Volume 8
Number 3
Fall 2010

ISSN 1581-6311

Managing Global Transitions

International Research Journal

EDITOR
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Managing Global Transitions
International Research Journal

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International Research Journal

VOLUME 8 · NUMBER 3 · FALL 2010 · ISSN 1581-6311

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Government Debt and the Long-Term Interest Rate: Application of an Extended Open-Economy Loanable Funds Model to Poland

Yu Hsing

This paper examines the behavior of the long-term interest rate in Poland based on a sample during 2001.Q1–2009.Q1. Both the demand for and supply of loanable funds are considered. Extending the open-economy loanable funds model, this paper finds that more government debt as a percent of GDP leads to a higher long-term interest rate in Poland and that a higher real Treasury bill rate, more percent change in real GDP, a higher expected inflation rate, a higher world long-term interest rate, and depreciation of the zloty would increase the long-term interest rate in Poland. In the standard open-economy loanable funds model including the net capital inflow, the coefficient of the net capital inflow is positive and insignificant at the 10% level. Hence, the incorporation of the world interest rate and the nominal effective exchange rate in the model may better capture the behavior of the long-term interest rate in Poland.

Key Words: loanable funds model, government debt, long-term interest rates, expected inflation rates, nominal effective exchange rates
JEL *Classification:* E43, E62

Introduction

Since the global financial crisis and the worldwide economic recession, many countries have experienced declining government revenues and budget deficits. Deficit or debt financing has become an avenue to make up budget shortfalls. Poland is no exception. Net borrowing by its general government went up substantially from 20,473 million zlotys in 2007 to 47,922 million zlotys in 2008. Its central government deficit rose from 5,559 million zlotys in September 2009 to 6,541 million zlotys in October 2009. Its central government debt increased from 630,475.4 million zlotys in September 2009 to 635,753.5 million zlotys in October 2009 (International Monetary Fund 2009).

There has been renewed interest in examining whether more budget deficits would raise interest rates, crowd out part of private investment

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spending, and reduce economic growth. Previous findings of the impact of the government deficit or debt on the interest rate are inconclusive. Applying the demand for and supply of loanable funds, and based on a sample during 1953–1984, Hoelscher (1986) indicates that more government deficits in the US increase the slope of the yield curve and the long-term interest rate. Employing the instrumental variable technique, and based on a sample during 1955.Q1–1984.Q4, Cebula (1988) shows that the nominal interest rate is positively associated with the US federal government deficit. Applying the 2SLS technique, and based on a sample during 1960.Q1–1990.Q2, Al-Saji (1993) finds that the long-term interest rate and the government budget deficit in the UK have a positive relationship. Employing the techniques of cointegration and the error correction model, and based on annual data during 1950–1993, Vamvoukas (1997) finds support for the Keynesian model that more government deficits raise the interest rate in Greece. Applying the cointegration technique, and based on a sample during 1975.Q1–1990.Q1, Cebula (2003) indicates that the German government budget deficit and the long-term interest rate have a positive relationship. Other studies maintaining similar views include: Feldstein (1982), Wachtel and Young (1987), Boskin (1988), Zahid (1988), Thomas and Abderrozak (1988), Tran and Sawhney (1988), Cebula (1991, 1993, 1997a, 1997b, 1999, 2005), Miller and Russek (1991), Raynold (1994), Correia-Nunes and Stemitsiotis (1995), Ewing and Yanochik (1999), Gale and Orszag (2004), Saleh and Harvie (2005), Quayes and Jamal (2007), Barnes (2008), and Laubach (2009).

On the other hand, based on different sample periods and applying the 2SLS technique, Evans (1985) reveals that the interest rate and the government deficit in the US are not positively associated. Applying the Granger causality test and the minimum final prediction error techniques, and based on a sample during 1946–1986, Darrat (1989) considers several versions of the long-term interest rate and the government deficit and rejects the hypothesis that more government deficits in the US cause the long-term interest rate to rise. Based on quarterly data during 1973.Q1 to 1985.Q4, Gupta (1989) considers six different types of the interest rate and finds support for an inverted Fisher hypothesis and lack of evidence that more government deficits affect the interest rate in the US. Findlay (1990) confirms that more government deficits do not affect the short-term real interest rate in the US and that more real money supply and higher inflation rates reduce real interest rates. Applying and extending four major models and based on annual data during 1964–2000, Gar-

cia and Ramajo (2004) show that more government deficits in Spain do not raise the long-term interest rate. Other studies holding similar views include Plosser (1982, 1987), Kormendi (1983), Hoelscher (1983), Makin (1983), Aschauer (1989), McMillin (1986), Barro (1974; 1987), Evans (1987; 1988), and Darrat (1989).

This paper attempts to examine the impact of more government debt on the long-term interest rate in Poland and has several focuses. First, an open-economy loanable funds model is extended to explain the behavior of the international capital flow by the relative interest rate and the exchange rate. Second, comparative static analysis is applied to determine the impact of a change in one of the exogenous variables on the equilibrium long-term interest rate. Third, empirical results based on the conventional closed-economy and open-economy models are compared.

The Model

The loanable funds model has been employed in studying the impact of the government deficit or debt on the interest rate (Hoelscher 1986; Tran and Sawhney 1988; Thomas and Abderrezak 1988; Cebula 1988; 1994; 1997a; 1997b; 1998; 1999; 2000; 2003; 2005; Correia-Nunes and Stemitsiotis 1995; García and Ramajo 2004; Quayes and Jamal 2007; Barnes 2008). Hoelscher (1986) is among the first to apply the loanable funds model to study the impact of the government borrowing on the long-term interest rate. He considers both the demand for and supply of loanable funds. In the demand for loanable funds, he includes the long-term interest rate, the real short-term interest rate, the percent change in real output, the expected inflation rate, and the government borrowing. In the supply of loanable funds, he includes the long-term interest rate, the real short-term interest rate, and the expected inflation rate. However, his model is a closed economy without incorporating international capital flows. Cebula (1988; 1994; 1997a; 1997b; 1998; 1999; 2000; 2003) proposes an open-economy loanable funds model by considering international capital flows in the supply of loanable funds.

In this paper, the behavior of the net capital inflow is explained by the relative interest rate and the exchange rate (Devereux and Saito 2006; De Santis and Luhrmann 2009). As the world long-term interest rate rises relative to the Polish long-term interest rate, the net capital inflow to Poland would decrease. As the Polish zloty appreciates relative to other currencies, the net capital inflow to Poland would increase. Hence, a

higher world interest rate would reduce the supply of loanable funds and increase Poland's long-term interest rate, and appreciation of the Polish zloty would increase the supply of loanable funds and reduce Poland's long-term interest rate.

Extending previous studies of the loanable funds model, we can express the demand for and the supply of loanable funds as

$$LF^d = V(R, R^S, \pi^e, Y, D) \quad \text{and} \tag{1}$$

$$LF^S = X(R, R^S, \pi^e, Y, R^W, E), \tag{2}$$

where LF^d is the demand for loanable funds in Poland, LF^S the supply of loanable funds in Poland, R the long-term interest rate in Poland, R^S the real short-term interest rate in Poland, π^e the expected inflation rate in Poland, Y percent change in real GDP in Poland, D government debt in Poland, R^W the world long-term interest rate, and E the nominal effective exchange rate (an increase means appreciation).

Setting LF^d and LF^S equal to the equilibrium loanable funds (LF), we can write the equilibrium long-term interest rate as

$$\overline{R} = \overline{R}(D, R^S, Y, \pi^e, R^W, E). \tag{3}$$

The partial derivative of $\overline{R}$ with respect to each of the exogenous variables is given by

$$\frac{\partial \overline{R}}{\partial D} = \frac{V_D}{|J|} > 0, \tag{4}$$

$$\frac{\partial \overline{R}}{\partial R^S} = \frac{V_{R^S} - X_{R^S}}{|J|} > 0, \tag{5}$$

$$\frac{\partial \overline{R}}{\partial Y} = \frac{V_Y - X_Y}{|J|} \neq 0, \tag{6}$$

$$\frac{\partial \overline{R}}{\partial \pi^e} = \frac{V_{\pi^e} - X_{\pi^e}}{|J|} > 0, \tag{7}$$

$$\frac{\partial \overline{R}}{\partial E^W} = \frac{-X_{R^W}}{|J|} > 0, \quad \text{and} \tag{8}$$

$$\frac{\partial \overline{R}}{\partial E} = \frac{-X_{E^e}}{|J|} < 0, \tag{9}$$

where J is the Jacobian for the endogenous variables and has a positive

TABLE 1 Augmented Dickey-Fuller (ADF) unit root test

Item	Level	First difference
R	−2.494	−2.912
D	−2.502	−2.186
R^S	−1.047	−2.519
Y	−2.372	−1.497
π^e	−3.609	−3.940
R^W	−1.995	−3.237
E	−2.475	−3.348

NOTES The critical values are −3.646, −2.954, and −2.616 at the 1%, 5%, and 10% levels.

value. Note that in equation (6), if $V_Y > X_Y$, $\partial\overline{R}/\partial Y < 0$, and $V_Y < X_Y$, $\partial\overline{R}/\partial Y < 0$.

Empirical Results

The data were collected from the *International Financial Statistics* which is published by the International Monetary Fund. The dependent variable is the 10-year Polish government bond yield. The ratio of government debt to GDP as a percent is used to represent government demand for loanable funds. The Polish real Treasury bill rate is selected as a real short-term interest rate to test for a potential substitution effect. The percent change in real GDP is derived from real GDP index with 2005 as the base year. The expected inflation rate is represented by the average inflation rate of the past four quarters. The average inflation rate is the percent change in the consumer price index with 2005 as the base year. The long-term EU government bond yield is chosen to represent the world interest rate. The nominal effective exchange rate is a trade-weighted exchange rate index with 2005 as the base year. An increase in the nominal effective exchange rate means appreciation of the zloty. The linear form is chosen in empirical work. The sample ranges from 2001.Q1–2009.Q1. Earlier data for the government bond yield are not available.

Table 1 reports the results of the Augmented Dickey-Fuller (ADF) unit root test and shows that, except for π^e, each of the variables has a unit root in the level form at the 5% level. Table 2 presents the estimated regression and related statistics. The Newey-West generalized least squares method is employed in empirical work in order to yield consistent estimates for the covariance and standard errors when the forms of serial correlation and heteroskedasticity are unknown. As shown, 95.1% of the

TABLE 2 Estimated regression of the government bond yield for Poland based on the extended open-economy loanable funds model

Variable	Coefficient	Std. Error	*t*-statistic	Prob.
C	−0.685140	2.196741	−0.311889	0.7576
D	0.056514	0.031592	1.788888	0.0853
R^S	0.494965	0.044019	11.24445	0.0000
Y	0.022497	0.012999	1.730679	0.0954
π^e	0.502187	0.056152	8.943400	0.0000
R^W	0.667843	0.186646	3.578130	0.0014
E	−0.014813	0.006975	−2.123631	0.0434
Adjusted R^2		0.951213		
Akaike inform. criterion		1.168091		
Schwarz criterion		1.485532		
MAPE		3.646454		
Sample period		2001.Q1–2009.Q1		
Sample size		33		

variation in the government bond yield can be explained by the right-hand side variables with significant coefficients. The government bond yield is positively affected by the ratio of government debt to GDP, the real Treasury bill rate, the percent change in real GDP, the expected inflation rate, and the EU government bond yield, and it is negatively associated with the nominal effective exchange rate. The mean absolute percent error is 3.646%. To determine whether the results in table 2 may be spurious, the ADF unit root test on the residuals is performed (Gujarati and Porter 2010, 383–4). Based on the Akaike information criterion (AIC), a lag length of four is selected. The test statistic is –3.874, and the critical value is –2.650 at the 1% level. Thus, the residuals are stationary. Although individual time series may be nonstationary, their linear combination is stationary, indicating that they are cointegrated and have a long-term stable relationship.

Several different measures of the variables are tested to compare the results. If the ratio of the government deficit to GDP replaces the ratio of government debt to GDP, its coefficient is negative and highly insignificant. When the PLN/USD exchange rate is selected to represent the exchange rate, its coefficient is positive and insignificant at the 10% level, and the coefficients of the ratio of government debt to GDP and the per-

cent change in real GDP are positive and significant at the 5% level. Other results are similar. When the 10-year US Treasury bond yield is used to represent the world interest rate, its coefficient is positive and insignificant at the 10% level, suggesting that Poland's government bond yield is significantly influenced by the government bond yield of the European Union instead of the US Treasury bond yield. To save space, these results are not printed here and will be available upon request.

If the estimated regression is based on $\overline{R} = \overline{R}(D, R^S, Y, \pi^e)$, which is a standard closed-economy loanable funds model (Hoelscher 1986), all the coefficients are positive and significant at the 1% or 10% level. If the estimated regression is based on a standard open-economy loanable funds model (Cebula 1988, 1994, 1997a, 1997b, 1998, 1999, 2000, 2003), $\overline{R} = \overline{R}(D, R^S, Y, \pi^e, CF)$, where CF stands for the net capital inflow as a percent of GDP, the coefficients of government debt to GDP as a percent, the real Treasury bill rate, the GDP growth rate, and the expected inflation rate are positive and significant at different levels, whereas the coefficient of the net capital inflow as a percent of GDP is positive and insignificant at the 10% level. Hence, the inclusion of the world interest rate and the nominal effective exchange rate to capture the international capital flow may provide more insights into the understanding of the behavior of the long-term interest rate.

Summary and Conclusions

This paper has applied an extended open-economy loanable funds model to examine whether Poland's long-term interest rate would be affected by government debt and other selected macroeconomic variables. The results show that more government debt as a percent of GDP, a higher real Treasury bill rate, more percent change in real GDP, a higher expected inflation rate, a higher world long-term interest rate, and a lower nominal effective exchange rate (depreciation of the zloty) would raise Poland's government bond yield.

