön 1978; Garvin 1994; Geus 1997; Nonaka 1991; Senge 1990) agree that the LO is based on the planned implementation of changes, the systemic development of knowledge management, formation of effective innovation, quality systems and partnership relations which enable a company to effectively implement its strategic targets. The LO increases

its business efficiency with permanent individual and team development and continues to adapt its responses to new cognitions. The LO differs from the traditional organisation in its systematic problem-solving, its continuous searching for, acquiring and testing of new knowledge in praxis, learning from its own and others' mistakes and successes, and its effective knowledge transfer into new products and services.

THE LEARNING ORGANISATION ASSESSING MODEL

We searched for a tool to allow us to assess a company's LO development stage, to follow its LO concept development over the years and to help companies with the benchmarking of survey results to plan further steps in LO development. First, we considered whether an appropriate tool already existed. This led to the following findings:

- Watkins and Marsick's Dimension of the Learning Organisation Questionnaire (DLOQ) (Watkins, and Marsick 1997) based on 55 qualitative measures, which for the LO development stage depend on respondents' subjective estimations and therefore do not allow for a more precise comparison among the studied companies and over the time period under consideration; and
- two approaches based on the 'New science' organisational behavioural platform (Tosey and Smith 1999), namely (a) focus, will, capability, and performance system; and (b) organisations as energies, which neglected important elements of organisational change.

Since none of the found tools described above fulfilled our requirements, our own Learning Organisation Assessing Model (LOAM) was developed in an attempt to encompass the main important elements influencing any successful organisational change with an emphasis on the LO and based on:

- the strategic management model which fits in with prescriptive schools encompassing companies' visions, targets and measures, strategies on levels of the corporation, business unit and functions. The major ground elements of the strategies are: the organisational structure, processes, systems, culture and resources such as human, financial and material ones (Pučko 1999);
- four basic management functions: planning, organising, leading and controlling (Birchall 2001; Možina 2002); and
- the theory of the LO (Argyris and Schön 1978; Garvin 1994; Geus 1997; Nonaka 1991; Senge 1990).

To assess the level of a company's LO development on the basis of the strategic management model presented above, the basic management functions and discussed theoretical starting points of the LO, 53 qualitative and quantitative measures based on their similarity were formulated and combined in eight groups of constructs that form the LOAM (figure 1). Constructs were defined in a disquisition concerning the above described management theory and LO basis which was written by LO experts. We sought to include in these eight LOAM constructs the main LO characteristics and parameters influencing successful implementation of the LO concept. We then measured the influences of the eight LOAM constructs on the outcome variables expressed as non-financial and financial indicators.

The contents of the eight LOAM constructs are as follows:

1. *Strategic-groundstone level.* With this first construct we tried to find out whether basic conditions exist in a company to start implementing the LO, such as whether the LO concept is declared in the company's strategic documents, the managing director is responsible for implementing the LO concept, the employees' familiarity with the company's vision and basic values, and the presence of team working (Appelbaum and Reichart 1998; Prieto and Revilla 2006).
2. *Management level.* A company's business success, including the changes it implements, most significantly depends on management, whose role in the LO is even more crucial than in the classical enterprise. Therefore, the management construct encompasses the role of managers in the LO where they should serve employees as a model, coach, learning and creativity stimulator, mentor and protector. LO companies appoint internal trainers for employees' more efficient development and knowledge diffusion, while managers and employees plan their learning and personal development together. Management involves employees in problem-solving and decision-making and the HRM manager is a board member, while in the LO, where employees represent a basis of competitive advantage, responsibility for managing them should be placed at the highest management level (Kovač 2006; O'Dell and Grayson 1998; Senge 1990).
3. *The personal level* encompasses elements at the individual 'employee level' needed for successful LO implementation, such as: employees who are aware of their position in the organisation, employees

who are conscious of global trends influencing the company and that the company is as strong as the weakest-link department, employees participating in performance appraisals, employees who are responsible for learning, personal growth and their future and who are enthusiastic about testing new knowledge in praxis (Gues 1997; Macdonald 1999; Vukovič 2006). According to the first USP Institute survey findings, old traditional industrial Slovenian companies were primarily focused on the generation of knowledge and merely aware of the systematic implementation of other phases of knowledge management, like knowledge-storing, disseminating and measuring the effects of investments in knowledge. Therefore, to ensure more clear and significant LOAM study results, the theoretical knowledge management process was divided into the following three constructs: (a) learning (identify and generate knowledge), (b) managing knowledge (store distribute and apply knowledge), and (c) measuring results (Davenport et al. 2001; Heising and Iske 2003).

