ABSTRACT: Information technology (IT) is increasingly establishing itself as one of the major topics of study in the OECD area. The resulting OECD studies found that IT has an enormous productive potential; however before an economy can gain most of IT’s benefits, several challenges need to be successfully addressed. The key challenges these studies identified are adequate organisational transformations of the enterprises and adequate reorganisation of key national institutions. How these two challenges are tackled by the economies that are going through the transition from a socialist towards a coordinated/liberal market economy is, unfortunately, not equally well documented. To improve this situation in this paper I present new findings from one transition economy concerning the issues that the developed OECD countries already highlighted as critical for the successful deployment of IT, and issues that seem specific to the transition environments. The presented findings are based on the study I conducted into 94 enterprises, representing the population of the 914 biggest added value generating enterprises in Slovenia. This article thus tries to allow Slovenia and other economies in a similar situation to draw broad and important conclusions with managerial and political implications on how to deploy all available IT potential.

KEY WORDS: Information technology deployment, organisational transformation, enterprises, institutions, Slovenia

JEL CLASSIFICATION: M10, O14
1. INTRODUCTION

According to the literature the deployment of information technology (IT) in enterprises benefits the growth of the economy through two processes. The first is the process of substitution (IT capital deepening), where cheaper IT replaces workers (automatisation) and/or more expensive forms of capital (informatisation) (Zuboff 1989, Jorgenson, Stiroh, 1999, Stiroh, 2006). The second process through which IT creates value is the process of MFP (multifactor productivity) growth (Jorgenson, 2003, Pilat, Wölfl, 2004, Basu, Fernald, 2007), which transforms the underlying process of creation of goods (Hitt, Snir, 1999, Bresnahan, 2001) in ways that increase the productivity of existing labour and capital in the enterprises. In the last decade it became clear that of the two the MFP process is the bigger contributor to the overall productivity growth of the major OECD economies (Hitt, Snir, 1999, OECD, 2004, Mittal, Nault, 2006, Basu, Fernald, 2007) as expected by those who see IT as a general purpose technology that rivals the steam engine and the electric motor in its effects on the creation of goods (Bresnahan, 2001).

The realisation that the most important IT investments are those that affect the MFP growth changed the structure of IT investments in the major OECD economies (OECD 2004). The investments in the so-called IT infrastructure (computers and telecommunication technology), seen as key investments to cut costs in the processes of substitution of cheaper IT for labour and/or other capital, lost their dominant share to investments in software and its deployment in the enterprise (Ahmad, Schreyer, Wölfl, 2004). Investments in software and its productive use are seen as key IT investments that lead to MFP growth by transforming the production of goods and services. The deployment of the required organisational transformation that would result in significant MFP growth was thus identified as one of the key issues enterprises in the major OECD countries needed to address in order to successfully deploy IT (Hitt, Snir, 1999, Bresnahan, 2001, Lee, Pilat, van Ark, 2002, Pilat, Wölfl, 2004).

The studies analysing the results of the deployment of IT in Slovenia unfortunately showed that enterprises in Slovenia are far from successful at the deployment of the required organisational transformation described above. The three studies in Slovenia (Dimovski, Škerlavaj, 2003, Škerlavaj, 2003, Kotnik, 2005) that separately measured the impact of computer, telecommunication and software investments showed that the most important contributor to productivity growth in Slovenia is computer investments and that telecommunication investments are in a distant second place. The investments in software were found to have an effect 10 times smaller on productivity than computer investments (Kotnik, 2005) or no
significant effects on the performance of enterprises at all (Dimovski, Škerlavaj, 2003, Škerlavaj, 2003). Additionally the investments in software in Slovenia between 1996 and 2003 as one of the three mentioned types of IT investment grew from only 5% to 21% of total IT investment, thus remaining the smallest type of IT investment (Stare, 2005), far behind the dominant share software investments have in the major OECD countries (Ahmad, Schreyer, Wölfl, 2004). Such findings lead to the conclusion that the contribution of IT to productivity growth in Slovenia is limited to the substitution (IT capital deepening) process and that enterprises have not yet manage to tap into the bigger multifactor productivity (MFP) gains from investment in IT.

Based on the problematic described above the goal of this paper is to make several important steps forward in understanding the studied field by answering the following research questions: Which are the main factors that affect the deployment of IT in Slovenia? Does Slovenia as a transition economy need to address additional challenges when deploying IT that the major OECD members do not need to confront? What are the reasons that IT deployment in Slovenia does not generate MFP growth? What are the managerial and political issues in Slovenia that need to be solved before the deployment of IT in the economy can generate comparable benefits to those in the major OECD countries?

To address the above questions I start with a review of the relevant literature to develop a model for the required analysis. In the second section I present the methodology of the sample selection and statistical procedure selection used to test the model on the population of the 914 biggest added value generating enterprises in Slovenia. In the third section I present and analyse the results of the statistical testing. Finally I conclude the paper with the discussion of the main research questions and possible directions for further research.

2. LITERATURE REVIEW

The literature studying the deployment of IT in enterprises is dominated by the view that the deployment of IT in enterprises since the early nineties has been one of the major contributors to the productivity growth of the OECD economies (Jorgenson, Stiroh, 2000, Lee, Pilat, van Ark, 2002, Inklaar, McGuckin, van Ark, 2003, Jorgenson 2003, Daveri, 2004, Pilat, Wölfl, 2004, Basu, Fernald, 2007, Brynjolfsson, McAfee, 2008). In addition the cited empirical studies found strong empirical support for the hypothesis that without a successful deployment of IT in the enterprise the productivity benefits of the use of IT are low. The deployment
of IT was thus seen as the critical success factor and not a formality because of the already mentioned importance of the MFP process in the overall contribution of IT to productivity and its dependence on a successful organisational transformation. Consequently the proponents of this widespread school of thought pushed the deployment of IT as one of the key managerial issues of our time that needs to be successfully confronted.