There are several policy implications. The positive significant sign of the ratio of government debt to GDP implies that continual debt-financed expansionary fiscal policy would increase the long-term bond yield and crowd out part of private spending. The results in this paper are consistent with the evaluation made by Fitch (EquityBites (M2) 2010), which indicates that the Polish government needs to pursue a credible fiscal policy in order to avoid a negative bond rating and keep the bond yield from rising. The insignificant coefficient of the ratio of the gov-

ernment deficit to GDP may suggest that a short-term increase in the deficit/GDP ratio may not raise the long-term government bond yield. The central bank needs to contain rising inflation expectations, which would raise the long-term interest rate. The world long-term interest rate or the exchange rate needs to be considered as international investors search for better returns or gains due to exchange rate appreciation in determining supplying loanable funds to Poland.

There may be areas for future research. As the Polish economy recovers from the worldwide recession and as the sample size increases, the regressions should be re-estimated to compare with the outcomes in this paper. The expected inflation rate may be constructed by more sophisticated methodologies. Other models of interest rate determination may be applied as well.

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Small Firms in a Small Country: Managerial Factors, Internationalization and Performance of Slovenian SMEs

Mariola Ciszewska-Mlinarič
Franjo Mlinarič

International activities of small and medium enterprises (SMEs) constitute an important research area. To understand this phenomenon, researchers employ different theoretical perspectives. Among them, the resource-based theory has been given much attention. In this study three managerial factors: managerial attitude toward internationalization, internationalization knowledge and international experience, are seen as examples of the firm's intangible assets. The objectives of this study are twofold. First, it aims to examine the significance of the mentioned managerial resources for SMEs' internationalization. Second, it verifies the relationship between the level of the firm's internationalization and performance. The study is based on a sample of highly-internationalized Slovenian companies. According to the findings, managerial attitudes towards internationalization and internationalization knowledge are significantly related to the level of SME internationalization. The statistical analysis also provides support for the relationship between the level of the firm's internationalization and performance.

Key Words: internationalization, managerial factors, performance, SMES
JEL *Classification:* M16, F23

Introduction

In the last decades, the internationalization of small and medium enterprises (SMEs) has become an interesting and important research subject around the world. Internationalization is defined as 'a process through which a firm moves from operating solely in its domestic marketplace to international markets' (Javalagi, Griffith and White 2003, 186). Selling outside the domestic market is an important objective for many small

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and medium enterprises (Reuber and Fisher 1997). This is especially true for SMEs operating in countries where the domestic market's absorption power is limited, as in the case of Slovenia. A too small domestic market cannot support much growth (Reuber and Fisher 1997), thus domestic SMEs are somehow forced to internationalize. Nonetheless, the literature claims that internationalization is still a great challenge for SMEs due to their limited skills and resources in comparison to large firms (Reuber and Fisher 1997). That is why the most common entry mode used by SMEs is export (Leonidu and Katsikeas 1996; Wolff and Pet 2000; Fernandez and Nieto 2005), since – in contrast to other modes – export does not require substantial resource commitments and is less risky (Lu and Beamish 2006). SMEs' internationalization outcomes, and the way SMEs cope with and overcome any difficulties related to internationalization, are explained by strategic capabilities and resources. This study also aims to contribute to the resource-based theory as it focuses on managerial resources and their significance for the level of firm's internationalization. Moreover, the relationship between the level of firm's internationalization and performance is examined. Therefore, two research questions are addressed:

1. Do managerial factors (such as attitude, internationalization knowledge and prior international experience) influence the level of Slovenian SMEs' internationalization?
2. Does the level of internationalization influence Slovenian SMEs' performance in terms of efficiency, profitability and/or growth?

The paper proceeds as follows. First, the relevant theory overview and the resulting hypotheses are presented. Second, the method and measures employed in the study are highlighted before discussing the results of the analysis. Finally, the paper concludes with a discussion and implications.

Literature Review: Research Model and Hypotheses

Numerous studies have addressed questions on internationalization motives, outcomes and factors influencing the process (e. g. Lu and Beamish 2001; 2006; Javalagi, Griffith and White 2003). To understand this complex phenomenon, researchers have employed different theoretical perspectives (e. g. the process/stage model approach, the eclectic paradigm, the resource-based view and the behavioral theory) and among them the resource-based view (RBV) has recently gained the most attention. The importance of strategic capabilities and resources for internation-

alization has been widely recognized (Fernandez and Nieto 2005; Hitt, Hoskisson and Kim 1997). For example, Ruzzier, Antoncic and Konecnik (2006) employed the RBV to shed light on differences between internationalized and non-internationalized Slovenian SMEs in terms of resources possessed. They observed that SMEs that followed the path of international expansion had significantly greater bundles of organizational, financial and human resources than their counterparts.

Managers' knowledge and skills constitute firm-specific intangible resources and managers play a crucial role in influencing firm internationalization (Leonidou and Katsikeas 1996) regardless of its size. Yet in smaller and younger firms the skills and knowledge of the management team are likely to be even more important and influential on the firm's internationalization and performance than in larger firms (Reuber and Fisher 1997). More specifically, researchers focused on managerial attitude and perceptions about exporting (Leonidou, Katsikeas and Piercy 1998; Suarez-Ortega and Alamo-Vera 2005), international experience of managers (Reuber and Fisher 1997) and managers' knowledge and capabilities relevant to the export development process (Hadley and Wilson 2003).

These three managerial factors, namely: (1) managers' attitude and perceptions of internationalization, (2) management team internationalization knowledge, and (3) managers' international experience, have been included in the research model.

MANAGERS' ATTITUDE TOWARD INTERNATIONALIZATION

The significance of the top managers' attitude and perceptions for firms' behaviors has been argued and confirmed by many researchers (Bettis and Prahalad 1995; Prahald and Bettis 1986; Leonidou, Katsikeas and Piercy 1998; Suarez-Ortega and Alamo-Vera 2005; Calof and Beamish 1995). Initiating and maintaining export activities represent the firm's behaviors and as such they are influenced by management attitudes and perceptions. This notion is confirmed by a growing number of research studies in the field of internationalization. For example Axinn (1998), noticed that a positive attitude toward exporting was related to the export performance in manufacturing firms. These results were confirmed also by Javalagi, Griffith and White (2003) for service firms. Also Suarez-Ortega and Alamo-Vera (2005) noticed that managerial perception that export was beneficial for their firms had an influence on export intention, although it did not influence export intensity. In congruence with the existing literature it is to be expected that:

H1 *A favorable management attitude toward expanding internationally is positively associated with the level of* SME *internationalization.*

MANAGEMENT TEAM'S INTERNATIONALIZATION KNOWLEDGE

It is stated that knowledge itself and knowledge-based resources and capabilities exert an influence on the internationalization process of firms. For example, Autio, Sapienza and Almeida (2000) discovered that knowledge intensity was associated with a faster international growth. Also Yli-Renko, Autio and Tontti (2002) found that knowledge was a crucial resource driving firms' international growth. Hadley and Wilson (2003) confirmed that internationalization knowledge was related to the firm's internationalization. Andersen and Kheam (1998) focused on international management capabilities, however, the results of their research did not provide clear answers as to the role of these sort of capabilities in explaining international growth strategies.

In many research articles, the subject that is supposed to possess knowledge is the firm in general (Autio, Sapienza and Almeida 2000; Yli-Renko, Autio and Tontti 2002, Andersen and Kheam 1998). While it is clear that the level of knowledge is a characteristic of the firm, we focus on the top management team as a whole and its level of knowledge related to internationalization requirements, i. e. internationalization knowledge that facilitates the firm's international operations. Internationalization knowledge was proposed by Eriksson et al. (1997). They identified three components of international experiential knowledge at the level of the market (foreign business knowledge and foreign institutional knowledge) and at the level of the firm (internationalization knowledge). Hadley and Wilson (2003) proved that internationalization knowledge was related to the internationalization level. According to the authors, this sort of knowledge 'captures the "know-how" or procedural element of experiential knowledge; it is related to the firm's requirement for experiential knowledge that will facilitate its international operations, for example, adapting resources and capabilities to the international environment' (Hadley and Wilson 2003, 701). Thus:

H2 *The level of management team's internationalization knowledge is positively associated with the level of* SME *internationalization.*

MANAGER'S INTERNATIONAL EXPERIENCE

Many studies underline the role of international experience of managers in the internationalizing activities of firms. Reuber and Fisher (1997)

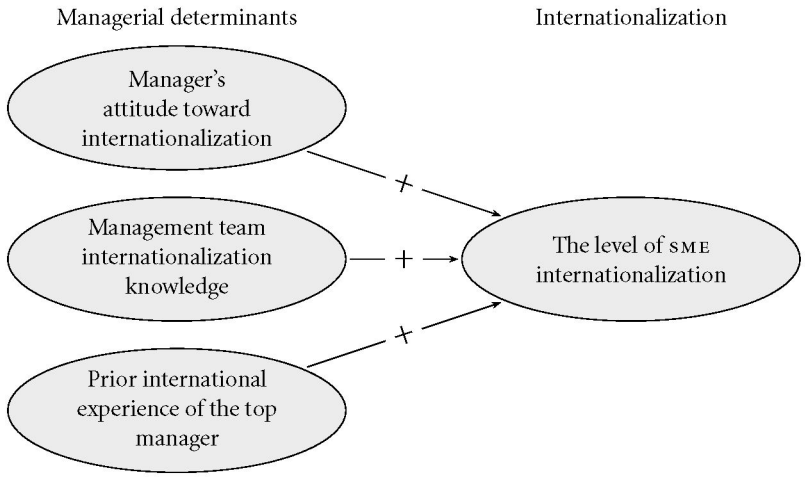

FIGURE 1 Research model of managerial factors and internationalization

found that management teams possessing international experience (like working abroad or having experience in selling to foreign markets) impacted international behaviors of firms. Firms with internationally experienced managers more often developed foreign strategic partnerships and delayed less in obtaining foreign sales (Reuber and Fisher 1997). Such behaviors resulted in a higher level of firms' internationalization. Similar findings were presented by Suarez-Ortega and Alamo-Vera (2005) who observed that export intensity was positively associated with managers' international experience. And in the line with Leaonidou, Katsikeas and Piercy's (1998) findings, they stated that managers' exposure to foreign cultures increases experiential knowledge about foreign markets. Also, Athanassiou and Nigh (2002) discovered a positive relationship between the top management team's international experience and the extent of firms' internationalization. This observation was valid regardless of whether the team was considered as an entity or was disaggregated into the CEO and the rest of the team. Sapienza et al. (2006) in their theoretical work also suggested that managerial experience with internationalization would moderate the relationship between internationalization and firms' growth by reinforcing a positive influence of internationalization on firms' growth. Therefore it is proposed that:

H3 *The international experience of the top manager is positively associated with the level of* SME *internationalization.*

INTERNATIONALIZATION AND PERFORMANCE

The relationship between internationalization and performance has been examined by numerous researchers. Westhead et al. (2002) found that internationally oriented SMEs were older, manufacturing, rural and larger, but they did not observe a higher level of performance in terms of enhanced business survival, current profit relative to competition or employment growth of exporting firms in comparison to non-exporting ones. McDougall and Oviatt (1996) discovered that new ventures that increased their level of internationalization exhibited superior performance measured by relative market share and return on investment. They also observed that early internationalization by new ventures was associated with a higher relative market share two years later, but a direct relationship between the level of internationalization and return on investment was not observed. Riahi-Belkaoui (1998) argued that the relationship between the degree of internationalization (measured as foreign revenues to total revenues) and performance (ROA) is non-monotonic – 'it is negative at a low range of DOI (0–14%), positive at a higher range (14–47%), and negative at levels superior to 47%' (p. 319). The cited research was based on a sample of large companies (USA) and therefore it is hard to transform these results to Slovenian SMEs. Lu and Beamish (2001) observed that in the examined Japanese SMEs export had a positive effect on growth (in terms of net sales and total assets) but a negative one on profitability (measured by return on sales).

Research evidence indicates that the relationship between internationalization and performance is still unclear, i. e. there are different findings stating that it is either positive, negative or both (depending on the degree of internationalization). In spite of this we hypothesize that the level of internationalization is positively associated with SMEs' performance, due to the fact that Slovenia (the domestic market for the sampled firms) is a small country and offers limited growth opportunities. In such a context international orientation is a 'must' for ambitious firms. Besides, direct comparisons of findings on the internationalization-performance relationship have their important limitations, as either performance was measured in numerous ways and most often using one or two measurement items (e. g. ROA, ROI, ROS), or else the examined companies were of a substantially different size. Following Murphy, Trailer and Hill's (1996) recommendations, performance measurement should clearly identify the dimension of performance under investigation, it

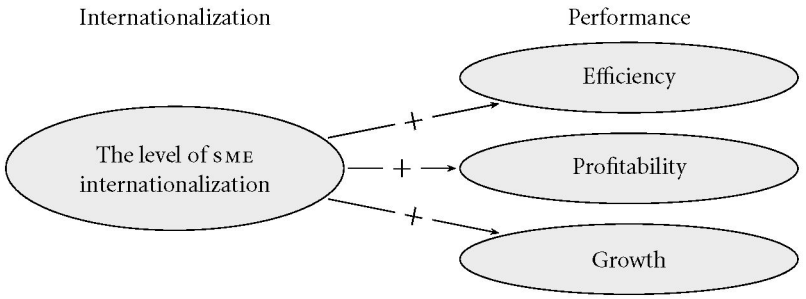

FIGURE 2 Research model of the internationalization–performance relationship

should cover multiple dimensions and within each dimension several measures should be used where possible. In this study three dimensions of performance are used: efficiency, profitability and growth. Thus, we hypothesize:

H4A *The level of internationalization is positively associated with the level of* SME *performance in terms of efficiency.*

H4B *The level of internationalization is positively associated with the level of* SME *performance in terms of profitability.*

H4C *The level of internationalization is positively associated with the level of* SME *performance in terms of growth.*

Methodology

QUESTIONNAIRE DEVELOPMENT

A questionnaire was developed on the basis of items used in previous research in order to increase the validity and reliability of examined constructs' measures. The included questions were pretested on a small sample of managers in one of the targeted industries to check their clarity. The questionnaire contained also other measurement items than those reported in this paper (as it was used in our large-scale research project on the internationalization of Slovenian SMEs).