4. *The learning construct* encompasses the conditions needed for a company to successfully identify and generate new target knowledge. The LO should learn all the time and its speed of learning should be greater than its rate of change. The fourth construct comprehends that a company has defined the target knowledge it needs to achieve the strategic objective and a plan for how to obtain it. In the LO all employees should be involved in continuous learning, and a significant share of learning occurs in the work environment (Argyris and Schön 1978; Baird and Henderson 2001; Chen and Edgington 2005; Zack 2005).

5. *Managing knowledge.* The classical company is primarily focussed on knowledge generation, whereas the LO with its systematic use of knowledge management seeks to ensure the best result from the acquired knowledge. Knowledge should be attainable to the employees who need it so as to be able to transform it into competitive products and services. The managing knowledge construct means that the company stores its knowledge in various knowledge depositories, has appointed knowledge officers to effectively manage knowledge, formalised methods of knowledge diffusion among individuals, teams and departments, exchanges knowledge with suppliers and includes customers in R&D projects (Daven-

port and Prusak 1998; Nonaka and Hirotaka 1995; Krogh, Ichijo and Nonaka 2000).

6. According to various studies, *organisational culture* represents one of the most crucial parameters allowing for a successful organisational change (Hauschild and Stein 2001; Kotter 1998; Schein 1999). Therefore, in the LOAM we formulated an independent construct encompassing components of the basic LO culture. To develop an organisational culture supporting the implementation of the LO it is important that changes are planned, employees are stimulated to test new approaches, mistakes are tolerated and regarded as an opportunity for learning, the company's internal environment is relaxed and confident, employees are willing to share their knowledge with co-workers, and employees behave according to the company's code (Bontis, Crossan, and Hulland 2002; Collinson and Parcell 2004; López et al. 2004; Chawla and Renesch 1995).
7. *Organisational systems.* The LO masters internal organisational systems which are in accordance with the company's strategies, processes and organisational structure. The LO steps up the information, rewards and innovation systems. As part of information systems all employees regularly receive information about the company's targets and business results, the information stream from the bottom up is excellent and employees are satisfied with how the information system functions. The rewards system supports knowledge diffusion between employees, and all applicable suggestions and inventions are rewarded according to the statutes. The innovation system includes infrastructure and regulations that systematically generate new innovations. For example, the innovation system is regulated by the statutes. a responsible leader is appointed to manage innovation activities and an adequate service is established. Also, in comparison with other companies within the same branch, a company has registered a significant number of sound ideas and introduced innovations. In addition, a broader range of employees participate in innovation activities (Darroch 2005; López et al. 2004; Therin 2002).
8. *Measuring results.* This helps us establish the effects of implementing the LO and via corrective actions to effectively realise the planned targets. In the LOAM here we included the following measures significant for the LO: the company regularly verifies the

achievement of its strategic objectives with the BSC, it benchmarks its business functions with the world's best performers, it measures the quality of its education and training, and it measures the employees' satisfaction levels (Campbell and Cairns 1994; Edvinsson and Malone 1997; Hays and Hill 2001; Kaplan and Norton 1993; Sveiby 1997).

NON-FINANCIAL RESULTS OF IMPLEMENTING THE LO

Management's aim of implementing changes in the company, such as the LO, is to achieve better business results, a higher market value for the company, an improved public reputation etc. In the LOAM we also considered whether implementation of the LO has positive non-financial effects for the company and, if so, what were the most significant.

Advantages of the LOAM in comparison with other known tools are as allows:

- an assessment of a company's LO development stage and the tracking of improvements over a measured time period;
- the benchmarking of survey results with other companies; and
- the planning of further steps in LO development on the basis of the established development stage and benchmark.

In comparison with Watkins and Marsick's Dimension of the Learning Organisation Questionnaire DLOQ (Watkins and Marsick 1997), besides 32 qualitative measures based on a five-point Likert scale, the LOAM also encompasses 23 quantitative measures which allow a more objective comparison among companies and in a given time period. Therefore, the results gained with the LOAM depend less on respondents' subjective appraisals and represent a more objective estimation of the LO development stage.