Such an aggressive push of the deployment of IT as a central strategic management issue in today’s enterprises triggered equally strong critiques. The leading critic was Nicholas Carr (2003). His article and subsequent book questioned if IT and its deployment matter at all (Carr, 2003). Carr accepted the central empirical conclusion from his adversaries that IT generates productivity gains on the aggregate level. That, however, did not stop him from claiming that no enterprise can achieve competitive advantages by deploying IT. He supported this claim with the argument that today most of the deployed IT in enterprises is bought on a global market from big multinational vendors as “pre-packaged software”. Since the best industry practices for IT use are an integral part of these packages offered by the multinational vendors, in Carr’s (2003) opinion every competitor has the possibility to copy the IT deployment of any other, thus preventing the rise of any competitive advantages from the use of IT. Proponents of the importance of successful deployment of IT in enterprise responded by pointing out that even though enterprises buy the same IT packages the results of their deployments are far from similar. The deployment is strongly affected by the influences in environment and organisational characteristics, which can differ widely between enterprises (Champy, 2003, Kirkpatrick, 2003, Melymuka, 2003). Proponents cited several empirical studies that found that 50% to 75% of implementations of ERP and CRM software end unsuccessfully (Umble, Umble, 2002, Nicho, 2004) even though these two software packages are currently the two most sold products on the market (Brant, 2005, Hovelja, 2006). Of course if such low success rates are standard for the major OECD countries, despite the fact that these enterprise software packages and the best industry practices for productive use of IT were developed to fit them, one can imagine similarly large if not greater difficulties with the deployment of the same IT packages in the transition economies. The above described empirical evidence on the importance of and difficulties with the successful deployment of IT thus lets us state that the effects of IT deployment on the aggregate GDP growth are important enough to merit further study.

If such a study is to answer my research questions as well as possible, the basis of the model that will be empirically tested has to conform to the conceptual framework of the successful deployment of IT in the enterprises developed by the literature
and include all the environmental and organisational factors the literature sees as important. In my PhD thesis I have already developed a model that fulfils these requirements and can thus be used to address the problematic studied in this paper (Hovelja 2006). The model follows the guidelines any good socio-technical model should consider (Kling, Lamb 2000), builds on the knowledge of multiple iterations of Levitt and Scott-Morton models (Gimenez, Rey, 1998) as well as on the knowledge of the Interaction model (Beath, Markus, Silver, 1995) and IT Business Value model (Gurbaxani, Kraemer, Melville, 2004). To further improve my model I additionally conducted a thorough literature review of more then 200 separate relevant empirical pieces of social, economical, technical and organisational literature (Hovelja, 2006) to find further environmental, organisational and IT deployment characteristics seen as relevant by the literature. My model is presented in Figure 1.

**Figure 1:** The model of environmental and organisational factors that affect the success of the deployment of IT.

<table>
<thead>
<tr>
<th>Environmental factors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>owners, competitors, potential competitors, suppliers, buyers, sellers/ producers of IT, IT consultants, public opinion, knowledge/skill forming institutions, governmental institutions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organisational factors:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Culture:</strong> support of the employees by superiors, commitment by the employees, innovativeness, control, continuous learning.</td>
</tr>
<tr>
<td><strong>Strategies:</strong> sophistication of strategic planning, cost leadership, product differentiation, use of inter-organisational synergies, acquisition of bargaining advantage in the supply chain.</td>
</tr>
<tr>
<td><strong>Structures:</strong> decentralisation, group/team based method of work, low formalisation, low vertical differentiation, low specialisation, professionalisation, goal oriented remuneration system, strong communication channels with the environment.</td>
</tr>
<tr>
<td><strong>Processes:</strong> knowledge management, cost leadership, product differentiation, building of inter-organisational synergies, acquisition of bargaining advantage in the supply chain.</td>
</tr>
</tbody>
</table>

**Variables of the success of IT deployment**

**Variables of economic success of the enterprise**

3. METHODOLOGY

To empirically test the model presented in Figure 1 I developed a questionnaire that allowed me to acquire the needed data on the key environmental (external to the enterprises) and organisational (internal to the enterprises) factors that have an important influence on the deployment of IT, as well as the data on the success of the deployment of IT in enterprises. Throughout the entire data gathering process I strictly followed key methodological prescriptions in sample and method selection to ensure that the compiled data set would be able to describe the average behaviour of the studied population of enterprises in Slovenia with a significant statistical certainty. The first methodological decision I was confronted with during this process was the decision concerning the definition of the studied population. The two most frequently studied populations are the population of all enterprises and the population of large enterprises in terms of the creation of added value per year. Like the vast majority of other studies in the OECD countries (Hitt, Snir, 1999, Brynjolfsson, Hitt, Yang, 2002, Bresnahan, Brynjolfsson, Hitt, 2002, Mittal, Nault, 2006) I decided to study the largest added value generating non-financial enterprises. The logic behind this choice was even clearer in my case than for researchers from major OECD countries. In Slovenia 23,212 out of 28,720 registered enterprises (AJPES, 2005) have 10 or less employees. Their small size could have made their inclusion in the study problematic, since the probability that these enterprises significantly differ from their bigger counterparts in organisational and other enterprise characteristics cannot be ignored. Even in the top thousand enterprises in Slovenia, which created 40% of the total added value in the country in 2003 and employed 31% (285,357) of the workforce, there were 38 enterprises that had fewer than 25 employees (AJPES, 2005). To prevent any issues stemming from small enterprise size I decided to limit my studied population to enterprises with 25 or more employees. In addition to the mentioned 38 enterprises another 48 enterprises from the top 1000 were excluded from the study since they exhibited fluctuations in earnings and employment larger than +/- 50% in the studied year (2004). They were excluded because it is probable that such drastic changes represent outliers and not results that can be achieved in an average business year. Thus 914 out of top 1000 enterprises were sent the questionnaires. From the managers of their IT departments I received 94 appropriately completed questionnaires between January and April 2005.