POPULATION AND SAMPLE

Due to its size, Slovenia represents an interesting context in which to study SMEs' internationalization as domestic growth of firms is limited. Export is extremely important in the Slovenian economy, representing 70% of gross domestic product (see table 1).

TABLE 1 Export of goods and services share in Slovenian GDP

Item	2003	2004	2005	2006	2007
GDP*	25 114	27 073	28 704	31 008	34 471
Export of goods and services*	13 554	15 704	17 860	20 661	24 187
Export as % of GDP	54.0%	58.0%	62.2%	66.6%	70.2%

NOTES * In million €. Source: www.stat.si.

TABLE 2 Five industries with the highest share in Slovenian export

Code	2003	2004	2005	2006	2007	Average
DK29	14.9%	15.4%	15.5%	15.5%	15.5%	15.3%
DM34	11.5%	12.5%	15.2%	13.7%	16.1%	13.8%
DG24	13.8%	13.4%	13.1%	13.7%	13.7%	13.5%
DJ27	6.8%	7.8%	8.6%	9.8%	9.7%	8.6%
DN36	7.9%	8.0%	6.9%	6.1%	5.1%	6.8%

NOTES DK29 manufacture of machinery and equipment; DM34 – manufacture of motor vehicles, trailers, etc.; DG24 – manufacture of chemicals and chemical products; DJ27 – manufacture of basic metals; DN36 – manufacture of furniture. Source: www.stat.si.

The selection of industries included in the research was based on their significance for total export of Slovenia from 2003 to 2007 (see table 2).

We have chosen the following five industries with the highest average share in export: manufacture of machinery and equipment (15.3%); manufacture of motor vehicles, trailers, etc. (13.8%); manufacture of chemicals and chemical products (13.5%); manufacture of basic metals (8.6%); and manufacture of furniture (6.8%). The average share of all selected industries in the Slovenian export was 58.0% in the last five years (2003–2007). Using the electronic database GVIN, all firms within each of the selected industries were identified, but only firms that met the legal criteria of SMEs were included into the research sample. According to the Slovenian companies act from 2006, a small or medium enterprise is the one that fulfills two out of three criteria: (1) the number of employees is between 11 and 250; (2) the level of net sales amounts from 2 000 001 to 29 200 000 Euro; (3) the level of assets equals from 2 000 001 to 14 600 000 Euro. Other categories of firms are either micro or large enterprises.

Finally, 291 firms in the five selected industries met the mentioned criteria. It is worth emphasising that this number represented the total population of SMEs in the chosen sectors. Next, all the firms were approached in order to arrange a telephone interview with the top man-

TABLE 3 Characteristics of firms in the sample

Item	Average	Std. dev.	Range
Age of firm (years)	15.91	7.09	2–34
Number of employees	79.95	59.51	13–278
Foreign sales to total sales (%)	57.78	27.64	3–100
Net sales (mln Euro)	7. 48	5.65	2.02–33.22

NOTES $N = 67$.

ager/owner. In this first approach, it was checked whether the firm was not a subsidiary of another company, whether it was an exporter and whether it was assigned to the right industry. In the result, 50 firms were excluded from the study, leaving the eligible sample of 241 firms. From the end of 2008 till April 2009, 67 telephone interviews were conducted with chief manager/CEO, that constituted 27.8% of the population. SMEs in the sample are described in table 3.

The electronic database GVIN also provided financial and some non-financial information about each firm's performance (such as the number of employees or firm age) for the period 2003–2007.

Measures

MANAGER'S ATTITUDE TOWARD INTERNATIONALIZATION

The manager's attitude toward internationalization was measured by eight items, two of which were derived from Javalgi, Griffith and White (2003) and an additional six were connected with perceived export advantages used by Suarez-Ortega and Alamo-Vera (2005), who followed Axinn (1985). More specifically, respondents were asked to indicate on a five-point scale (1) the strength of their desire to expand internationally and (2) the perceived strength of their ability to internationalize their product/service offering. With regard to the perception of export advantages in comparison to domestic sales, managers were asked to indicate also on a five-point Likert-type scale, the extent to which they agreed with each of the following statements: (3) export improves the firm's profit, (4) export offers more opportunities for growth, (5) export helps improve product competitiveness, (6) export improves return on equity, (7) export allows the firm to diversify the product line, (8) export improves market position in the domestic market (Slovenia). In order to create one variable (ATTITUDE) the factor analysis and scale reliability analysis were conducted. Employing the principal component analysis as

an extraction method resulted in rejecting items number 1 (the strength of the desire to expand internationally) and number 7 (export allows the firm to diversify the product line), as their loadings were below 0.4. The loadings of the other six items were between 0.518 and 0.846. The construct ATTITUDE (comprising six items, number 2, 3, 4, 5, 6 and 8) has a Cronbach's Alpha of 0.809 indicating good reliability.

MANAGEMENT TEAM'S INTERNATIONALIZATION KNOWLEDGE

The management team's internationalization knowledge was operationalized by six items on a five-point scale: (1) the management team's ability to identify quickly and without problems business opportunities; (2) the management team's experience in international marketing planning and implementation; (3) the management team's ability to easily modify marketing mix elements for foreign markets; (4) the management team's level of export procedure knowledge; (5) the management team's ability to develop an international strategy; and (6) its general experience in internationalization (based on Hadley and Wilson 2003). The responses to these items were measured on a five-point scale. The factor analysis indicated that loadings of all six items were between 0.614 and 0.794. A further reliability analysis showed that the construct INT_KNOWLEDGE had a Cronbach's alpha of 0.828 indicating a good reliability.

MANAGER'S INTERNATIONAL EXPERIENCE

Respondents were asked whether they possessed any international experience (resulting from either working abroad and/or from selling to foreign markets) and to indicate the number of years of their international experience. As these two items were highly and significantly correlated (0.69 at the 0.01 level), they were standardized and summed to create a single score, INT_EXP.

DEGREE OF INTERNATIONALIZATION

Until now, international business researchers have not developed one widely accepted standard for measuring the level (degree) of internationalization of a firm (Sullivan 1994; Ramaswamy, Kroeck and Renforth 1996). Numerous studies used only single item measures of internationalization – most often foreign sales to total sales ratio, or the number of markets served (e. g. Verwaal and Donkers 2002; Wolff and Pett 2000; Riahi-Belkaoi 1998; Fernandez and Nieto 2006; McDougall and Oviatt

1996; Lu and Beamish 2006; Wagner 2004). 'Export intensity is a frequently used measure – higher export intensity indicates a greater DOI and is therefore a measure of the effectiveness with which a firm has internationalized its activities' (Wolff and Pett 2000, 42). However, more and more researchers indicate the inappropriateness of using single item measures for such a complex phenomenon as internationalization. It is argued that multiple item measures should be used in research in order to increase the validity level of the results (Sullivan 1994; Hadley and Wilson 2003). In this study DOISME was operationalized as a compound measure that consists of: (1) export intensity measured as foreign sales to total sales; (2) management's satisfaction with the firm's international performance (Javalgi, Griffith and White 2003); (3) manager involvement in international activities (measured as a percentage of time spent on internationalization monthly). The factor analysis indicated that loadings of these three items were between 0.681 and 0.798. A further reliability analysis showed that construct DOISME had a Cronbach's alpha of 0.602 that is satisfactory in exploratory studies – it is greater than 0.50 and as such it satisfies Nunnally's threshold level of acceptable reliability (Suaraz-Ortega and Alamo-Vera 2005).

PERFORMANCE

Following Murphy, Trailer and Hill's (1996) recommendations, the performance measurement in this study covers three dimensions of performance: efficiency, profitability and growth. Efficiency was operationalized by return on equity (ROE) and value added per employee (VA/EMPL). Growth was measured by change in sales (ΔSALES) and change in the number of employees (ΔEMPL). Profitability was captured by return on sales (ROS) and return on assets (ROA). All values of the performance indicators were provided by the database GVIN.

CONTROL VARIABLES

In order to increase the reliability of results' it is recommended to use control variables as factors other than independent variables, may affect dependent variables (i. e. the level of internationalization and performance indicators). According to Murphy, Trailer and Hill's (1996) review, the size of the firm, the age of the firm and industry are among the most often employed control variables. Numerous previous researches found these variables to be determinants of the firm's performance and the level of internationalization (Autio, Sapienza and Almeida 2000; Yli-Renko Autio and Tontti 2002; Verwaal and Donkers 2002; Wolff and Pett 2000;

Fernandez and Nieto 2005). In this study these three control variables were employed – the firm's age (AGE), the firm's size (SIZE) (controlled with the log of the total number of employees) and industry (IND) (controlled with dummy variables). The data for these variables were taken from the database GVIN. Correlations for all variables (except for the industry dummies) are shown in table 4.

Analysis and Results[1]

MANAGERIAL FACTORS AND INTERNATIONALIZATION

In order to test whether the managerial attitude toward internationalization (ATT), internationalization knowledge (INT_KNOW) and international experience (INT_EXP) are associated with the level of firms' internationalization (DOISME), the following equation was estimated:

$$\text{DOI}_{\text{SME}} = \alpha + \beta_1 \text{ATT} + \beta_2 \text{INT\_KNOW} + \beta_3 \text{INT\_EXP} + \beta_4 \text{SIZE} + \beta_5 \text{AGE} + \sum_{n=1}^{4} (\beta_{6n} IND_n) + \mu. \quad (1)$$

Table 5 summarizes the regression analyses for Model 1, estimating the relationship between managerial resources and the level of firms' internationalization (hypotheses 1–3).

Model 1 is significant at the level of 0.01 and indicates that control variables – the firm's age, the firm's size, and industry are not significant in explaining the level of internationalization. Model 1 explains 25% of the variance of DOISME. Two out of three managerial factors are significant. The manger's attitude toward internationalization ($p < 0.01$) and the management team's internationalization knowledge ($p < 0.05$) are positively related to the level of firms' internationalization. In the case of the third variable – the manager's international experience – we did not discover the relation between that and the dependent variable. Thus, H1 and H2 are confirmed, and H3 is rejected.

INTERNATIONALIZATION AND PERFORMANCE

The following equations were estimated to test the relationship between different performance indicators and the level of internationalization:

$$\text{ROE} = \alpha + \beta_1 \text{DOI}_{\text{SME}} + \beta_2 \text{SIZE} + \beta_3 \text{AGE} + \sum_{n=1}^{4} (\beta_{4n} \text{IND}_n) + \mu \quad (2)$$

TABLE 4 Correlations and descriptive statistics

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 ATTITUDE	1											
2 INT_KNOW	0.408***	1										
3 INT_EXP	0.236*	0.142	1									
4 DOI_{SME}	0.482***	0.466***	0.086	1								
5 VA/EMPL	0.399***	0.342***	0.205*	0.203*	1							
6 ROE	0.096	−0.002	−0.138	0.049	0.241*	1						
7 ΔSALES	0.112	0.024	−0.006	0.059	0.293**	0.412***	1					
8 ΔEMPL	0.071	−0.208*	−0.135	0.195	0.090	0.426***	0.547***	1				
9 ROA	0.29**	0.265**	−0.013	0.208*	0.628***	0.560***	0.234*	0.065	1			
10 ROS	0.284**	0.252**	−0.124	0.217*	0.648***	0.463***	0.252**	0.172	0.870***	1		
11 AGE	0.172	0.119	0.002	0.042	0.001	−0.465***	−0.162	−0.270**	−0.247**	−0.253**	1	
12 SIZE	0.007	0.068	−0.196	0.069	−0.312**	−0.268**	−0.189	−0.027	−0.245**	−0.135	0.352***	1
Mean	24.39	21.09	0.00	0.00	4.40	14.12	0.14	0.05	3.66	2.14	15.91	1.79
Std. dev.	3.82	4.21	1.84	2.24	0.20	24.42	0.18	0.13	7.46	5.63	7.09	0.32
Min	11.00	12.00	−2.04	−5.32	3.98	−30.71	−0.20	−0.28	−12.02	−18.01	2.00	1.11
Max	30.00	30.00	3.75	5.00	5.02	116.70	0.72	0.54	36.96	19.41	34.00	2.44

NOTES * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE 5 Estimates for the regression model with DOISME as a dependent variable (model 1)

Independent variables	β	t-value	Sig.
ATTITUDE	0.404***	3.198	0.002
INT_KNOWLEDGE	0.345**	2.641	0.011
INT_EXP	−0.047	−0.405	0.687
SIZE	0.038	0.321	0.749
AGE	−0.061	−0.508	0.613
IND 1	0.152	1.265	0.211
IND 2	−0.015	−0.122	0.903
IND 3	0.050	0.421	0.676
IND 4	0.105	0.835	0.407
Adjusted R^2	0.250		
F	3.449***		

NOTES Standardized regression coefficients are shown. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

$$\frac{\text{VA}}{\text{EMPL}} = \alpha + \beta_1 \text{DOI}_{\text{SME}} + \beta_2 \text{SIZE} + \beta_3 \text{AGE} + \sum_{n=1}^{4} (\beta_{4n} \text{IND}_n) + \mu \quad (3)$$

$$\text{ROA} = \alpha + \beta_1 \text{DOI}_{\text{SME}} + \beta_2 \text{SIZE} + \beta_3 \text{AGE} + \sum_{n=1}^{4} (\beta_{4n} \text{IND}_n) + \mu \quad (4)$$

$$\text{ROS} = \alpha + \beta_1 \text{DOI}_{\text{SME}} + \beta_2 \text{SIZE} + \beta_3 \text{AGE} + \sum_{n=1}^{4} (\beta_{4n} \text{IND}_n) + \mu \quad (5)$$

$$\Delta\text{SALES} = \alpha + \beta_1 \text{DOI}_{\text{SME}} + \beta_2 \text{SIZE} + \beta_3 \text{AGE} + \sum_{n=1}^{4} (\beta_{4n} \text{IND}_n) + \mu \quad (6)$$

$$\Delta\text{EMPL} = \alpha + \beta_1 \text{DOI}_{\text{SME}} + \beta_2 \text{SIZE} + \beta_3 \text{AGE} + \sum_{n=1}^{4} (\beta_{4n} \text{IND}_n) + \mu \quad (7)$$

All of the six models examining the influence of DOISME on performance are statistically significant (see table 6).