Aim of the Empirical Research

For the purpose of popularising the LO concept, beside other activities, already in 1999 the USP Institute started to perform annual research about the presence of LO among companies located in Slovenia. To collect more reliable results about the development of the LO among companies over a period of study, a Learning Organisation Assessing Model (LOAM) was developed which measures the development stage of the LO on the basis of qualitative and quantitative parameters. The LOAM was then implemented every year in the period from 2001 to 2006. The study

results that were gained may allow management a better insight into the key characteristics of the LO for the purpose of using it more efficiently and, consequently, achieving better business results.

In order to satisfy the aim of the research, we set these targets:

- to find out the characteristics of implementing the LO and the non-financial results of LO use among companies located in Slovenia in 2006 along with trends of LO development in the 2001–2006 period;
- to investigate if there is a connection between a company's survey result (development of the LO) and its financial indicators; and
- to ascertain the influence of the LOAM constructs on the companies' financial indicators.

Methodology and Sample

METHODOLOGY USED

The following scientific methods were employed when conceiving and carrying out the empirical research;

- for acquiring information from primary sources we used a written survey and an extensive, personal follow-up interview to probe the circumstances in which the LO concept was used and to find out whether the answers were based on respondents' subjective estimation or hard data, like: company written documents, annual performance appraisal, prior studies on corporate culture, organizational climate, education quality evaluation, etc, at the follow-up interview we discovered that a few companies overestimate or underestimate their performances; with these companies we mutually agreed to adjust the answers to the existing facts;
- a comparative method for comparing the research findings among the surveyed companies with domestic and foreign research;
- discriminant analysis for determining any statistically significant differences between LO users and financial indicators, whereby principal component analysis, variance analysis, linear and multiple regression analysis were also conducted; and
- descriptive statistics to establish the key characteristics of the use of the LO among the companies.

SAMPLE FRAMEWORK

The research focused on the 500 biggest companies regardless of industry located in Slovenia according to the criterion of the number of em-

ployees since, due to information yielded by the unstructured interviews, the management of smaller companies generally does not systematically apply management techniques to change their companies. A list of the surveyed target population was gathered from the independent business information database IBON (2007).

One month after we sent out the survey we telephoned all the companies that had not yet responded; 84 valid answers were received in response to the questionnaires sent by mail, with the response rate thus amounting to 18.6%. Due to the low response rate, two follow-up telephonic reminders were made. The main reasons for the low response rate was that the companies were overly occupied with their daily operations and were already exposed to too many surveys from various institutions and, therefore, failed to see any benefits from participating in the survey.

Five selected financial indicators were calculated for each company of the population on the basis of data acquired from IBON (2007) for the investigated period, namely: return on sales, return on equity, return on assets, ratio of operating revenues to expenses and value added per employee.

SURVEY LIMITATIONS

The survey focused on the 500 biggest companies located in Slovenia. After reviewing the questionnaires, the financial indicators of the companies and after conducting the follow-up interview, it was established that mostly companies with positive financial indicators had participated in the survey. Among the participating companies 61% use the LO concept systematically and the remaining 39% were not familiar with the concept, regardless of the fact that they used some of the concept elements. Therefore, the survey results might only be applicable to companies with positive financial indicators.

Survey Results

CHARACTERISTICS OF LO USE

Data on the frequency of use of the LO were obtained from the LOAM questionnaire. An overview of the survey results (figure 1) shows that among the eight LOAM constructs the participating companies put the greatest emphases on learning (expressed by 63%), strategic groundstones (61%), management level and organisational culture are equally mentioned (58%). Constructs expressed as below-average are measuring results (45%), personal level (51%), managing knowledge (52%) and

FIGURE 1 Intensity of LO use (light gray – 2001, dark gray – 2006)

organisation systems (53%), namely, where companies have the biggest capacity for making improvements.