Based on personal and phone communication with the managers of the involved 914 IT departments I concluded that the relatively low 10.28% response rate was mainly caused by the lack of time and/or knowledge needed to fill out the questionnaire. Since redoing the survey with a simplified questionnaire would
have limited the quality and completeness of the comparison with the results from the OECD area and thus harm my ability to answer the main research questions, I tried to determine if the 94 “surveyed” enterprises adequately represent the studied population. A sample that is obtained in the above described way is considered adequate for parametric testing as a random sample when one can assume that the sample’s studied variables are not affected by the non-response bias that causes the confidence interval of a sample estimate to not include the actual population value of a studied variable (Fogliani, 2002). Thus if one cannot find statistically significant non-response bias, one can assume that the probability of non-response, because of work overload, forgetfulness and lack of knowledge (Doyle, 2004), is equal for all the units of the studied population and proceed to parametrically test the sample as if it was an ordinary randomly collected sample.

Because the variability of the studied variables is the most important cause for a given non-response rate to produce a non-response bias I analysed the sample variability of the studied variables with known population values to find out the amount of variability that can be reached, before the sample confidence intervals of their averages stop including the population averages. The Z-tests showed that for the economic variables with known population values a variability measured by the relative standard deviation in the sample of 110% or higher caused the 95% confidence intervals of the sample estimates to not include the actual population values. The only two economic variables that exhibited such large variability were the number of the employees and the created added value per enterprise per year. Since the sample relative standard deviations for studied variables with unavailable population data (IT deployment in the enterprise, environmental and organisational factors of successful IT deployment) were lower then 65% of the relative standard deviation, it can be assumed that the economic size bias in the sample, favouring enterprises of larger size, in all probability does not statistically significantly affect the variables of interest for this paper. In the same way it did not affect the variables of economic success with known population values and smaller sample variability than 110% of the relative standard deviation. Further tests also showed that the skewness and kurtosis for most of the studied variables did not exceed the ranges that would greatly violate the assumptions about the normal distribution of the variables and thus make parametric testing problematic (Ozgur, Strasser, 2004, Barrett, Leech, Morgan, 2005, Hayward, 2005). For the few exceptions (created added value, number of employees, created added value per employee) that exhibited a positive skew greater then +1 and kurtosis greater then +2, the most appropriate (logarithmic) transformation was used to enable parametric testing on the transformed data, since on such occasions transformation of gathered data is widely recognized as a more appropriate way
of testing hypotheses than using nonparametric tests on non-transformed data (Johnson, 1995, Hayward, 2005).

The results of all the above mentioned tests led me to the conclusion that the sample in all likelihood adequately represents the studied population and can thus be used to conduct parametric testing for the studied variables of economic success, IT deployment, environmental and organisational factors. Before I could proceed with the testing of the gathered data, I had to choose the appropriate statistical methods that would enable me to achieve the research goals of this article. Because the gathered dataset was relatively small when judged by the ratio between the number of units in the sample and number of included independent factors of environmental influences and organisational characteristics, canonical correlation analysis and similar methods with multiple independent and dependent variables could not be used (Statsoft, 2005). Thus I was limited to the use of methods with just one dependant variable and one or multiple independent ones. In addition I also had to consider the recommendations from the literature that see the process approach for modelling the deployment of IT as superior to the «black box» variance modelling approach (Kohli, Sherer, 2002, Devaraj, Kohli, 2003). The process approach established in the literature requires that a researcher first measure how the studied independent variables affect the deployment of IT in the enterprise, before measuring the impact of the deployment of IT on some measure of economic success (usually a measure of productivity). Such an approach allows a researcher to understand whether the problems in the deployment of IT are responsible for low productivity gains or if the expected productivity gains do not materialize despite a successful deployment of IT. Since developing such an understanding could prove vital for gaining answers to the paper’s research questions I followed the literature’s preferred method in my research. To successfully implement such a process approach I had to connect the studied independent variables of environmental and organisational characteristics to a dependent variable that would directly measure the success of the deployment of IT, and then connect this variable to a measure of productivity.

To find a direct measure for IT deployment in the enterprises I modified the scales of the capacity utilization that are used by the FED (Federal Reserve) and the US DOD (United States Department of Defence) to measure the average rate of efficiency with which all technologies available to a nation are used (Morin, Stevens, 2004). The two cited institutions measure the average efficiency (utilization rate of all available technologies) by comparing the current total output of an enterprise to the highest possible output that enterprise could achieve in a time of need (war, natural disasters, etc.). Since enterprises interviewed during the development and
testing of my questionnaire expressed their inability to estimate the maximum potential output of all the deployed IT, a further adjustment to the measurement scales had to be made. The scales are still based on the concept that IT creates value through its use in the process of added value generation (Buonanno et al., 2002, Guimaraes et al., 2002) as defined by Millar and Porter (Millar, Porter, 1985). However instead of asking about the direct effect of the actual and potentially maximum use of the deployed IT on the output, enterprises were asked to estimate the percentages of work hours actually spent using IT and the percentage of work hours that would have to be spent using IT to gain the maximum potential of the deployed IT.