TABLE 6 Estimates for the linear regression models with different performance indicators as dependent variables

Variable	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Dependent variable	ROE	VA/EMPL	ROA	ROS	△SALES	△EMPL
Independent variables						
DOISME	0.073	0.198*	0.201*	0.199*	0.067	0.211*
SIZE	−0.156	−0.325**	−0.199	−0.059	−0.199	0.035
AGE	−0.360***	0.107	−0.119	−0.182	−0.049	−0.278**
IND 1	0.165	−0.115	−0.012	−0.063	0.364***	0.353***
IND 2	−0.168	0.011	−0.107	−0.083	−0.078	−0.108
IND 3	0.026	0.030	0.250**	0.253**	−0.013	−0.185
IND 4	−0.198	−0.272**	−0.232*	−0.278**	−0.157	−0.146
Adjusted R^2	0.258	0.139	0.187	0.188	0.153	0.263
F	4.279***	2.498**	3.174***	3.183***	2.680**	4.315***

NOTES Standardized regression coefficients are shown. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Models 2 and 3 estimate the assumption that the firm's efficiency (measured respectively by ROE and value added per employee) grows together with the level of firms' internationalization. However, the impact of DOISME is significant and positive only in case of VA/EMPL (Model 3), although at the lower level of statistical significance ($p < 0.10$). Thus, the hypothesis H4A is partially confirmed.

Models 4 and 5 test the hypothesis H4B – that an increase in the level of a firm's internationalization is associated with an increase in the firm's profitability (measured respectively by ROA and ROS). In both models the independent variable DOISME is positively related to the firm's profitability, at the lower level of significance ($p < 0.1$). Therefore, hypothesis H4B is confirmed.

Models 6 and 7 estimate the assumption that a firm grows (in terms of sales volume or number of employees) together with the level of internationalization. This assumption is confirmed only in the case of Model 7, indicating that an increase in the level of internationalization is associated with an increase in employment ($p < 0.1$). Therefore, hypothesis H4C is partially confirmed.

Control variable effects. In congruence with the results of previous studies (Reuber and Fisher 1997), neither firm size nor age were significant in explaining the level of firm internationalization, but it emerged

that they did have an impact on the firm's performance. First, the firm's size (measured as the log of number of employees) had a negative influence on the firm's efficiency (measured as value added per employee ratio). It is clear that bigger firms in terms of employment are less efficient in creating additional firm value. Second, firm age negatively influences the firm's growth (measured as a change in employment) and efficiency (ROE), which indicates that with age firms grow more slowly and less efficiently. With regard to the third control variable, some industry effects were observed only in the case of performance-based models.

Discussion and Conclusions

In this study we aimed to explore the relationship between managerial resources and the level of SMEs' internationalization, as well as the relationship between the level of internationalization and the firm's performance in terms of efficiency, profitability and growth.

Ruzzier, Antoncic and Konecnik (2006) stated that human resources are significantly differentiating internationalized and non-internationalized SMEs. We may further develop this argument by adding that human resources play also an important role in determining the degree of the firm's internationalization. With respect to this, managerial attitude and internationalization knowledge (both refer strictly to human resources of SMEs) proved to be related to the level of the firm's internationalization. In line with the findings of Javalagi, Griffith and White (2003), favorable managerial attitudes toward internationalization and perceptions about export advantages are positively associated with the level of SMEs' internationalization. This supports the notion that managers with a more favorable attitude become less concerned with the complexities of international expansion (Axinn 1998). This finding confirms the growing significance of the cognitive approach in IB that focuses on managerial cognition and 'mindset' (Nadkarni and Perez 2007; Levy et al. 2007), underlining their role in the decision making process and subsequent behaviors of internationalized firms.

The management team internationalization knowledge is also shown to be significantly associated with the level of internationalization. This sort of knowledge captures the procedural and technical aspect of the internationalization process. It helps to successfully enter foreign markets and therefore enhances the level of internationalization. The knowledge is coded in organizational routines, decreasing the decision-makers' uncertainty level with regard to further international expansion.

Contrary to our expectations, prior foreign experience is not related to

the internationalization level. This implies that in the content of a given country (small economy, characterized by limited absorption power of domestic market), the postulated significance of the manager's international experience is insignificant in the case of SMEs that have already decided to follow the path of international growth. Nonetheless, it might have been significant when managers were deciding whether or not a firm should go international. Such an explanation would be congruent with Ruzzier and colleagues' (2006) findings. They observed that employees of internationalized SMEs had broader international experience and foreign language skills than their non-internationalized counterparts. Unfortunately, due to the research design (focus on internationalized SMEs only), the verification of whether the international experience of managers differentiates internationalized and non-internationalized SMEs is beyond the scope of this study.

Regarding the relationship between the firm's internationalization and performance, the findings of this paper are mixed with respect to different performance dimensions (efficiency, profitability and growth). It supports Murphy, Trailer and Hill's (1996) recommendations that researchers interested in firms' performance should always clearly indicate which dimension or dimensions of performance are examined. We have observed positive relationships between the level of firms' internationalization and four indicators of performance (i. e. value added per employee; return on sales, return on assets and growth in the employee number). Therefore, the study findings indicate that following the strategy of international expansion is profitable for SMEs. In the case of other performance indicators (i. e. return on equity and growth in sales volume), the level of internationalization has not been significant. Thus, the findings concerning efficiency and growth do not allow for unambiguous conclusions. All significant relationships identified by the study are presented in figure 3.

The findings discussed broaden the understanding of SMEs internationalization in a relatively new context in IB literature (CEE, post-transition and small economy). Although Slovenia-based research on internationalization has addressed important issues regarding various internationalization modes of the Slovenian economy (Rojec and Jaklic 2002), firms' ability to innovate through international exposure or ownership (Damijan, Jaklic and Rojec 2005), we know only of one study that has touched on similar research issues (Ruzzier, Antoncic and Konecnik 2006).

The significance of managerial attitude and the management team

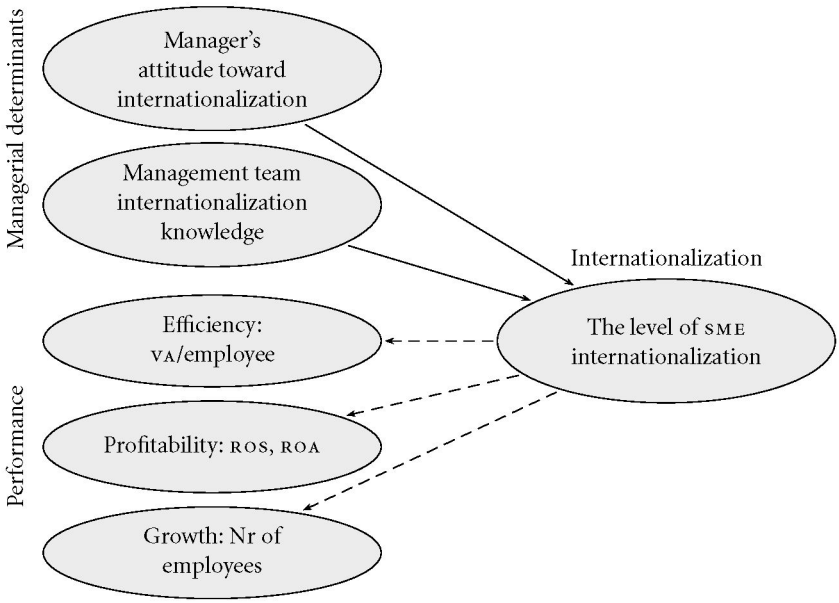

FIGURE 3 Significant relationships between variables (All shown relationships between variables are positive (+). Relationships between managerial resources and internationalization are significant at least at the level of $p < 0.05$, while relationships between internationalization and performance dimensions are significant only at the level of $p<0.10$.)

internationalization knowledge for internationalization has been supported in this context, as well as the beneficial influence of the level of internationalization for profitability. However, the notion that managers' international experience is an important factor relating to the level of internationalization has not been confirmed. Taking into consideration that the majority of theories is built and tested in a single country context, verifying theoretical assumptions in a new environment seems not only justifiable, but also most welcome.

Notes

1 An analysis of some data was earlier presented in Ciszewska-Mlinaric 2009.

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The Relationship between the Quality of the Idea and the Strategic Potential of a New Venture: A Longitudinal Study of Five Irish Campus Companies

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This paper explores the relationship between the quality of the idea and the strategic potential of five high potential UCD campus companies over a seven-year period. Based on previous research, a framework and model was created and employed as a base for company analysis and comparisons. The findings of this longitudinal study support the existence of a dynamic relationship between the *quality of idea* and the *strategic potential,* of new ventures. Over time, constant changing and exploitation of the quality of the idea by the entrepreneur to create systematic differentiation resulted in dramatic changes to the strategic potential of the business.

Key Words: quality of idea, strategic potential, entrepreneurial opportunities
JEL *Classification:* M13

Introduction

Research in entrepreneurship lends itself to investigation by disciplines as wide-ranging as economics, finance, anthropology, sociology, history and psychology; each of these employs its own perceptions and research methodology while operating within its own terms of reference. Based on the research in these areas, it appears that entrepreneurship has a complex set of contiguous and overlapping constructs (Low and MacMillan 1988), with business opportunities playing a pivotal role. The key to understanding the process by which ideas are recognized as business opportunities continues to represent a core focus of research interest in developing theoretical constructs of entrepreneurship (Timmons 1999; Shane and Venkataraman 2000; Gaglio and Katz 2001).

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Managing Global Transitions 8 (3): 261–284

To create an appropriate framework and model for idea exploitation, the review of the literature undertaken revealed the scarcity of data regarding the specific decisions made and the conditions existing at the idea stage of the new venture as well as longitudinal data following the development of the opportunity over time. This lack of a conceptual basis of how entrepreneurial opportunities are discovered and recognized hinders the understanding and development of entrepreneurship as a discipline (Low and MacMillan 1988; Aldrich and Martinez 2001; Shane and Venkataraman 2000). Both entrepreneurs and venture capitalists usually have difficulty verbalizing the cognitive process experienced when recognizing an idea as an opportunity. They often describe this as 'having a gut feeling' based frequently on their previous experience (Hills 1995; 1997; Hills and Shrader 1998). Building on prior studies (Gartner, Bird and Starr 1992; Busenitz 1996), Lindsay and Craig suggest that in many cases entrepreneurs have no option but to act on an idea with limited information. Entrepreneurs need to make quick decisions without the support of historical trends, previous levels of performance, and market information (Lindsay and Craig 2002). Opportunities often emerge when new tools are used to solve an important problem. These disruptive technologies change the mind-set, paradigm or the way business is done. A significant change in the structure of the requisite knowledge base requires a leap in conceptual change as opposed to an incremental step.

However, disruptive technologies can be complementary when they build on or work with the existing technology (Hamel 2000). Overwhelmingly, the majority of successful innovations focus on political, social, demographic, technical or economic change. Systematically examining and harnessing change in order to develop new ventures requires entrepreneurs to formulate ideas that fill the opportunity.

Timing of the launch is critical, so any delay in commercialization may cause the 'window of opportunity' to close (Abell 1980). For this reason, entrepreneurs tend to make greater use of biases and heuristics in their decision making process (Busenitz and Barney 1997). The research reported here explored this and established the strong relationship between the quality of the idea and the strategic potential of a business.

Background

Entrepreneurship stems from the emergence of an opportunity and the process by which this opportunity is recognized by an individual, who subsequently creates a solution to the problem identified in this oppor-

tunity. Entrepreneurship is a process involving the personal, sociological, and environmental factors that give birth to a new enterprise. The role that high quality new ventures with high strategic potential play in increasing employment and economic growth and development is being better understood (Birch 1979; Low and McMillan 1988; Ketchen 2003; Venkataraman 1997; Timmons and Spinelli 2004).

RELATED STUDIES

Over the past two decades, new venture performance models have improved the understanding of the dynamic processes that exist within all new ventures. For example, Gartner's (1985) entrepreneurship performance model indicated that entrepreneurship outcomes are a consequence of the interaction between the individual, the organization and the environment. Sandberg and Hofer (1987) advanced this model showing a strong connective relationship between strategy, industry structure and the entrepreneur. Christman, Bauerschmidt and Hofer (1998) further developed the model with the inclusion of the availability of resources upon which a venture's strategy is based and the organizational structure, processes and systems upon which a venture's strategy is implemented.

McDougall, Shane and Oviatt (1994) broadened the scope of these models to include multinational enterprises, arguing for the inclusion of organizational formation through: internationalization of some transactions; strong reliance on alternative governance structures to access resources; the establishment of foreign location advantages; and control over unique resources. As comprehensive as these models of new venture performance are, they omit the significance of the quality of the idea as a major determinant of new venture performance and its relationship to the strategic potential of a new venture. This study of the evolution of the idea for a range of firm sizes and ages allows us to decompose the effect of exploiting the idea over time and on future growth and propose an understanding of the relationship between the quality of the idea and the strategic potential of a new venture. The literature is reviewed in the areas of: the entrepreneur and management team, opportunity recognition and evaluation, and the strategic potential of the new venture.

ENTREPRENEUR AND MANAGEMENT TEAM

Based on the research, entrepreneurs are a well-researched group of people (Caird 1992). Yet, a consensus on the definition of who an entrepreneur is has yet to emerge. In the past three decades, this entrepre-

neur broadly covered anything from the individual who starts his or her own business, to someone who displays entrepreneurial flair in an existing organization or even the government. Indeed, a significant amount of research has been carried out in an effort to determine what makes a successful entrepreneur.

Considering that such a large and diverse group of people engages in the entrepreneurial process, it is highly unlikely that the entrepreneur can ever be totally described by specific characteristics (Shane and Venkataraman 2000). Although there are many myths and stereotypes of entrepreneurs, ventures competing in highly technical/dynamic environments need revolutionary entrepreneurial leaders who will successfully solve the problem through risk taking innovative behavior.