A review of the survey findings concerning particular constructs shows the following characteristics:

1. The survey results show, that at the strategic-groundstone level, team working is the constructs' strongest parameter, since 70% of companies use it systematically, 65% of employees already know the company's vision and 61% of companies had already declared the LO concept in their strategic documents, which indicates that they use the LO concept knowingly. The constructs weakest elements are: managing director's responsibility for implementation of the LO concept (expressed by 49%) and employees knowing the company's basic values needed to achieve strategic objectives (59%).
2. The most strongly expressed element of the management construct is that the HRM manager is a board member in 63% of the surveyed companies. In 61% of the surveyed companies, management was already involving an extensive circle of employees in problem-solving and decision-making, while in 60% management and employees plan their learning and development together. The construct's weakest point was that only half the companies had ap-

pointed 3.9 internal trainers per 100 employees for more efficient employee development and knowledge transfer, and in 53% of the surveyed companies management is trained – beside the four basic management functions – to perform the role of a model, learning and creativity stimulator, coach, mentor and protector.

3. The personal level is the second weakest construct surveyed. The reason lies in the unwillingness of employees to test new knowledge in praxis and employees' lack of awareness of the interdependence of a company's departments for success (both expressed at the level of 45%). Further, just 49% of employees in the surveyed companies had participated in an annual performance appraisal. The most strongly expressed personal construct is employees' responsibility for learning, personal growth and the future is on the individuals' shoulders (61%) and employees are aware of their position in the organisational structure (53%).
4. In the learning construct, which is the most developed of all the surveyed LOAM constructs, 69% of companies had a written plan for how to achieve the target knowledge, while the target knowledge needed to achieve the strategic objectives was documented in 67%. Every year employees spend 22 hours on systematic learning and training, and 52% of learning and training occurs in the work environment.
5. Managing knowledge, which is the third weakest LOAM construct, had the following most strongly expressed elements: the company systematically exchanges knowledge with suppliers (61%), it uses formalised ways of knowledge diffusion among individuals, teams and departments (57%) and makes use of various forms of knowledge depositories (56%) such as archives, intranet and libraries. The most weakly expressed are the participation of customers in the company's R&D projects (55%) and the use of knowledge officers for effective knowledge management, while only 34% of participating companies had appointed knowledge workers and thus had 2.5 knowledge officers per 100 employees.
6. In the organisational culture construct the most strongly expressed is the element of changes in companies which are planned in written form (65%), employees are willing to transfer their knowledge to co-workers (59%) and mistakes are tolerated and regarded as an opportunity for learning. The construct's weakest elements are that

the company's internal environment is relaxed and confident (52%) and employees behave according to the company's code (57%). As is also evident from this study's findings, the poorly expressed organisational culture does not stimulate knowledge transfer and innovation (Collison and Parcell 2004; Jaklič 2006).

7. Among organisation systems, the information system is the most strongly expressed one, where employees receive information about the company's targets and business results, which was appraised by 70%, while more weakly expressed is that the information stream from the bottom up is excellent (61%) and that the employees are satisfied with the information system (58%). The information stream is much stronger from the top down, while in terms of two-way communication management still has more opportunities. Among the forms of information, an impersonal form (printed circulation, e-mail, notice board etc.) prevails, which reduces the possibility of two-way communication and feedback.
   The rewards system is expressed at a below-average level of 52% while knowledge diffusion and passed on applicable suggestions are weakly rewarded through the various forms of financial incentives. Greater room for manoeuvring is represented by the little used non-financial incentives as prizes, honourable mentions, individual promotions, bonuses etc., which are much less developed than they are in locally present foreign multinational corporations.
   Innovation systems in companies is the weakest field expressed, with only half the companies having regulated it by statute and only 58% having appointed a professional leader responsible for a systematic management of the innovation system. A mere 15% of employees had participated in innovation activities, which resulted in an annual level of 0.1 of an innovation per employee. The reason for the poorly expressed innovation system lies in the unsatisfactorily specified organisation structure, processes and improper culture, which are matters for responsible management which is still not sufficiently aware that a sustainable competitive position can be primarily achieved by developing innovative products, services and processes faster than its competitors (Nordström and Ridderstråle 2001; Peters 1997). The weak innovation performances, as identified in this research, are most often in undeveloped knowledge management (KM) (Therin 2002).
8. Measuring results is the most weakly expressed construct surveyed,

as just 30% companies regularly verify the achievement of their strategic objectives with the BSC; the benchmarking of its business functions with the world's best performers was used by 47% of the companies, suitable methods for measuring the quality of education and training were used by 50% of the companies, whereby methods such as Scandia Navigator and Sveibys' Intangible Assets Monitor are rarely used, and employees' satisfaction levels are measured by only 54% of the companies.