Since, as explained, the acquired data set was not large enough to use multiple dependent variables in the model, I had to merge the two described interval scales directly measuring the deployment of IT into one scale to avoid problems with the robustness of the statistical analysis (Sharma, 1996, French, Poulsen, 2005). The result of the merger was an ordinal scale that divided the enterprises in the sample into four groups (Hovelja, 2006). The scale was built by using as cut off points the sample median of the percentages of the actual work hours spent using IT (51.75% of work hours) and the sample median of percentage of work hours that would have to be spent using IT in order to use IT to its maximum productivity potential (64.38% of work hours). Two of the four thus created groups had eight enterprises each and were thus too small for the independent sample t-test analysis, while the other two groups consisted of 39 enterprises each and were thus of the appropriate size for the independent sample t-test analysis (Sharma, 1996).

The decision to base the statistical analysis of the two large groups on the independent sample t-test was based on the fact that this univariate method is one of the most widely used methods in the scientific community when confronted with independent interval variables and one ordinal dependant variable (Sharma, 1996). Because only univariate relationships between the independent environmental and organisational factors and the success of the deployment of IT are sufficiently empirically tested in the existing OECD research (Hovelja, 2006) the use of multivariate methods in this case would not enable additional comparisons of my results for Slovenia with the ones from major OECD countries to better answer the stated research questions. Thus I conducted the analysis without the use of more complex multivariate methods and proceeded with the use of the independent sample t-test. It is important to mention that the two larger groups of enterprises analysed in this way are the two groups conceptually most relevant to my research. The first group of 39 enterprises is best described as the “Power user” group (intensive IT users), since its members use IT above
the sample median of the percentage of actual work hours spent using IT and are also above the sample median of the percentage of work hours that would have to be spent to use the deployed IT as productively as possible. The second group of 39 enterprises is best described as the “Casual user” group (non-intensive IT users), since its members use IT below the median of the sample for both the percentage of work hours actually spent using IT and for the percentage of work hours that would have to be spent to use the entire available productivity potential of the IT. The “Casuals” have also earned their name because of the fact that they have statistically significantly lower utilization rates of the deployed IT (67.19%) than the utilization rates achieved by the Power user group (89.75%) (Hovelja, 2006). Since the main research goals of this paper are dependent on finding the environmental and organisational differences between the intensive (Power users) and non-intensive (Casuals) users of IT in Slovenia and the comparison of these differences with the differences found in the major OECD countries, limiting the statistical analysis to the differences between these two large groups does not significantly negatively affect my capability to answer the stated research questions.

Besides measuring the above described utilization rate of IT deployment my questionnaire also had to gather the opinions of the enterprises’ IT managers about the influence of specific environmental factors and specific organisational characteristics on the deployment of IT. Their opinions were measured with five-point Likert scales (strongly positive, positive, indifferent, negative, strongly negative). Even though these scales were considered ordinal by Stevens (1946) there is a long established practice of using them as interval scales for purposes of computing sample averages and standard deviations (Jamieson, 2004, Garson, 2005, Johnson, 2005, Newsom, 2005). Multiple empirical tests in the literature led to the conclusion that “for many statistical tests, rather severe departures (from intervalness) do not seem to affect Type I and Type II errors dramatically” (Jaccard, Wan 1996: 4). In addition there is a large body of literature that does not support Stevens’s (1946) views that parametric tests should not be used at all to test factors measured by ordinal scales, as long as the scale has five or more points and the distribution of the measured variable does not severely violate the assumptions of normal distribution (Baker, Hardyck, Petrinovich, 1966, Bohrnstedt, Borgatta, 1980, Barrett, Leech, Morgan, 2005, Newsom, 2005).

With the adequate resolution of the aforementioned methodological issues I am able to state that a difference in averages of the studied environmental and organisational variables between the two sampled groups of IT intensive and IT non-intensive users in Slovenia has a statistical significance for the studied
when the independent sample t-tests show a 95% degree of confidence in the difference of averages. Thus the statistical approach developed above allows me to find statistically significant differences between enterprises in Slovenia that deploy and use IT intensively and ones that do not. Further comparison of these differences with the differences between the same two groups from the major OECD countries will enable me to satisfactorily address all stated research questions and reach the goals of this paper. In the following section I thus present the results of my empirical study.