For entrepreneurs competing in today's hyper-competitive markets, Gary Hamel pointed out that successful venture creation comes down to a leadership gut check and understanding that the boom-time of the 1990s was an aberration (Hamel 2002).

During the past decade, earnings and share prices were propelled upward by five forces: a significant amount of capital spending and IT investment; a large amount of baby-boomer money that was fed into the stock market and in turn drove price-earnings ratios to high levels; round after round of cost cutting; a worldwide merger boom that pushed share prices even higher; and a record number of share buybacks.

Hamel concludes that the way for success is systemic, radical innovation. The imperative for every entrepreneur is to focus on innovative problem solving (Hamel 2002).

This makes the caliber of the entrepreneur and the core management team critical to the successful strategic development of a new venture. Subsequent studies expanded this idea by confirming the notion that visionary entrepreneurs who defy conventional wisdom, ignore the confines of technological know-how, and challenge the status quo with innovative solutions to their customer's problems, are synonymous with sustainable high potential high growth new ventures.

Past research has developed the following entrepreneurial characteristics affecting success. The education, skills and know-how of the entrepreneur are identified as vital characteristics by Stevens and Burley (1997), Kets de Vries (1996) and Garavan and O'Cinneide (1994). Schumpeter (1934); Kirzner (1979), Kirchhoff and Green (1995), Timmons and Spinelli (2004), Christensen (1997), Drucker (1993), and Hills (1995) indicated that innovation, creativity, the exploitation of change and opportu-

nity recognition are essential characteristics of an entrepreneur. Stevens and Burley (1997), Gunter McGrath (2000), Hamel (2002) and Matson (1997) cite the ability to develop a strong company culture that will set the direction of the new venture, as important.

While Bygrave, Johnstone, Lewis and Ullman (1998), Nesheim (2000) and Timmons & Spinelli (2004) suggest that management, experience and frugal use of scarce resources are of paramount importance. Ardichvili, Cardoza and Ray (2003). Low and McMillan (1988), Matson (1997), Timmons and Spinelli (2004) and Kuratko and Hodgetts (2004) feel that entrepreneurs with high social capital in the form of social networks and partnerships have a distinct advantage over novice entrepreneurs. Hsu (2003), Matson (1997), Nesheim (2000) and Muzyka and Birley (1997) consider financial expertise as being a vital characteristic, and Drucker (1993), Hills (1995), Timmons and Spinelli (2004), Hamel and Prahalad (1994), Gunter McGrath (2000), Bygrave and Phil (1994) and Bachher and Guild (1996) felt that commercial experience, creative problem solving and visionary leadership skills were very important entrepreneurial characteristics.

Roure and Madique (1986), Tyebjee and Bruno (1981), Bygrave and Timmons (1992) and Neshiem (2000) feel that industry and market knowledge and the ability to carry out research for the development of new products and services are crucial characteristics for entrepreneurs. Hamel(2000), Gunter McGrath (2000), Timmons and Spinelli (2004), Drucker (1993) and McClelland (1961) contend that the psychological, social and behavioral characteristics of the entrepreneur play a vital role in determining his/her success as will commitment, motivation, perseverance and determination.

Based on these findings, for the purposes of this longitudinal study, the entrepreneur was defined as an individual who possesses the foresight and creative ability, not only to recognize viable opportunities when they arise, but also be able to convert them into a successful new venture.

OPPORTUNITY RECOGNITION AND EVALUATION

The results of the research indicate that entrepreneurship faces a complex set of contiguous and overlapping constructs, (Low and McMillan, 1988) with the recognition of business opportunities playing a pivotal role in the process. The ability to identify opportunities has been identified as one of the most important abilities of successful entrepreneurs (Casson and Wadeson 2007; Casson 1982; Hills and Shrader 1998; Schum-

peter 1971; Kirzner 1979; Reynolds et al. 2001; Ardichvili, Cardozo, and Ray 2003). Entrepreneurs have a special ability at identifying a problem, which they often describe as having a 'gut feel' and a 'belief' in the resulting idea to solve this problem. Opportunity evaluation, high value-add for the customer, and good leadership are important in this opportunity recognition (Hills 1995; 1997). Whereas, Baron & Ensley's (2003) study found that the cognitive frameworks used by novice entrepreneurs rely on: 'gut feel' – how novel the idea is; whether the idea is based on a new technology; the superiority of the product or service; and on the idea's potential to change the business model of the industry.

An opportunity exists when a bundle of resources can be sold at a higher price than the cost to package and deliver this bundle (Shane and Venkataraman 2000). For Kirzner, discovering these opportunities means being acutely alert when they exist (Kirzner 1979). He and others see that entrepreneurs thrive on the disequilibrium of economic and market forces (Kirzner 1973; Kaish and Gilad 1991; Busenitz 1996; Kirchhoff and Green 1995; Gaglio and Katz 2001). In this disequilibrium, the alertness to opportunities is, at a certain level, due to the cognitive abilities of the entrepreneurs (Alvarez and Busenitz 2001; Baron and Ensley 2003).

Identifying and exploiting an opportunity does, however, require a high degree of prior knowledge and entrepreneurial competence (Fiet and Samuelsson 2000; Shepherd and DeTienne 2005). The discovery process refers to the identification and conceptual development of a business idea for a venture; and the exploitation process refers to the tangible actions that are taken, in order to realize a business idea's commercial value, usually through the creation of a new venture (Casson 1982; Teece, Pisano and Shuen 1997; Davidsson 2006). Ultimately, an opportunity is about adding value for all parties involved (Muzyka 1997).

The idea provides the basis for the new venture: 'it expresses concrete conditions existing in a company; it describes the company's actual way of functioning, its organization, its actors, processes and strategies' (Norman 1977). This is why it is so important to concentrate on the quality of the idea before establishing a new venture. The new product or service must provide clear value in the eyes of the customer and members of the distribution channel if they are involved in solving the problem. Bygrave and Phil (1994) stress that higher potential businesses identify a market niche for a product or service that meets important customer needs and provides high value added benefits to the customer.

According to Drucker, 'an innovation, to be effective, has to be simple and it has to be focused. It should only do one thing, otherwise it confuses. If it is not simple, it won't work. Everything new runs into trouble; if complicated, it cannot be repaired or fixed. All effective innovations are breathtakingly simple' (Drucker 1993). Timmons (1999), Bygrave and Phil (1994), Drucker (1993), Christensen (1997), Neshiem (2000), Hamel (2002), Shane (2004) and Stevens and Burley (1997) cite innovative, superior or unique technology with differential advantage or patent protection as a key characteristic in determining the quality of a business opportunity (idea), while Timmons (1999), Muzyka (1997), Hills (1995), Christensen (1990), Shane (2004) and Bygrave and Zacharikis (2004) feel that value added features are of utmost importance. Bygrave and Zacharikis (2004), Drucker (1993) and Timmons (1999) found that the opportunity (idea) must be attractive, durable and timely with a well thought out method of distribution.

Hamel (2002), Timmons (1999), Hills (1995), P. Christensen (1990), Drucker (1993), Shane (2004) and Molian (1997), feel that the highest quality ideas and the most profitable opportunities arise out of solving a significant problem and/or meeting an unsatisfied consumer need. Bygrave and Zacharikis (2004); Timmons (1999); Abell (1980); Shane (2004) and Christensen (1997) agree that timing is also very important. Abell (1980), Timmons (1999) and Jolly (1997) consider a good degree of 'fit' to be vital between the entrepreneur and the available resources required to commercialize the idea. The ultimate test of opportunity recognition and evaluation is being able to develop the idea to the point where one could logically overcome most major obstacles to its commercialization. The opportunity must have high growth potential, strong and early cash flow, high profit potential and offer attractive rates of return for investors.

STRATEGIC POTENTIAL

Competitive positioning or *fit* occurs when a firm finds a good fit in its market place between the needs of its customers and the resource capabilities of the firm. It is the quality of this position or fit that a company can obtain between the industry environment and its own internal capabilities and resources that determines its strategic potential. High strategic potential represents the degree of fit or competitive position a company can achieve for itself by being able to develop a high quality, unique innovative idea that solves an important problem.

The components of strategic potential include: (1) Employment (Forfás 1996; 2000); (2) Size of potential markets (Thompson and Strickland 1996; Kelly 1997; Tyebjee and Bruno 1984; Bygrave, Johnstone, Lewis and Ullman 1998; Timmons 1999); (3) Growth rate of the market (Forfás 1996; 2000; Thompson and Strickland 1996; Porter 1980; Rea 1989; Nesheim 2000); (4) Potential for profitability (Tyebjee and Bruno 1984; Bygrave and Timmons 1992, Timmons 1999; Nesheim 2000; Muzyka 1997; Harmon 1999); (5) Entry and exit strategy (Nesheim,2000, Bygrave and Phil 1994; Timmons 1999; Porter 1980); and (6) Good competitive positioning in high growth attractive markets are major elements for evaluating the strategic potential of an idea (Porter 1980; Thompson and Strickland 1996; Kelly 1997; Tyebjee and Bruno 1984; Rea 1989; Nesheim 2000; Bygrave and Timmons 1992).

While previous research has addressed the topics and relationships between entrepreneur, opportunity recognition and strategy, there appear to be few published criteria on what defines 'quality' in a business idea. Nor has there been any research on the dynamic atmosphere surrounding entrepreneurs when they commit to themselves starting a new venture and manage the relationship between the quality of the idea and its strategic potential.

While previous research presents a wide range of frameworks and models regarding opportunity recognition, new venture formation and determinants of success (Vyakarnam and Myint 2006), there is a lack of information on three major areas inherent in and affecting the overall process: *the source or nexus of opportunities, the quality of business ideas and their relationship to the strategic potential of a new venture, and the dynamics that permeate every level of the entrepreneurial processes.*

Some feel that research efforts should be concentrated in this area and should incorporate individuals and teams and the mode of organizing within the context of wider environments (Busenitz, West, Shepherd, Nelson, Chandler and Zacharis, 2003; Shane and Venkataraman 2000; Shane 2004). Timmons supports these views, arguing that many potential entrepreneurs fail to recognize opportunities. He estimated that only one in thirty ventures had founders who were able to identify an opportunity that they would grow into a venture of at least one million dollars in revenue (Timmons 1999).

With this in mind, the process of assessing the quality of an idea before start-up is important, not only for the entrepreneur, but also for anyone investing in the new venture. Businesses with poor quality ideas

are unlikely to have high strategic potential. Unless, during the life of the business, the quality of the idea can be significantly improved enabling a strategic re-positioning of the business.

Firms based on high quality ideas have good potential for high profitability, which provides funds for further development of the business. The growth of this type of venture is far more rapid (Hisrich, Peters, and Shepherd 2010). Businesses with these characteristics are considered to have high strategic potential and have been labeled 'Gazelles.'

Research Hypothesis and Framework

The overall hypothesis of this research is that the *strategic potential of a new venture is dependent on the quality of the idea.* This interaction provides the foundation of a dynamic process from which a new venture emerges. It is an ever-changing process with new creative elements of value added and differentiation continuously evolving from actions taken by the entrepreneur and management team (Shane 2004; Timmons and Spinnelli 2006). The 'strategic potential' is established at the venture's inception by the characteristics inherent in the quality of the idea.

Based on previous research, a framework was developed to address the topic. This framework (indicated in table 1) was structured to accommodate a detailed account of each company's history over a seven-year period from its inception. The framework involves three major components: *Quality of Idea, Strategic Potential and the Entrepreneur and Management Team.* Although each of these elements has previously been separately investigated, they have not been studied together over time.

The left cell details the 'Quality' characteristics contained in the idea, tracking its evolution from the establishment of the company. Changes in uniqueness, technical specifications, functionality, and added value characteristics are documented. The middle cell details the characteristics of the entrepreneur and management team tracking the evolution of their management skills and expertise over the seven-year period of the venture, particularly looking at any additions to core competencies as well as other resources. The right cell details the developmental progression of the strategic potential of the firm, tracking its evolution over the seven-year period. Details of repositioning in the market, geographic expansion and increases in sales, profitability and employment are documented. Major milestones and critical change points in the life of the firm are identified clearly in the framework.

TABLE 1 Exemplars of entrepreneurship: A framework

Quality of idea	Entrepreneur and management team	Strategic potential
Desired characteristics from the literature	Desired characteristics from the literature	Desired characteristics from the literature
Start-up		
• Solve a significant problem or meet a need/desire for which someone is willing to pay a premium (customer base) • Technological content that is superior, innovative or unique with differential advantage or patent protection • High value added features and method of distribution • Attractive durable and timely • Access to vital resources • Viable business model	• Management experience • Networks and partnerships • Financial expertise • Commercial experience • Leadership style • Industry and market knowledge • Attitude • Skills and know-how • Behaviours • Ability	• Size of potential market – local, national, international or global • Growth potential • Sales potential • Profitability potential • Secure competitive position • Employment potential • Entry and exit strategy
Dynamic changes		
• Desired characteristics must be assessed at start-up and graded at each of the major change points in the company history.	• Desired characteristics must be assessed at start-up and graded at each of the major change points in the company history.	• Desired characteristics must be assessed at start-up and graded at each of the major change points in the company history.
Present		
• Assessment of characteristics at the present.	• Assessment of characteristics at the present.	• Assessment of characteristics at the present.

In the context of each new venture, the framework represents a dynamic developmental process. The development is iterative; an entrepreneur evaluates the 'quality of idea' not only in the start-up phase, but also several times at different stages of growth. These evaluations can generate a total repositioning of the company.

The research indicates that most of the entrepreneurs after seven years have a business that is very different from the original one. Successful growth was achieved through a succession of recreating the business, the idea, and its strategic potential (Hills, Lumpkin, and Singh 1997).

Research Methodology

The research technique used for this longitudinal study is a multi-embedded case design, which is exploratory and qualitative in nature. Initially a pilot study was conducted on four different MBA Case company projects. This pilot study of the four illustrative cases was analyzed and summarized to provide input to the framework. Then five Irish, high potential companies (profiled below) were selected and each entrepreneur took part in a series of in-depth, relationship-based interviews over a period of seven years. These interviews were guided by customized questionnaires, which provided a rich source of information on the management of the dynamics in the new ventures.