Non-financial results of implementing the LO were measured with a qualitative measure based on a five-point Likert scale and a quantitative measure where the respondents were asked to quote three most evident results of LO implementation. 76% of the participating companies affirmed that implementation of the LO had brought positive non-financial effects. The most significant positive effects were: greater employee mobility, better employee motivation and higher satisfaction levels, company changes could be implemented more quickly, a higher quality of products and services, higher customer satisfaction levels, improved response times and better communication.

A review of the individual LOAM constructs shows that, when implementing the LO, companies best developed learning, strategic groundstones and the information system. Regardless of the significant investments in acquiring new knowledge, managing knowledge is one of the companies' weakest areas and therefore such investments are questionable, while in the case of employees' poor satisfaction levels or employees who are leaving, these investments are not being returned. Meryl in half of the companies' management is trained to perform the role of a model, learning and creativity stimulator, coach, mentor and protector. This deficiency is also reflected in the weak personal level where system thinking is missing along with a willingness to test new knowledge in praxis. The most critical fields include measuring results, which reduces the possibility of more effective investments in employees, and an innovative system which prevents significant improvements in companies' competitive positions. The survey findings are in line with the findings of Darroch (2005), which ascertain that undeveloped knowledge management (KM) capability is most often reflected in weak innovativeness; and the survey of McKeen, Zack, and Singh (2006) where it was found that a poor KM practice is directly related to a weak organisational performance and to those practices associated with poor financial outcomes.

TRENDS IN LO DEVELOPMENT IN THE STUDIED PERIOD

The comparison of empirical research has shown (figure 1) that in the studied period the surveyed companies made bigger improvements in measuring results (by 14%), which had remained the survey's most weakly expressed construct. While we can effectively manage only what we measure, it is sensible to ensure a greater effect from investments in employees by placing greater attention on this field. The second best improvement of companies (by 12%) was achieved in managing knowledge where companies had started to use various electronic knowledge depositories and formalised knowledge exchange with suppliers. The smallest improvement (by 4%) was recorded in organisational systems where in the context of the information system personal communication was somewhat partly replaced with electronic means. In the LO where personal contacts are key to establishing a relationship of trust, the findings suggest a reduction of the quality of communication and knowledge exchange (Kluge, Stein, and Licht 2001).

LINKS BETWEEN DEVELOPMENT OF THE LO AND FINANCIAL INDICATORS

In order to find out any connections between development of the LO and financial indicators, all questionnaires received were evaluated according to the LOAM statute. The 84 companies participating in the survey received a score from 70 to 132 points. A higher score means a greater degree of LO development. To prevent companies making overestimations, we compared the questionnaire answers with the follow-up interview and checked the facts in 15 top-ranking companies.

Business results were studied on the basis of the five financial indicators mentioned in table 1. A correlation analysis was performed in order to check the co-dependence of the financial indicators. The correlation matrix indicates there was a greater connection between individual indicators, except for value added per employee. The calculated values of the linear regression analysis (table 1) show considerable connections between the intensity of LO use expressed by the survey result achieved (points) and the first four financial indicators, while the dependence between the values added per employee and companies' survey results is smaller. The rest of the analysis' coefficients had similar results.

Due to the dependence between the first four financial indicators, a principal component analysis was performed, representing a method of forming new variables as a linear combination of the original variables.

TABLE 1 Dependence between the intensity of LO use (points) and financial indicators

Financial indicators	R^2	R	*d. f.*	F	*Sig. F*	b_0	b_1
Return on sales	0.300	0.548	84	26.57	0.000	–14.112	0.166
Return on equity	0.426	0.653	84	45.92	0.000	–25.736	0.315
Return on assets	0.336	0.580	84	31.36	0.000	–15.976	0.185
Ratio of operating revenues to expenses	0.209	0.457	84	16.4	0.000	0.7969	0.003
Value added per employee	0.022	0.148	84	1.43	0.000	14405.5	127.055

NOTES Financial indicators acquired from IBON 2007.