4. RESULTS OF THE DEPLOYMENT OF IT IN ENTERPRISES IN SLOVENIA

When conducting an analysis of the results of the deployment of IT in enterprises in any country one should first ask oneself whether most of the deployed IT has foreign origins or was developed locally. The response to this question is very relevant for the future functioning of any economy, as any complex new technology IT is culturally, socially and institutionally biased towards the countries that developed it (Hill et al.). Globally speaking two of the three biggest market moving multinational software vendors (Brant, 2005) are American (Microsoft, Oracle) and have their R&D departments located in the USA (Oracle, 2008, Microsoft, 2008), thus most of the enterprise software originates from USA. Even the sole major European vendor (SAP) develops its enterprise application software in collaboration with the Fortune 500 companies and then augments it with “local best practices designed to address local business customs” (SAP, 2004, SAP, 2008: 38-39). Based on this information we can conclude that most of the internationally available enterprise application software together with the complementary organisational practices for its adequate and productive use that multinational vendors sell as packages all over the world originate mostly from the USA. Additionally there is a vast quantity of empirical evidence published in the last decade documenting the global reach and success of multinational vendors which points to the conclusion that big multinational IT vendors are becoming the dominant channel through which enterprises deploy IT in the world in general (de Blasis, Gunson, 2001, Felter, 2002, Alwabel, Gunasekaran, Zairi, 2006, Batenburg, Benders, Blonk, 2006) as well as in Slovenia in particular (GZS, 2004, Hovelja, 2009). The fact that Slovenia is no exception to the general rule of enterprises adopting mostly foreign software and the managerial practices that come with it as the universal way to deploy IT can be clearly observed by looking at the large majority of 50 IT vendors in Slovenia who mostly sell software from the big multinational vendors such as SAP, ORACLE and/or Microsoft (GZS, 2004, IDC, 2007).
The widespread use of such an approach in the deployment of IT in most transition economies does not come as a surprise, since the large multinational vendors have a “natural” ability to dominate small and medium open markets. In addition we have to consider the fact that enterprises in transition economies usually take the roles of subcontractors or are in some other way dependent on their OECD business partners. The OECD enterprises thus possess the power to force the local enterprises into deploying the IT solutions used by them. These IT solutions pre-packaged by multinational vendors with the managerial “best” practices were however originally designed to make the IT solution perform best in their country of origin, and their fit with the cultural environment of a transitioning economy is yet to be fully comprehended. One of the best-known authors who brought to international attention the importance of differences between national cultures for the successful adoption of foreign managerial practices was Geert Hofstede (Hofstede, 1980, Hofstede, 1983, Hofstede, 1993). He described three factors through which national differences can cause individual managerial practices and even entire management theories to stop working beyond the borders of their country of origin (Hofstede, 1983, Hofstede, 1993). The first factor is the difference between countries in their political systems, which are rooted in history with specific institutions, formal and informal behaviour. The second factor is the difference between countries in the sociological concept of “common identity” perceived by people of the same culture. Such common identities can differ greatly between cultures, preventing successful transfer of managerial practices which do not take them into account. The third factor is the psychological differences between people of different cultures, since their thinking is partly conditioned by the national culture. Culture, as a collective mental programming, can thus severely impact perceptions of the same reality between different countries and make what works in one useless in another (Hofstede, 1980). Because IT solutions from multinational vendors are designed to work best with a specific set of complementary managerial “best” practices the differences in the environment between the OECD countries and Slovenia have to be taken into account, before moving on to the analysis of the differences between factors internal to the enterprises in Slovenia and major OECD countries.

To examine the environmental differences I first had to compile a list of key environmental factors that have an important effect on the success of IT deployment in the major OECD countries. I made such a list with the help of the literature studying the diffusion of technology (Rogers, 1995) and its life path in society (Fowler, Levine, 1993). The literature considers the key environmental factors in the deployment of IT to be the interests of those social interest groups that have the motives and abilities to play a relevant role (advocate/critic) in the
technology diffusion process (Hovelja, 2006). The success of an individual interest group is measured by the broadness of the acceptance in the society of their way being “the right” way of perceiving and using IT (Ramiller, Swanson, 1997). In Table 1 I present all the influences of the interest groups that the literature from the OECD countries identified as important for the successful deployment of IT and the empirical findings about their influences in Slovenia.

**Table 1:** The influence of key environmental factors on the success of the deployment of IT in IT non-intensive and IT intensive user groups (1 - very negative, 5 - very positive).

<table>
<thead>
<tr>
<th>Key environmental factors:</th>
<th>Arithmetic average of the IT non-intensive user group</th>
<th>Arithmetic average of the IT intensive user group</th>
<th>Statistical significance of the difference between averages of the two groups (2-tailed P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>owners</td>
<td>3,205</td>
<td>4,000</td>
<td>0,001</td>
</tr>
<tr>
<td>competitors</td>
<td>3,769</td>
<td>4,231</td>
<td>0,032</td>
</tr>
<tr>
<td>potential competitors</td>
<td>3,949</td>
<td>4,000</td>
<td>0,821</td>
</tr>
<tr>
<td>suppliers</td>
<td>2,744</td>
<td>3,410</td>
<td>0,005</td>
</tr>
<tr>
<td>buyers</td>
<td>3,436</td>
<td>3,923</td>
<td>0,055</td>
</tr>
<tr>
<td>sellers/ producers of IT</td>
<td>3,462</td>
<td>3,641</td>
<td>0,315</td>
</tr>
<tr>
<td>IT consultants</td>
<td>3,231</td>
<td>3,487</td>
<td>0,170</td>
</tr>
<tr>
<td>public opinion</td>
<td>2,641</td>
<td>3,128</td>
<td>0,039</td>
</tr>
<tr>
<td>knowledge/ skill forming institutions</td>
<td>2,615</td>
<td>3,051</td>
<td>0,050</td>
</tr>
<tr>
<td>governmental institutions</td>
<td>2,564</td>
<td>2,692</td>
<td>0,604</td>
</tr>
</tbody>
</table>


The influences presented in Table 1 were all found to have a strong positive effect on the success of the deployment of IT in the major OECD countries. In Slovenia however only owners, competitors, suppliers and public opinion have a statistically significant positive influence on the deployment of IT, while the behaviours of other interest groups do not cause any statistically significant
influences. If we start the examination of these surprising behaviours with the assessment of the behaviour of potential competitors we can use two general theoretical explanations to clarify it. The first explanation, popular especially in the US, is that enterprises in Europe are not exposed to equal levels of competition as their US counterparts (Bloom, Van Reenen, 2007) and/or that the enterprises on this side of the Atlantic do not expect any increase in the level of competition in the future. This explanation should hold true especially for the service sectors (Telecommunications, Financial and Banking industry, Utilities…) where most of the enterprises are state or municipally owned and the existence of such “sheltered” sectors is almost a norm (Anthony et al., 1999). However critics of such an explanation point out that more and more industries are starting to compete in one global market or at least in the common European market; thus a “sheltered life” hypothesis as the only explanation of the neutral effect of potential competition on the deployment of IT seems questionable, especially when taking into account the fact that customers do not demand more sophisticated products that would require a more intensive use of IT even in the sectors of the Slovenian economy that are exposed to international competition (Hovelja, 2006). For this reason in my opinion such an explanation addresses neither the core of this issue nor the second explanation, which states that Slovenia, like most former socialist countries, does not in general produce for consumers of high quality products, but usually produces lower quality products for price sensitive consumers who don’t demand technologically sophisticated products (Lahovnik, 2009). The production and sale of high quality products clearly differentiated from those of competitors is still something unattainable in the average enterprise in Slovenia. To make matters worse empirical data points out that most Slovenian enterprises are still stuck in the middle, between the two key customer markets as defined by Porter (price sensitive vs. quality) (Pučko, 2002, Hovelja, 2006). The government could in some sectors help with this transition by generating additional demand for high-quality high-skill domestic products. Unfortunately the creation of new high added value products and jobs seems to be merely a good political talking point, while in practice most subventions are spent on labour intensive low added value enterprises, known as “socialist giants” (Državni Zbor, 2009).