COMPANY PROFILES

Company A was, established in 1985 by three electronic engineering graduates from University College Dublin. Since then it has grown into a multi-million dollar corporation and has become one of the largest privately owned manufacturers of building control systems in Europe. Company A is a leading supplier of building management control systems within European and World markets – Asia, Australia, France, Germany, the UK and the United States. Categories of buildings serviced include high security prisons, historic castles, commercial offices, industrial buildings, hotels and colleges.

Company B was established in 1996 by three members of the University College Dublin Digital Signal Processing group and was sold in 2003. Company B was an innovator of smart maths in silicon solutions for broadband digital communication; it became a leading provider of semiconductor products that delivered lightning-fast bandwidth via its proprietary silicon solutions. It delivered these solutions through patented DSP module compiler technology coupled with proprietary DSP algorithms.

Company C produced and developed media-based solutions for communications and education purposes, meeting the needs of a variety of clients in the broadcast, corporate and institutional sectors.

The team consisted of highly experienced educational television producers with mutual experience of over 200 produced hours of domestic and international broadcasting. Their unique skill- base combined expertise in television, video and multimedia production with that of learning and instructional design. The team, formally members of staff of the media lab of UCD, established their new venture as a campus

TABLE 2 Company C: Ratings for quality of idea

Item	Start	Changes					
		1st	2nd	3rd	4th	5th	6th
Low quality idea	25	25	20	10	10	5	5
Value added	55	60	65	70	75	80	85
Business model	60	65	70	75	80	80	85
Resources	60	65	70	75	80	70	65
Attractive	55	60	70	75	75	80	85
Durable	55	60	70	75	75	80	85
Timely	55	60	65	70	75	75	80
Access to market	55	60	70	75	80	70	70
Solve a problem	55	60	70	75	80	80	90

company, situated in the NOVA Centre in UCD. The company was sold in 2003.

Company D, founded in 1992, is a leading global banking and treasury consultancy firm with sister offices in London and Johannesburg. The company offers a unique consultancy service for its over 300 major corporations across three tax jurisdictions. Company D delivers not only best practice, but also the cost and service benchmarks which corporations need for the negotiation of pricing and for the management of banking and treasury activities. Areas of expertise include cash management, currency hedging (transaction and translation) cash pooling and netting systems, borrowing strategies and the benchmarking of interest and other margins. Additional business intelligence offered includes industry sector interest margins and service benchmarks, assistance with requests for proposals for bank tendering and a range of software products – OIC, Currency Manager and ECM.

Company E, originally a college project, was subsequently developed into a campus company at UCD in the early nineties. The management team comprised one UCD lecturer and two research students. Today Company E is one of the leading providers of intelligent learning solutions with over one million licensed users across the globe. Company E's implementation experience spans a variety of industries, including financial services, healthcare, government, and pharmaceuticals in blue-chip companies such as: ABB, AHIMA, Alexander Forbes, Basler Insurance, Belgacom, Clinphone, Credit Suisse, Diageo, Dow Chemical,

TABLE 3 Company C: Ratings strategic potential

Item	Start	Changes					
		1st	2nd	3rd	4th	5th	6th
Competitive position	60	65	70	75	80	80	80
Potential for profit	60	65	70	75	80	75	75
Potential for sales	60	65	70	75	80	75	75
Growth rate of market	60	65	70	75	80	85	90
Entry strategy	50	50	60	70	80	85	90
Size of market	50	55	60	70	75	70	70
Exit strategy	35	40	50	55	60	75	80
Potential for employment	25	35	50	60	65	50	50

TABLE 4 Company C: Ratings for the entrepreneur and management team

Item	Start	Changes					
		1st	2nd	3rd	4th	5th	6th
Macro environment	55	60	65	70	75	65	65
Skills/know-how	60	65	70	75	85	65	68
Creative/innovative	60	65	70	75	85	75	75
Company culture	55	60	65	70	75	70	70
Behaviour/attitude	55	60	65	70	75	70	70
Leadership style	55	60	65	70	75	70	70
Commercial experience	60	65	70	75	80	65	70
Networks/partnerships	55	60	70	75	80	70	70
Financial expertise	55	60	65	70	75	60	60
Managemnt expertise	50	55	60	65	70	60	60

Eurocontrol, Husqvarna, Innovatia, Liberty Group, Ryanair, Smith & Nephew, Valero, Volvo CE and World Bank.

Framework and Model

The framework (indicated in table 1) and a supporting diagnostic model was created to present the analysis of each of these case companies. The developed model brings clarity and precision to the interrelationships existing among the individual characteristics of a new venture. The model (shown in tables 2, 3 and 4) synthesizes the historical data obtained from each of the companies over the seven-year period. A ques-

tionnaire was designed to evaluate each of the concepts; the results of the questionnaires were logged onto a datasheet.The datasheet contains details of the characteristics at start-up, at the major inflection points, and finally at the end of the seven-year period. Each interviewee, having gone through the process of analyzing their new ventures, rated the performance of each variable at each stage of development.

Findings

This study of the evolution of three interacting variables over a seven-year period will focus on the quality of the idea and strategic potential together, rather than focusing on each component individually. This will clarify the findings regarding the correlation between these two phenomena, and their interaction within each company.

THE RELATIONSHIP BETWEEN QUALITY OF IDEA AND STRATEGIC POTENTIAL

The most important finding of this longitudinal study is the support provided for the existence of a dynamic relationship between the quality of idea and strategic potential of the new venture. The impact on strategic potential can be clearly observed when the quality of idea is developed through the introduction of new products or business models. The findings illustrate that the original idea for each new venture contained some significant strategic potential. Through the establishment of a new venture, the entrepreneur brings the quality of idea into existence. This is the basis of a process where the embryonic quality of the idea needs to be incorporated into an effective system or culture installed by the entrepreneur to execute their vision and ultimately realize the idea's strategic potential (see e. g. Christensen 1990; Baron and Shane 2004; and Shane 2004).

It is the entrepreneur's insight into the idea's competitive advantage that produced its potential commercial value. Also notable is the manner in which the entrepreneurs embraced the dynamics of new venture development. Each entrepreneur continually solved a multitude of customer's problems by investing in research and development, which was translated into innovative products. These findings support the arguments of Hills (1995), Shane (2004), Timmons and Spinelli (2004) and Baron and Shane (2004), who contend that solving customer's problems needs to be a prime focus of entrepreneurs. This is the key for not only

recognizing and evaluating viable opportunities, but also for sustaining profitable growth.

Each entrepreneur studied achieved positive results by responding to problems, instead of reacting in a negative way. Each used the situation they found themselves in to take advantage of the quality of their ideas. The quality of the idea evolved from the launch of new products, the introduction of new business models or delivery methods.

Evidence from each company indicated that the entrepreneurs displayed a high level of strategic competence, which enabled them to recognize the potential of their ideas. This included the idea's life expectancy, the type of resources required to commercialize it, the right timing for the idea to be introduced in the market place, and whether the idea was attractive enough to disrupt the market or create a new one.

The ability of the entrepreneurs to network and make use of external resources was also apparent. They utilized this ability to gain access to markets, and organize methods for distributing their products, which was important for the survival and growth of their ventures. The findings in several of the cases suggest that, in some instances, who you know is as important as what you know.

What seems to unite each of the entrepreneurs is their belief that their customer's experience is of the utmost importance and that the quality of idea is transitory and not seen as an end in itself. This suggests that all entrepreneurs should be close and personal with their customers in order to better satisfy their customer's needs, which in turn impacts the realization of the new opportunities. Similar findings occurred in the studies of Teece (1986), Pennings and Harianto (1992) and Van deVen (1993).

It also indicates another important principle found in the entrepreneurs studied, I. E. the relationship between the quality of the idea and strategic potential is fundamental to the way their companies are run.

The findings also indicate that when dealing with a multivariate catalyst like the relationship between the quality of the idea and strategic potential, there are a number of ways to manage the process. The entrepreneurs showed that managing this process in their own entrepreneurial ways assisted them in affecting a repositioning of the company as well as revolutionizing its propensity for increased profitability and growth. Another key feature of creating and sustaining their new ventures was access to highly skilled talent.

A high potential new venture based on a high quality idea occurred

in two of the company examples, and a low quality idea transformed by the actions of an entrepreneur occurred in the third. For example, two of the entrepreneurs established their new ventures with medium to low quality ideas and over time transformed these into much higher quality ideas. The outcome of these entrepreneurial actions was actualized in each of them being able to attract resources that were not previously available. These resources included funding, a strong capable management team, stronger market positions, geographic expansion, increased customer bases, and a much stronger strategic potential.

The findings of this longitudinal study also indicate that being proactive and visionary is an important factor in setting up and running a successful new venture. The strategic potential of the business will not improve unless the entrepreneur and the management team continually improve and enhance the quality of their ideas. This supports the research findings of Timmons and Spinelli (2004), Christensen (1990), Baron and Shane (2004), and Shane (2004).

These findings are also supported by Shepherd (1997), Roure and Madique (1986), Tyebjee and Bruno (1981), Bygrave and Timmons (1992), Shane (2004), Neshiem (2000), and Roberts (2006), who stress the importance of industry experience and knowledge of market and technological elements as critical factors for success. An entrepreneur must maintain these skills in order to be able to recognize what is important, where the difficulties lie, and what is the real value to the market. What is also evident from the findings is that high quality new ventures with strong strategic potential are dynamic works-in-progress.

They operate at the leading edge of high technology markets and as such are remarkably difficult to manage. Each of the entrepreneurs studied coped with these dynamics differently.

THE DYNAMICS OF ENTREPRENEURIAL LEADERSHIP

The findings also offer a unique view of the day-to-day tension and problems in running a new venture based on each entrepreneur's perspectives. Collectively these entrepreneurs demonstrate an outstanding ability to persistently recognize and pursue opportunities through the collection and integration of information and activities, which in turn strengthened the venture's strategic potential.

The findings offer an understanding of how the distinctive combination of high quality ideas, people and resources can come together to create new ventures. It also shows how the entrepreneurs choreographed

the intricate dynamics of these high potential new ventures. It is also quite notable that during the period of the study, an exceptionally turbulent external environment prevailed and the unprecedented events that occurred during the time-line of the study played a pivotal role in the eventual outcome of some ventures. The technology downturn and the global market disturbance forced several of the entrepreneurs to think outside the box in order to survive. This unstable environment did eventually bring to light any management design flaws inherent in the structures of their new ventures.

Even though it was their first venture, the majority of the entrepreneurs dealt remarkably well with the major changes that occurred over the longitudinal study of their companies. In many instances, the entrepreneurs experienced up to ten major changes in as many years, while coordinating the development of new products, enhancing the management team, mobilizing resources and raising funds. The ways the entrepreneurs managed the changes support the findings of Casson (1982), Hills and Shrader (1998), Schumpeter (1971), Kirzner (1979), Global Entrepreneurship Monitor (2001), Ardichvili, Cardozo, and Ray (2003), and Roberts (2006). The impacts of these entrepreneurial behaviors are manifested in the entrepreneur's ability to secure and maintain a strong position in the marketplace, enjoy increasing sales, gain geographic expansion and increased profits.

Conclusions

This longitudinal research study has validated the use of a new framework and model for the collection, analysis and presentation of empirical data. The application of the framework and its supporting diagnostic model resulted in demonstrating the strength of the characteristics of quality of idea, strategic potential, and entrepreneur and management team at all the developmental stages of the company. The insights and information generated from the interviews together with the findings from this longitudinal study offer a comprehensive account of each entrepreneur's experiences of managing the dynamics encountered throughout the creation and development of their new ventures as they overcame numerous obstacles.

The model also demonstrated how the relationship between the quality of the idea and strategic potential affected the trajectory of each new venture. In this way, the model provides a strong analytical tool for predicting the factors that influence the growth of the new ventures based

on the characteristics of the three exemplars: quality of idea, strategic potential and the entrepreneur and management team. The model has proven to be an effective tool for measuring and analyzing the overall correlation and analysis of these active forces during this longitudinal study. The results of this versatile diagnostic and educational tool can be useful in a wide variety of research studies.

The overall results of this longitudinal study illustrate the need to focus on the quality of idea, not only at start-up, but also through the life of the company. The selection of a business idea is a critical element, which requires continuous improvement. The results confirm that if a company starts with a low quality idea, this problem can be altered over time to create a much higher quality idea. This then becomes the force behind developing a high strategic potential.

The research indicates that each of the entrepreneurs successfully attracted the level of finance they required, in part by morphing from medium/low quality ideas into high quality ideas with high strategic potential.

As the entrepreneurs began to seriously embrace the relationship between the quality of idea and strategic potential, they benefited even further by gaining geographic expansion. This resulted in them repositioning their companies into markets that were previously unavailable.

The application of this diagnostic model offers insight into the ongoing dynamics of any new venture, by evaluating the characteristics of the quality of idea, strategic potential, the entrepreneur and the management team. The model provides a good diagnostic and analytical tool, which is an effective mechanism for detecting the strength of each individual characteristic on each of the three dimensions. This information can then be leveraged to create strategies to change the quality of an idea either to launch a much higher potential new venture or to reposition an existing one.

The model can evaluate each opportunity to maximize the investment opportunity as well as to predict the survival possibility of more uncertain technology start-ups or ventures started with lower quality ideas. This makes the model appropriate for use by any company regardless of its quality of idea or stage of development.

Acknowledgments

The authors wish to thank the Knowledge Network of the Thunderbird Graduate School of Management for financial support of this research.