TABLE 2 Index of financial efficiency

Com.	Initial eigenvalues			Extr. sums of squared loadings		
	(1)	(2)	(3)	(1)	(2)	(3)
1	2.920	72.998	72.998	2.920	72.998	72.998
2	.590	14.749	87.746			
3	.350	8.751	96.497			
4	.140	3.503	100.000			

NOTES Column headings are as follows: (1) total, (2) % of variance, (3) cumulative.

The calculated principal components obtained thus represent a certain composed index of the researched financial indicators named 'financial efficiency' which explain 73% of the total variance in the first four financial indicators (table 2).

The calculated values of the linear regression analysis (tables 3 and 4) between the index of financial efficiency and the companies' survey results (points) show: similarly to the individual financial indicators, considerable connections between the intensity of LO use expressed by points and financial efficiency. The determinant coefficient (0.429) tells us that 43% of the total variance of financial efficiency can be explained by the linear influences of the intensity of LO use. The findings suggest we cannot guarantee that companies with a developed LO concept will be financially successful, since that depends on several other parameters. On the other hand, the calculated determinant coefficient (0.429) is significant enough for us to assert that the companies' financial efficiency depends considerably on development of the LO concept.

A comparison of LO development among the studied companies on the basis of five financial indicators revealed moderate connections be-

TABLE 3 Model summary

R	R^2	Adj. R^2	Std. error of the est.
.655	.429	.420	.762

NOTES Predictors: (Constant), Points_1.

TABLE 4 Coefficients

Predictor	Unstd. coeff.		Std. coeff.	*t*	*Sig.*
	β	Std. error	β		
(Constant)	–3.446	.514		–6.705	.000
Points_1	$3.478e^{-2}$	.005	.655	6.824	.000

NOTES Dependent variable: FAC1_2 index of financial efficiency.

tween the degree of development of the LO concept and financial indicators. The findings lead us to the conclusion that those companies which develop the LO concept more can achieve better financial results than companies that do not use it systematically. The findings gained by the LOAM are in accordance with the study results of Ellinger et al. (2002) with Watkins and Mastrick's DLOQ, where she found a positive association between the LO concept and companies' financial performances. As we have assessed the influences of LO implementation with the LOAM for the surveyed companies, a long-run perspective may also be needed to properly identify the effects on companies' performances (Prieto and Revilla 2006).

INFLUENCE OF THE LOAM ELEMENTS ON COMPANIES' FINANCIAL INDICATORS

The influences of the eight groups of LOAM constructs on the companies' financial indicators were calculated with a multiple regression analysis. Table 5, where financial efficiency is a dependent variable and there are eight groups of LOAM independent variables, explains 54% of the variance of financial efficiency. The adjusted determinant coefficient yields a more realistic picture of the model's adequacy since it explains 44.8% of the total variance of financial efficiency, which is a similar result to the one we obtained in the above chapter.

The calculated coefficients of the linear regression model (table 6) help us find out which of the group of LOAM elements had a more significant influence on the companies' financial efficiency. Since an individual group of the LOAM comprises a diverse number of elements, and among them different measurements were used, for result compa-

TABLE 5 Determinant coefficient

R	R^2	Adj. R^2	(1)	Change statistics				
				R^2	F	df_1	df_2	*Sig. F*
.732	.536	.448	.74269971	.536	6.121	8	84	.000

NOTES (1) Std. error of the estimate. Predictors: (Constant) K1 to K10.

TABLE 6 Influence of the LOAM elements on financial efficiency

Elements	Unstd. coeff.		Std. coeff.	t	*Sig.*
	β	Std. error	Beta		
(Constant)	−4.292	.661		−6.490	.000
K1 Strategic-groundstone level	$5.578e^{-2}$	.044	.206	1.265	.211
K2 Management level	.127	.057	.434	2.247	.029
K3 Personal level	.232	.157	.175	1.475	.146
K4 Learning	$4.921e^{-2}$	.049	.122	1.011	.317
K5 Managing knowledge	.338	.202	.188	1.675	.100
K6 Organisational culture	.189	.143	.193	1.318	.193
K7 Organisational systems	$6.673e^{-2}$	.065	.128	1.025	.310
K8 Measuring results	$5.462e^{-3}$	.042	.016	.131	.896

NOTES Dependent Variable: FAC1_2 index of financial efficiency.

rability it is recommended to observe the Beta regression coefficients. They are calculated on the basis of standardised coefficients. So we can assign the biggest impact on financial efficiency to the (K2) management level which has the highest regression coefficient Beta. The second biggest influences on financial efficiency came from the (K1) strategic-groundstone level, third (K6) the organisational culture and fourth (K5) the managing knowledge level. The smallest influence on financial efficiency came from (K8) measuring results, (K4) learning and (K7) organisational systems.