Unfortunately the lack of necessary know-how in Slovenia does not end with the lack of know-how for production and marketing of higher quality products and services, but emerges also as an explanation of the non-existing positive influence on IT deployment by makers/sellers of IT and IT consultants. These two interest groups do not seem to bring any additional quality to the table that would enable enterprises to deploy the bought IT more successfully (Hovelja, 2006). The severe consequence of the lack of know-how in these two groups on an economy was
documented by Basu et al. (2003). Their empirical study explicitly showed that the significantly lower UK’s MFP growth from IT compared to the one the USA had in the second half of the nineties is best explained by a lack of college-educated workers, skilled in IT and management, working as IT sellers, as IT consultants and in the IT-using enterprises. In their opinion the insufficient numbers of the workforce described above prevented the deployment of the needed organisational characteristics for a successful deployment of IT in UK enterprises (Basu et al. 2003).

In addition to the two already mentioned industry level interest groups there are also two country level interest groups in Slovenia that do not positively influence the deployment of IT. These two interest groups are governmental institutions and knowledge (skill) forming institutions. The analysis of the key governmental institutions that coordinate labour markets and other key economic activities in Slovenia brings to the surface the country’s inability to organise knowledge forming institutions in a way that better meets the needs of Slovenia’s economy (Avberšek, 2009). Adjusting the workings of knowledge and skill forming institutions so that they better fit the market based capitalistic reality, where not all knowledge gained can be treated as equal (from a remuneration point of view) is something that, from the start of the transition, no Slovenian government has been able to accomplish. The current education system in Slovenia is sustained by the pressure of parents, students and specific faculty interest groups and can generally still be considered a socialist system. It follows the notion of free study of everything by everybody (government is the main single payer), without significant monetary discrimination between the education profiles the enterprises desire and the ones that they don’t (Polanec, 2008). Since my research shows that the influences of key knowledge forming institutions (universities, research centres, etc) in Slovenia are on the border (P=0,050) of having a positive effect on the deployment of IT (Hovelja, 2006), I tried to gather additional information to better understand their actual influence. To accomplish this task I reviewed the findings of other studies of this interest group in Slovenia. The general agreement in the reviewed studies was that even though policymakers established several programmes of knowledge transfer in almost all relevant knowledge-forming dimensions (Bartlet, Čučković, 2006), there are serious doubts about the effectiveness of knowledge transfer between the knowledge forming institutions and the private sector (Rebernik, Tominc, Pušnik, 2004, Avberšek, 2009). Some even go as far as concluding that the knowledge transfer practices in Slovenia failed to generate much innovative activity in general (Bartlet, Čučković, 2006).
The analysis of the Slovenian environment presented above shows how issues stemming from transition can amplify the lack of appropriate knowledge and significantly lengthen the time it takes to remedy the situation. Thus the need for drastic reforms to the country’s key governmental and knowledge forming institutions to enable them to deliver the appropriately educated workers in adequate numbers virtually guarantees a protracted catch-up process before the supply will reach levels comparable to the ones in the major OECD countries. During this catch-up process enterprises in Slovenia are and will most likely continue to be unable to count on the significant amount of environmental support that enterprises in the major OECD countries receive (Hovelja, 2006) for the successful deployment of IT. These environmental drawbacks will without a doubt also leave a negative mark on the success of the deployment of characteristics internal to the enterprise that the OECD literature considers important for a successful deployment of IT. None the less the individual analysis of these organisational characteristics (Table 2) should be able to answer the question as to whether there are any additional “transitional” issues that need to be confronted by the enterprises in Slovenia to successfully deploy IT.

**Table 2:** The influence of key organisational factors on the success of the deployment of IT in IT non-intensive and IT intensive user groups (1 - very negative, 5 - very positive).