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

Tone Češnovar

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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The Use of Decision Making Information: A Comparative Exploratory Study of Slovene Hotels

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The paper aims to identify the use of decision making information, which will be provided by the management accounting system (MAS). The use of MAS information by general managers (GMS) and department managers (DMS) for measuring the performance of hotel enterprises will be investigated. The basis for the analysis is the contingence theory which was adapted to specific circumstances and conditions of the hotel industry. The analysis was performed on the basis of a questionnaire that was previously already used in the case of Australian hotels. The research is conducted on Slovene hotels that have more than 100 rooms. The results are the subject of comparison with the previous five year period. The results demonstrate that GMS actually differ from DMS with respect to their use of MAS information for making decisions. GMS and DMS do not use MAS information with the same frequency. Their satisfaction with MAS information is not equal and, furthermore, they do not use the financial and non-financial performance indicators with the same frequency.

Key Words: decision making information, management accounting system, hotel industry
JEL *Classification:* M41, M21

Introduction

Concerning the fierce economic conditions, the right decisions that have to be taken on the basis of 'proper' information have never been so important. Information needed for decision making belongs to the domain of the management accounting system (MAS), which has to be appropriately developed and organized. Undoubtedly in the hotel industry MAS differs substantially. Hotel enterprises have unique characteristics

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Managing Global Transitions 8 (3): 307–324

of their operations, as they bring together many activities that are essential for guest satisfaction. Corresponding particularities are, according to several authors (Medlik 1961; Kotas 1975; Jones and Lockwood 1998; Harris 1992): fixed facilities, direct contact with a guest, volatile customer demand, the level of supply, diversifications, effective operational time, service and consumption, the location, critical human factor, capital intensity and the cost structure. These characteristics strongly differ from the manufacturing industry.

The results of recent research (Mia and Clarke 1999) proved that a positive association between managers' use of MAS information and performance in the manufacturing industry can be identified. On the other hand, similar empirical studies of such a relationship in the hotel industry are lacking. One of these rare studies was performed on Australian hotel enterprises (Mia and Patiar 2001). Their instrument of research was used for the purposes of our research. It was adapted to the specific circumstances of the Slovene hotel industry.

The characteristics of accounting theory in the hotel industry have already been specified by American authors and further tested mainly by American, Britain, Scandinavian and Australian researchers (Geller 1984; Brander Brown and Atkinson 2001; Collier and Gregory 1995).

Recently some efforts were recorded also in Japan, Eastern Europe, Turkey and Greece. But still no one has attempted to upgrade the established standards USALI (System of Accounts for the Lodging Industry) with supplementary non-financial measures and more high-quality measures.

Slovene hotels unfortunately still do not monitor their performance on the basis of USALI, which provides a base for detecting the existing state of performance and moreover renders possible a comparative analysis with international competitors. A step forward towards more efficient strategies and a greater income growth was supported also by ISO (International Organization for Standardization) standards, which are focused not only on financial results, but also on factors that affect the growth. Unfortunately in Slovenia there are still no organized and continuous activities to attain a methodical unity for recording and monitoring the economic categories in the Slovene hotel industry, and to achieve a base for international comparison with entities that report in accordance with USALI. The importance of USALI as internationally comparable standards for the hotel industry was accentuated also by Jankovič (2005).

Development of the Management Accounting System (MAS) in Hotel Enterprises

Typical for the business environment in the hotel industry is a high competitiveness. The latter requires that management continuously adjusts to guests needs that are essential for the good performance of an individual hotel. Many authors emphasise that the hotel industry still does not have a properly developed MAS (Phillips 1999; Mia and Patiar 2001; Banker, Potter, and Srinivasan 2000; Brander-Brown and McDonnell 1995; Kavčič and Ivankovič 2006) that could provide useful information for decision making. A developed MAS is useful in meeting the needs of guests and furthermore in achieving the business objectives (Damonte et al. 1997). Chenhall and Morris (1986), and moreover Mia and Chenhall (1994), state that information of the MAS is required for high-quality decisions and for utilization of comparative advantages (Downie 1997). That is why MAS has to provide information required for management decision taking (Dent 1996; Govindarajan 1984; Mia and Chenhall 1994; Simons 1990). Harris and Brander-Brown (1998) indicate three specific reasons that render it impossible for the MAS researches from the production industry to be applied in the hotel industry:

- the production process can be repeated, as it is consistent with standards and mechanical processes. The extent of food, beverage, and guest accommodations in hotels, on the other hand, depends upon the interaction with guests, which leads to a high variety of operations in the hotel enterprises. A great diversity between guests leads to a variety demand and consequently to great uncertainty in the work environment,
- the quality of personal services for individual guests and the preparation and implementation of services in hotels depends mostly on their employees. Consequently, management in hotels has to control principally the quality of services. On the other hand, the work in production is mechanized and subject to technical quality control,
- the products and services of a single hotel are prompt and nonmaterial. They depend principally on the demand variability. The hotel's services, delivery and consumption are contemporaneus. If the hotel room or the table in the restaurant is not sold daily, the potential for selling it is lost forever. On the other hand, the goods produced can be entered into storage and sold subsequently. Simultaneous

production, delivery and consumption in hotels enables corrective actions. That is why the work of management in hotel enterprises is more integrated, as is reflected also in the higher level of work uncertainty.

Mia (1993) demonstrated a positive relation between the extent of MAS information used by management and the work uncertainty. In more uncertain work circumstances managers use a greater extent of MAS information.

For long-term effective and efficient performance, especially in hotel enterprises, the information related to service quality, introduction of additional supply, entrance on new markets, the maintenance of equipment and the human relations are vital. The development of an adequate MAS has to be primarily grounded on business objectives and business strategies. In continuation, crucial variables (to achieve the goals) have to be identified, i. e. critical success factors (CSF).

Geller (1985a; 1985b; 1985c) was the first to analyze CSF in the hotel industry. On the basis of his findings he additionally formatted MAS for hotels. A performance measurement model of goal-oriented CSF for the hotel industry was evaluated also by Ivankovič (2004). Brotherton and Shaw (1996) linked together CSFS that have to be action-oriented, measurable and manageable with key performance indicators (KPI) and critical performance measures. Furthermore they evidenced the connection between three elements: objectives, CSF and KPI that were in addition a base for a three-dimension model. Croston (1995) on the other hand studied the impact of CSFS on financial performance (as the monetary indicator, gross operating profit per available room was used). He compared 10 hotels in European capitals that were similar in size and quality. Many authors including Geller (1985a; 1985b; 1985c) and Jones (1995) provided evidence that CSFS differentiate even within the same industry and depend on the company's position, i. e. a single hotel. Furthermore he evidenced a gap between information provided by MAS and information that would be actually necessary for different levels of management (arising from CSF). Employees are the most important CSF for the management of major selected hotels (Jones 1995). This was already discovered also by Geller (1984).

Hypothesis Development

Hotels have usually different levels of decision making. Management at each level takes decisions that are within its competence and responsi-

bility. For each level of decision making MAS has to prepare appropriate information, adopting specific intents and decision contents. The satisfaction of management with information provided by MAS is undoubtedly connected with its usefulness. If the information provided by MAS is not timely, the management will not be able to use it, and vice versa if the management is not satisfied with the information provided, the information is not going to be usable. Therefore the satisfaction of management with the information provided by MAS is crucial.

The hotel's operations are oriented towards people, therefore their financial performance depends primarily on the hotel's employees, development of new products and services and, as the most important – guest satisfaction. Hotels' GMS and DMS will be satisfied with MAS only if it will provide primarily information for defining the objectives, and afterwards the information for measuring the achievements (with financial and non-financial measures as well).

MAS in hotels has an important role in preparing information about the effectiveness of product mix, promotional programs, the income from different types of room, groups of target guests and their satisfaction. Additionally the use of MAS renders possible the comparison of the results with the competitors. Timely and useful information and an appropriate cost analysis, different types of products and services, significantly contribute to a better performance and reduction of losses.

The management of hotels performs many activities, where there are no differences between the top management (hotel's GM) and department managers, as both operate in an instability environment and in spite of their hierarchical position they take decisions independently. Therefore we presume that both of them use MAS for decision making in the same extent.

We believe that the satisfaction of management with MAS information is closely connected with its usefulness. To that end the following hypotheses were formed:

H1 *both* GMS *and* DMS *(food and beverage managers) use* MAS *information with the same frequency, and*

H2 *both of them are satisfied with the timeliness and adequateness of* MAS *information just the same.*

The development of information needed for performance measurement is an integral part of MAS. The results of the measurement process are defined as the quantification of actions, i. e. effectiveness and effi-

ciency. Measuring the efficiency ladles out factors that the organization employs, services that are offered to their guests, while measuring the effectiveness comprises all kind of claims that guests request, who have already been satisfied (Eccles 1991).

Kaplan and Norton (1992) proved that in today's dynamic business environment organizations have to bring into use different performance measures (financial and non-financial metrics) and take into account also the multiplicative performance ratios. If the hotel's management takes a decision on the basis of the Return on investment ratio (ROI), it can neglect factors that do not have an impact on ROI in the short run, but do still influence long-term business decisions. Decisions taken on the basis of ROI can lead to a greater short-term net income as a result of lower discretionary costs (for example: maintenance costs, costs of training and costs of marketing). Savings related to discretionary costs increase a short-term net income, but on the other hand they have an impact on the lower quality of products and services and consequently on the lower satisfaction of guests, which leads to a worse performance (Schmidgall 1997). Johnson and Kaplan (1987) and Kaplan and Norton (1992; 1993; 1996) have already criticized management that monitors the performance only on the basis of financial indicators, that are from their point of view not only unsuitable, but even harm the survival of a company. Only by taking into account both types of indicators (for example: the customer satisfaction, time of response, team work and productivity, beside the financial one) can we form a consistent accounting system to monitor the company's performance and ensure a more efficacious supervisory system as well. The hotel's operations are oriented towards people and to that end their financial performance depends on the behavior and manners of the hotel's employees, the development of new products and services and – as the most important – guest satisfaction. According to the growing importance of non-monetary measures in today's business environment, the following hypothesis was presumed:

H3 GMS *and* DMS *assign an equal importance to financial and non-financial indicators while they evaluate the hotel's achievements and achievements of their subordinates.*

The use of MAS information was measured separately for GM and managers of food and beverage departments with the following parameters:

- frequency of MAS information evaluation (including the analysis

of MAS) for long-term and short-term decisions. The estimation was performed on the basis of instruments that were already used in previous researches (Mia and Patiar 2001; Chenhall and Morris 1986; Mia and Clarke 1999; Simons 1990),

- satisfaction with the timeliness and adequacy of MAS information was estimated separately with instruments of the previously mentioned researches,
- overall assessment of target priorities. These were adjusted according to Kaplan and Norton's Balanced Scorecard – BSC (1992), where target priorities were divided into financial targets (financial performance and achieved plans) and non-financial ones (guest complaints, fluctuation of employees and quality of services).

Research Design and Data Collection

For the purposes of our research, questionnaires were distributed to the management of touristic organizations; i. e. middle-size and large hotels (with at least 100 rooms), equally to the previous research done by Ivankovič (2004).

The research instrument was partially extracted from the Australian research (Mia and Patiar 2001) and adjusted to the specific circumstances of Slovene hotel enterprises. The research from 2008 was an iteration of that performed in 2004 (Ivankovič 2004). Interviews were carried out by postgraduate students of the Faculty of Tourism Studies in Portorož, guided by Ivankovič. The results obtained were processed and interpreted in the Master Thesis of Grandlič et al. (2008) under the supervision of mentor Ivankovič.

Despite the fact that just 26 questionnaires were correctly completed (in 2004 the number rose to 39), these hotels are still similarly geographically disposed, of similar size and there are no significant differences in their quality (the star rating) in comparison with the previous results (Ivankovič 2004). Since this is already the second research, and in spite the fact that in the interim period there were status changes in the hotel enterprises, the results clearly demonstrate the trends in the hotel industry. In the interpretations, we have to consider that this was not a time series of comparable data, but just cut-off data.

In the research from the year 2008, similar questions were formed in comparison with the first distributed questionnaire (2004), despite the fact that the economic situation had changed significantly. This was a

result of ownership transformation, the entrance of Slovenia into the EU, globalization process, international economic circuits, acceptance of the Euro, etc. In today's information society the principal problem is not the assurance of an adequate quantity of information, but mainly the problem of its substantive suitability and not the technical quality (Odar, Kavčič, and Koželj 2009, 72).

On the basis of 26 completed questionnaires the following characteristics were noted. The collected data demonstrate that four star hotels were predominating (53.8%), followed by three star hotels (38.5%) and five star hotels (7.7%). The comparison with the previous research (Ivankovič 2004) demonstrates that the quality of hotels that filled in the questionnaires is very similar.

According to the received questionnaires, the most common are the standard touristic hotels (30.77%), spa hotels (26.92%), city hotels (23.08%), all-inclusive touristic hotels (11.54%) and garni hotels (7.69%). None of the respondents defined the hotel as a congress hotel or a provincial hotel. The structure in the previous analysis was very similar.

Most of the selected data belong to hotels that have up to and including 150 rooms, which represents almost 70% of the total sample. With something above 15% follow the hotels that offer 150–200 rooms. Hotels with more than 200 and less than 250 rooms represent just 3.85%. The largest hotels (more than 250 rooms) achieve just 11.5%. In comparison with the previous research, the share of small hotels (up to and including 150 rooms) and the largest hotels (more than 250 rooms) increased. On the other hand, the share of medium-sized hotels included in the sample decreased.

In the five-year period a visible improvement was notable in the number of business process censuses and the use of internal standards of operations (or hotels that have already implemented ISO standards or other internationally adopted standards) from 56% to 80.7%. The share of hotels that still did not implement any standards diminished by 24.6 percentage points.

Our research additionally examined the demographic background and educational structure of the hotel's management. We found out that on average the oldest are food and beverage managers (45.83%) and the youngest GMS (50%). In the previous period, on average the oldest were room managers (25.6%) and the youngest food and beverage managers (20.5%). Just the same as in the previous period, the male gender predominates; from 61.5% in 2004 to 80.7% in 2008. The females were

the most representative as room managers in both periods – from 80% in 2004 to 87.5% in 2008.