To ensure the best financial results from implementing the LO concept, according to the survey findings a greater emphasis should be put on the management level, strategic groundstones, organisational culture and managing knowledge.

Conclusion

This article presents the impact of implementing the learning organisation concept on companies located in Slovenia in the 2001–2006 period. The influence of applying the LO to outcome variables expressed as non-

financial and financial indicators was measured with the Learning Organisation Assessing Model developed at the USP Institute. The LOAM consists of eight constructs which together comprehend 53 quantitative and qualitative measures that encompass important parameters influencing successful LO implementation. A special value of the LOAM is that it includes 23 quantitative measures which allow for an objective comparison among companies and ensure survey results that depend less on respondents' subjective appraisals and therefore present a more objective estimation of the LO development stage.

The study results reveal that, when implementing the LO, companies' best developed parameters involved in these constructs: learning, strategic groundstones and information system. Companies significantly invest in acquiring new knowledge, but managing knowledge is one of the companies' weakest fields. In the case of employees' poor satisfaction levels or their leaving, these investments are not being returned. Management is characteristically insufficiently trained to perform the role of a model, learning and creativity stimulator, coach, mentor and protector. The most critical fields surveyed involve measuring the results of implementing the LO, which reduces the possibility of more effective investments in employees, and a system of innovation which prevents major improvements in companies' competitive positions.

Tracking the survey results in the studied period shows that the biggest improvements were in measuring results and managing knowledge, yet both remain the weakest construct of the survey. Improvements in the last two years were made in showing interest in using methods to measure employees' satisfaction levels and verifying strategic objectives with the BSC and in a more systematic approach to managing knowledge, where the use of various types of software for knowledge storing and sharing had started. The information system was the companies' strongest field, where personal communication was partly replaced with electronic means, which reduces the quality of information. The system of innovation was the worst field, even though some improvements in establishing services and a responsible chief for the field were made.

Application of the LOAM reveals the positive effect of LO implementation on companies' non-financial and financial performances. 76% of the companies implementing the LO indicated positive non-financial results such as: higher employee mobility and better motivation, changes are more quickly implemented, higher quality and better response times, etc. The survey's most important finding is that there is a moderate con-

nection between the degree of LO development and financial indicators, leading to the conclusion that companies with a more developed LO concept can achieve better financial results than those companies that do not use it.

Studying the influence of the eight LOAM constructs on companies' financial indicators shows the greatest contribution to financial indicators from management, which should establish proper strategic groundstones, develop an appropriate organisational culture (of trust, openness, co-operation), establish a knowledge management and innovation system.

To improve financial performances by implementing the LO, companies should put greater emphasis on systems of innovation to generate new knowledge and on the process of managing knowledge so as to allow this new knowledge to be diffused among employees, departments and across company borders, ensuring that it is transformed faster than it is by rivals into new competitive products and services.

Another special value of the presented empirical research on the systematic implementation of the LOAM over the studied period are the findings that allow management to gain a better understanding of the LO's comprehensiveness, more effective LO implementation and to achieve better financial and non-financial results. An added value for LOAM users is the possibility to track improvements over the years and to benchmark results and improvements with other participating companies. Although multinational companies located in Slovenia also participated in the survey, implementing the LOAM internationally would give the tool's results even more credibility.

One limitation of the presented empirical research comes from its concentration on Slovenia. For a broader application of the study results, research should also encompass companies from other geographical, political, economic, technological and cultural environments.

APPLICATION FOR MANAGERS

The empirical research presented in this article reveals positive non-financial and financial effects on the performance of companies with a more developed LO concept.

Research findings also reveal critical success factors in the implementation of the LO in praxis, which is tangible advice to management in helping them to achieve the best results possible when applying the LO concept.

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