<table>
<thead>
<tr>
<th>Key organisational factors in four organisational dimensions:</th>
<th>Arithmetic average of the IT non-intensive user group</th>
<th>Arithmetic average of the IT intensive user group</th>
<th>Statistical significance of the difference between averages of the two groups (2-tailed P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key cultural characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>support of the employees by superiors</td>
<td>3,077</td>
<td>3,872</td>
<td>0,000</td>
</tr>
<tr>
<td>commitment by the employees</td>
<td>3,385</td>
<td>3,692</td>
<td>0,070</td>
</tr>
<tr>
<td>innovativeness</td>
<td>3,744</td>
<td>4,026</td>
<td>0,152</td>
</tr>
<tr>
<td>control</td>
<td>2,897</td>
<td>3,513</td>
<td>0,001</td>
</tr>
<tr>
<td>continuous learning</td>
<td>3,000</td>
<td>3,564</td>
<td>0,001</td>
</tr>
<tr>
<td>Key strategic characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sophistication of strategic planning</td>
<td>4,026</td>
<td>4,436</td>
<td>0,021</td>
</tr>
<tr>
<td>cost leadership</td>
<td>4,205</td>
<td>4,410</td>
<td>0,191</td>
</tr>
<tr>
<td>product differentiation</td>
<td>4,333</td>
<td>4,692</td>
<td>0,005</td>
</tr>
<tr>
<td>use of inter-organisational synergies</td>
<td>3,974</td>
<td>4,333</td>
<td>0,035</td>
</tr>
<tr>
<td>acquisition of bargaining advantage in the supply chain</td>
<td>3,769</td>
<td>4,000</td>
<td>0,226</td>
</tr>
</tbody>
</table>
Based on the effort and time an enterprise needs to implement specific organisational characteristics for a successful IT deployment I grouped individual characteristics in four dimensions: culture, strategies, structure, and processes (Adler, Shenhar, 1990). This sequence of analysis will allow me to move from a more general view of characteristics that are harder to deploy towards operational issues of the deployment of IT that are easier to solve in an enterprise. The results of the analysis of the cultural dimension show significant differences in culture between the enterprises that deploy IT intensively in Slovenia and the enterprises that deploy IT intensively in the major OECD countries. The cultural characteristics statistically tested in Table 2 represent the five characteristics that empirically explained the majority of the cultural differences between enterprises across industries when Delobbe, Haccoun and Vandenberghe (2002) tested norms, patterns of behaviour and cultural values from the 20 most widely used corporate culture questionnaires. The international research found that the enterprises that are very successful at deploying IT usually orient themselves externally towards the markets and manage to develop innovativeness as the key characteristic of their organisations for productive use of IT (Brynjolfsson, Hitt, Yang, 2002, Poku,
In Slovenia however most intensive IT users were enterprises that oriented themselves internally into increasing support to the employees and the tightening of control. We can thus conclude that as yet the enterprises in Slovenia have not shown themselves able to transform their culture from the traditional mechanical type into an organic culture by deploying the appropriate “best” practices for productive use of the deployed IT solutions. However significant problems with cultural change required to successfully use IT is not a problem limited to Slovenia. Similar problems were found to be common to most of the countries in Continental Europe (Casper, Whitley, 2002), where the German incremental approach to innovation is culturally dominating the Anglo-Saxon radical approach to innovation (Nootenboom, 2000, Whitley, 2000, Hall, Soskice, 2001, Casper, Whitley, 2002). This cultural incrementalism with its small but persistent steps unfortunately further slows the pace of the significant reorganisation that needs to be accomplished before the deployed IT can be used to its full potential.

The next organisational dimension that needs to be examined is the strategic dimension. Based on Table 2 we could state that at least on the surface there are no important strategic differences between the major OECD countries and Slovenia in the implementation of key strategic characteristics for successful deployment of IT. The three key characteristics of management know-how and sophisticated strategic planning (Gupta, Karimi, Somers, 1997), differentiation strategy (Bartel, Ichniowski, Shaw, 2007) and inter-organisational use of synergies across the entire value chain (Anderson, Banker, Ravindran, 2006) deemed key for successful deployment of IT in the OECD also show themselves statistically significantly better deployed in the group of intensive IT users in Slovenia (Hovelja, 2006). However under closer scrutiny the similarities vanish once one discovers that in Slovenia IT deployment does not differ between the IT intensive and IT non-intensive users (Hovelja, 2006). For both groups in Slovenia IT/IS planning is still not an integral part of strategic planning, but is in most cases performed on a functional level, even in enterprises that deploy IT intensively and follow the same set of strategies as enterprises in the major OECD countries. Thus Slovenian IT intensive enterprises differ significantly from their counterparts in the major OECD countries which have considered IT/IS planning as a part of strategic planning since the early nineties, when they realized that to deploy IT in its transformational role as a tool that delivers significant productivity gains IT/IS planning needs to be elevated from the functional to the strategic decision making level (Garg, Joubert, Pellissier, 2002, Anderson, Banker, Ravindran, 2006, Bartel, Ichniowski, Shaw, 2007). The analysis of the strategic dimension thus leads to the conclusion that enterprises in Slovenia are on average almost twenty years behind in the deployment of the above mentioned strategic shift. The existence of
such a vast time gap is in all likelihood the result of poor management ability and lack of necessary know-how for conducting proper strategic information system planning (Groznik, Kovačič, 2004, Hovelja, 2006).

The structural characteristic dimension is the next dimension of organisational characteristics that needs to be looked into (Table 2). A comparison of the eight tested characteristics seen as crucial in the international literature (Fichman, 2000, Dewett, Jones, 2001, Brynjolfsson, Hit, Yang, 2002) shows that five of these are deployed by intensive IT users in Slovenia in a similar fashion to the major OECD countries. These characteristics are lower centralization, higher professionalisation, a more group- and team-oriented method of work, a more developed structure of communication channels with the environment, and a goal-oriented remuneration. After reviewing the results from the three dimensions we can also note that the percentage of organisational characteristics in a dimension that is successfully deployed is consistently increasing as we move away from the dimensions that take most time and effort to change. Such findings conform to the theoretical expectations from the literature. However even in the structural dimension, which does not take as much time and effort to change as the previously reviewed dimensions, we can still identify important conceptual differences between Slovenia and major OECD countries. From a statistical point of view the biggest difference between enterprises from Slovenia and the OECD is in the deployment of formalization. In major OECD countries formalization negatively affects the success of IT deployment because rules and regulations represent barriers that need to be surpassed in order to use IT in new, more productive ways (Fichman, 2000). The opposite holds true for Slovenia where rules and regulations positively impact the deployment of IT. To explain this divergence one has to consider the fact that enterprises in Slovenia adopt a significant part of new business concepts from the international literature and practice through the deployment of relevant ISO standards. The deployment of these standards as a response to problems with the deployment of IT and other managerial problems in an enterprise is in Slovenia a popular “standard operating procedure” response (Trošt, 2001). Thus despite the fact that concepts that are being implemented to resolve existing IT deployment problems favour the lowering of formalisation, the implementation of ISO and other standards increases the formalisation on aggregate.