On average most of the hotel managers have a higher-education diploma (in 2004 51.30%, and 46.15% in 2008), but in 2004 a minor share was represented by GMS with a university degree. Room managers have on average at most a secondary education diploma (58.33%), followed by those with a higher-education diploma (25%) and university degree (16.67%). If we compare the results with the previous period, we can conclude that the level of education (on average) is higher for both groups, GMS as well as DMS.

Managers with at least 10 years of work experience are on average most frequently employed as food and beverage managers (91.67%), followed by GMSS (73.08%) and room managers (66.67%).

The largest proportion of male GMS is 30–40 years old (30.77%), followed by those older than 50 years (30.77%). On the other hand the females are much younger, i. e. 30–40 years (19.23%).

Data Analyses and Results

The first hypothesis compares the usage of MAS information among GMS and DMS in the case of short-term and long-term decision making. The results prove that for short-term decisions GMS most commonly use MAS information related to the departments' profitability (4.6), while in the previous period they were focused on information related to selling prices (4.6). On the other hand, department managers most commonly use information about guest satisfaction (4.2), as was evidenced also in the previous research (4.3).

For long-term decision making, most GMSS use information about the departments' profitability and guest satisfaction (4.8). Department managers also use mostly information about guest satisfaction (4.3). The results of the previous research indicated that GMS mostly used information about the departments' profitability (4.7), while DMS mostly used information about guest satisfaction (4.3). The results are very similar to current findings.

More detailed results are presented in tables 1 and 2.

The *t*-test was used to compare the frequency of MAS information used for short-term and long-term decision making. GMS statistically do not differentiate the following information for short-term and long-term decision making (table 1):

- effectiveness of advertising and marketing ($t = -1.806$; $P > 0.05$),

TABLE 1 Use of MAS information for short-term and long-term top manager's decision making

Decisions	(1)	(2)	(3)	(4)	(5)
Effectiveness of advertising and marketing	26	4.12	4.35	–1.806	.083
Selling prices	26	4.42	4.54	–0.901	.376
Reservation system and marketing strategy	26	4.35	4.27	0.464	.646
Guest satisfaction	26	4.77	4.54	2.287	.031
Departments' profitability	26	4.77	4.62	1.690	.103

NOTES Column headings are as follows: (1) *n*, (2) long-term decisions, (3) short-term decisions, (4) *t*-stat., (5) Sig. Adapted from Grandlič et al. 2008.

TABLE 2 Use of MAS information for short-term and long-term department manager's decision making

Decisions	(1)	(2)	(3)	(4)	(5)
Effectiveness of advertising and marketing	25	3.12	3.22	0.655	.519
Selling prices	25	3.88	3.98	1.414	.170
Reservation system and marketing strategy	25	3.52	3.60	0.723	.476
Guest satisfaction	25	4.26	4.16	–0.816	.422
Departments' profitability	25	3.92	4.10	2.823	.009

NOTES Column headings are as follows: (1) *n*, (2) long-term decisions, (3) short-term decisions, (4) *t*-stat., (5) Sig. Adapted from Grandlič et al. 2008.

- selling prices ($t = -0.901$; $P > 0.05$),
- reservation system and marketing strategies ($t = 0.464$; $P > 0.05$), and
- departments' profitability ($t = 1.690$; $P > 0.05$).

Different use of information for short-term and long-term decisions was evidenced only in the case of information related to guest satisfaction ($t = 2.287$; $P < 0.05$). This information is more commonly used for long-term decisions. The same results were discovered also in the previous research (Ivankovič 2004).

In the case of department managers, the usage of MAS information for short-term and long-term decision making does not significantly differ in the following fields (table 2):

- effectiveness of advertising and marketing ($t = 0.655$; $P > 0.05$),
- selling prices ($t = 1.414$; $P > 0.05$),
- reservation system and marketing strategies ($t = 0.723$; $P > 0.05$),

TABLE 3 Average frequency of MAS information application between GM and DM

Variables	Arithmetic mean		Standard deviation	
	2004	2008	2004	2008
Effectiveness of advertising and marketing				
General managers	4.1	4.24	0.8	0.7
Managers of departments	3.3	3.17	0.8	1.2
Selling prices				
General managers	4.6	4.48	0.6	0.6
Managers of departments	3.8	3.93	0.7	1
Reservation system and marketing strategy				
General managers	3.9	4.31	0.9	0.8
Managers of departments	3.3	3.56	0.8	1
Guest satisfaction				
General managers	4.6	4.66	0.5	0.5
Managers of departments	4.3	4.21	0.7	1
Departments' profitability				
General managers	4.5	4.7	0.6	0.6
Managers of departments	3.7	4.01	0.8	1

NOTES Adapted from Ivankovič 2004 and Grandlič et al. 2008.

- guest satisfaction ($t = -0.816$; $P > 0.05$).

A significant difference can be determined in the case of information related to departments' profitability ($t = 2.823$; $P < 0.05$). This information is more commonly used for short-term decisions. In the previous research (Ivankovič 2004) statistical differences were significant in the case of information related to guest satisfaction.

By comparing the average results of both researches, interesting findings were discovered (details in table 3).

For their decision making GMS most frequently use information about departments' profitability (on average 4.7), while in the previous five-year period the most frequently used was information about the selling prices and guest satisfaction (on average 4.6). Less important was information about the effectiveness of advertising and marketing activity (on average 4.2), while in the previous five-year period less important was information about reservation system and marketing strategies (on average 3.9).

On the other hand, department managers mostly use information

TABLE 4 Use of MAS information for long-term decisions

Variables	(1)	(2)	(3)	(4)	(5)
Effectiveness of advertising and marketing	GM	26	4.12	5.331	.000
	DM	25	3.12		
Selling prices	GM	26	4.42	3.113	.005
	DM	25	3.88		
Reservation system and marketing strategy	GM	26	4.35	4.226	.000
	DM	25	3.52		
Guest satisfaction	GM	26	4.77	3.015	.006
	DM	25	4.26		
Departments' effectiveness	GM	26	4.77	4.212	.000
	DM	25	3.92		

NOTES GM – general managers, DM – department managers. Column headings are as follows: (1) hierarchy, (2) *n*, (3) results, (4) *t*-stat., (5) Sig. Adapted from Grandlič et al. 2008.

about guest satisfaction (in the current research on average 4.2, while in the previous period 4.3). Less important was information about the reservation system, marketing strategies and effectiveness of advertising and marketing (on average 3.3). More detailed results are presented in table 3.

For the purposes of testing the first hypothesis, the *t*-test was used to compare the use of MAS information between GM and department managers in terms of long-term and short-term decisions. The results of the analyses are presented in tables 4 and 5.

On the basis of our results we can reject our first hypothesis and conclude that GMS and department managers do not use MAS information with the same frequency. Significant differences are present for all types of information for both short-term and long-term decisions. GMS actually more frequently use MAS information in comparison with department managers.

The second hypothesis testing revealed that GMS are more satisfied with the timeliness of MAS information in comparison with department managers. Just the opposite are the results in the case of information the adequateness. DMS are more satisfied with adequateness of MAS information in comparison with GMS. In the previous research (Ivankovič 2004) GMS were more satisfied in both cases, i. e. timeliness and adequateness of MAS information.

The degree of satisfaction, of GMS, with the timeliness of information,

TABLE 5 Use of MAS information for short-term decisions

Variables	(1)	(2)	(3)	(4)	(5)
Effectiveness of advertising and marketing	GM	26	4.35	4.961	.000
	DP	25	3.22		
Selling prices	GM	26	4.54	3.166	.004
	DP	25	3.98		
Reservation system and marketing strategy	GM	26	4.27	3.183	.004
	DP	25	3.6		
Guest satisfaction	GM	26	4.54	2.295	.031
	DP	25	4.16		
Departments' effectiveness	GM	26	4.62	2.97	.007
	DP	25	4.1		

NOTES GM – general managers, DM – department managers. Column headings are as follows: (1) hierarchy, (2) *n*, (3) results, (4) *t*-stat., (5) Sig. Adapted from Grandlič et al. 2008.

TABLE 6 The satisfaction of management with MAS information

Variables	(1)	*n*		Results	
		2008	2004	2008	2004
Timeliness of MAS information	GM	26	39	3.58	3.7
	DM	24	39	3.31	3.5
Adequacy of MAS information	GM	26	39	3.58	3.9
	DM	24	39	3.65	3.6

NOTES GM – general managers, DM – department managers. Column headings are as follows: (1) hierarchy. Adapted from Grandlič et al. 2008.

is much higher (on average 4.6) in comparison with the adequateness (on average 3.6). The degree of satisfaction, of GMs, with the timeliness grew substantially in comparison with the previous research (in 2004 the average result was 3.7), while the degree of satisfaction with the adequateness of MAS information decreased (in 2004 on average it attained 3.9).

On the other hand, the satisfaction of department managers with adequateness remained practically the same (average evaluation 3.6) in comparison with timeliness (average estimation 3.3) where there is a minimal decrease. The results are presented in table 6.

The *t*-test was performed to find out if there are any differences in the satisfaction of GMs and department managers with MAS information between the two periods. The results confirm that statistically significant

TABLE 7 The satisfaction with MAS information between GM and DM

Variables	(1)	*n*		Sig.	
		2008	2004	2008	2004
Timeliness of MAS information	GM	26	39	0.011	.137
	DM	24	39		
Adequacy of MAS information	GM	26	39	0.857	.065
	DM	24	39		

NOTES GM – general managers, DM – department managers. Column headings are as follows: (1) hierarchy. Adapted from Grandlič et al. 2008.

TABLE 8 Importance of financial and non-financial performance measures for GM and DM

Subject	Variables	(1)	(2)	(3)	(4)
General managers	Financial measures	26	4.65	0.733	.47
	Non-financial measures	26	4.52		
Department managers	Financial measures	24	4.19	–1.591	.125
	Non-financial measures	24	4.42		

NOTES GM – general managers, DM – department managers. Column headings are as follows: (1) *n*, (2) results, (3) *t*-stat., (4) Sig. Adapted from Grandlič et al. 2008.

differences are present only in the case of GMs who are more satisfied with the timeliness of MAS information (in the current period).

These results indicate that a difference did arise in the current period. The previous research (Ivankovič 2004) did not ascertain any differences between GMs and DMs (timeliness of information $t = 50$; $P > 0.05$ and information adequacy $t = 1.88$; $P > 0.05$), while the current results demonstrate that the satisfaction with timeliness is higher for GMs.

With the third hypothesis we tested if GMs and DMs assign an equal importance to financial and non-financial indicators in monitoring the hotel's achievements and achievements of subordinates. From the theory it emerges that, for a long run effective performances, both financial and non-financial indicators have to be taken into consideration. We examined the use of financial and non-financial indicators for Slovene hotels. Table 8 exhibits the results obtained.

As can be seen from the table 8 there are no differences in the usage between financial and non-financial performance measures in monitoring the achievements of targets and achievements of subordinates within different hierarchies of hotel management (GM $t = 0.7333$; $P > 0.05$ and

TABLE 9 The importance of financial and non-financial measures between GM and DM

Variables	Subject	(1)	(2)	(3)	(4)
Financial measures	General managers	26	4.4	3.970	.000
	Department managers	24	3.7		
Non-financial measures	General managers	26	4.1	−0.176	.861
	Department managers	24	4.1		

NOTES GM – general managers, DM – department managers. Column headings are as follows: (1) *n*, (2) results, (3) *t*-stat., (4) Sig. Adapted from Grandlič et al. 2008.

department managers $t = -1.591$; $P > 0.05$). In the previous research GMS dedicated more importance to financial measures, therefore a notable improvement can be ascertained. Hotel managers actually pay attention to both measures, i. e. financial and non-financial in the same extent.

Furthermore we examined also the differences in the use of performance measures between GMS and DMS. The results of the analysis reveal that a statistically significant difference exists between GMS and DMS in the use of financial measures. The results demonstrate that GMS devote more attention to financial measures in comparison with DMS (details in table 9).

In comparison with the Australian research (Mia and Patiar 2001), a more notable difference between GMS and DMS in the usage of financial and non-financial performance measures can be determined.

Conclusion

The research demonstrated the advantages and weaknesses of Slovene hotels, the development of MAS and its use at different hierarchic levels of hotel management. Furthermore the comparison with the previous research provides evidence about improvements that were made in the five-year period.

The results of the analysis demonstrate that we can reject the first hypothesis. GMS and DMS do not use MAS information with the same frequency. Significant differences are present for all types of information including short-term and long-term decisions. More detailed analysis demonstrates that both groups generally use the same information for short-term and long-term decisions as in the previous period.

The analysis of satisfaction with MAS information demonstrates that GMS are more satisfied with the timeliness of MAS information, while

no statistically significant differences were ascertained in the case of adequateness. The resulting difference was not present in the previous period.

Both GMS and DMS pay the same attention to financial and non-financial indicators, while a significant difference exists between them. GMS devote more attention to financial indicators in comparison with DMS, notwithstanding the fact that in the case of non-financial indicators the differences are not ascertainable.

The results demonstrate that GMS actually differ from DMS with respect to their use of MAS information for making decisions. The reasons that lead to these results might be connected with the adequateness of existing MAS in hotels. The latter might not supply the necessary information to all managers with the required frequency. The GMS have the power to demand and get required information of their choice when they want. From this point of view further researches have to design MAS mainly for the needs of middle and lower management.

The results will undoubtedly provide useful information for the future development of national touristic guidelines and decision taking on the level of individual hotels. The results furthermore demonstrate the main points of discrepancy between national and foreign best practice. We also suggest that further research approaches analyze the association between managers' use of MAS information and performance. The performance of the hotel industry will be identified by using monetary and non-monetary measures.

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INDEXING AND ABSTRACTING

Managing Global Transitions is indexed/abstracted in the International Bibliography of the Social Sciences, EconLit, DOAJ, EconPapers, Cabell's and EBSCO.

The journal is supported by the Slovenian Book Agency.
Printed in Slovenia by Degraf, Koper.
Print run: 1000.

ISSN 1581-6311 (printed)
ISSN 1854-6935 (online)

Managing Global Transitions
International Research Journal

VOLUME 8 · NUMBER 3 · FALL 2010 · ISSN 1581-6311

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