The last two not yet mentioned organisational characteristics of vertical differentiation and horizontal differentiation (specialisation) do not display any statistically significant difference between the intensive and non-intensive IT users in Slovenia. Even so such results point towards significant conceptual and theoretical differences between the deployment of IT in Slovenia and
the major OECD countries. In major OECD countries the flattening of the hierarchical structure and the redesign of existing work tasks into larger work fields are considered to be the two key structural characteristics for the successful deployment of IT. Significant changes to these two structures are also seen by the literature as the two main indicators that an enterprise has transformed its organisation into a process-oriented organic organisation that brings managers closer to the customers and enables a more efficient and effective execution of work tasks in the IT age (Kim, Ramkaran, 2003). Because the average enterprise from the group of intensive IT users in Slovenia does not embark on such a transformation, it remains at its core a classic Smith and Taylor type organisation (Hovelja, 2008). One can thus conclude that on average enterprises in Slovenia refuse to significantly change their division of labour by adjusting their technical structure to adequately answer the questions of how and what work needs to be done in order to use IT to its maximum productive potential (Hovelja, 2006). The direct consequence of non-implementation of these key technical changes is that the work-hours freed through the deployment of IT are not being used to conduct additional existing and new work tasks that would increase the productivity of the average IT using (white collar) worker by increasing his work load. Consequently the Slovenian MFP growth does not increase and the deployment of IT mostly results only in decreased workloads and in less work hours that the average Slovenian white-collar worker actually spends working (Hovelja, 2008). Such internalization of benefits from IT deployment in the workplaces in Slovenia could point to a significant difference in the power white collar workers have in Slovenian enterprises compared to their power in enterprises in the non-transition OECD members (Prašnikar, Svejnar, 1998). There the interests of managers and owners to increase the productivity of workers dominate the interests of workers to work effectively less, and not vice-versa.

As in the previous organisational dimensions, important differences in the deployment of IT between Slovenia and major OECD members can also be found in the last organisational dimension that still needs to be reviewed. This is the dimension of key generic processes that enable enterprises to execute different competitive strategies more effectively (Dewett, Jones, 2001, Greenan, Mairesse, 2003, Hovelja, 2006). A review of these processes shows that the similarities that exist between Slovenia and major OECD countries are only limited to the deployment of the differentiation process and the process aimed at building inter-organisational synergies. However the non-deployment of the knowledge management process in the group of intensive IT users in Slovenia presents a serious divergence, since in major OECD countries this process is considered the key building block for the establishment of a positive feedback loop that enables
an enterprise to continuously increase the benefits gained from the deployment of IT (Hovelja, 2006). The fact that such a loop in intensive IT users in Slovenia is not being deployed points towards an issue of serious mismanagement of the deployment of IT which is not present in the major OECD countries.

The conclusion that there is a serious case of deliberate mismanagement of the deployment of IT in addition to the lack of knowledge in the environment in Slovenia has far reaching consequences. It explains why the process of control and evaluation of the process of selection, implementation and use of IT remains inadequately deployed in Slovenia (Hovelja, 2006), even if it is one of the crucial steps in building an efficient learning cycle for successful deployment of IT. It also helps explain why the deployment of IT does not drastically change the organisation of the enterprises and why the majority of IT benefits end as decreased workloads for the workers using IT. Consequently it does not come as a great surprise that the intensive IT users in Slovenia were not able to achieve similar productivity gains from the use of IT as in the USA (Bloom, Sadun, van Reenen, 2008). Even worse, my research could not find a statistically significant difference between the intensive and non-intensive IT user groups in productivity per worker and in the growth of productivity per worker (Hovelja, 2006). These findings fit together well with findings from the major OECD countries, where the enterprises that implemented a good process of continuous learning and embarked on a process of organisational transformation for a more productive IT use achieved significantly higher productivity gains from IT than their competitors (Bresnahan, 2001).

To achieve all the goals set in this paper I have to continue my analysis by looking deeper into the reasons behind the identified serious mismanagement of IT deployment as thoroughly as I examined the reasons behind the lack of know-how for successful IT deployment in several important interest groups (government, knowledge-generating institutions, IT sellers and consultants) in the Slovenian environment. The fact that in Slovenian enterprises IT planning remains on the functional level and has not become an important part of strategic planning shows that the mismanagement is at least partially connected with the lack of adequate know-how of (top) management in Slovenia. However mere lack of knowledge related to IT deployment cannot explain the fact that the (top) management has not established any control over the deployment of IT which would generate formal feedback of results and establish a learning loop (Hovelja, 2006). Not establishing such a loop to monitor the level of the overall workload and the assignment of work tasks to IT users is such a core building block of good management that its lack cannot be explained away as mere lack of specific knowledge. In fact it can best be explained by a lack of ability to adequately manage the enterprises.
In my opinion this inability originates in the Slovenian corporate governance culture that established very peculiar ways of “getting things done” during the transition period. The first is the way members of top management and the supervisory boards are recruited into the largest enterprises in Slovenia. Currently state enterprises represent 23% of all enterprises (Državni svet 2008): however among the 1000 biggest enterprises based on added value generated in 2004 more than 60% were directly or indirectly controlled by the state (Hovelja, 2005) and this has currently dropped to around 50% (Državni svet, 2008). The “selection” process used to assign the above mentioned leadership positions in these enterprises is best represented by Ivan Oman’s now (in)famous saying: “It does not matter if he can’t read as long as he is on our side” (Demokracija, 2008). The right and left political blocks profess that this adequately represents the modus operandi of their opponents throughout the entire transition period (Delo, 2008, Siol, 2008, Demokracija, 2009), while independent analysis shows that Ivan Oman’s dictum adequately represents the actions of both blocks (Brezar, 2007). Consequently the supervisory boards and managements of the enterprises controlled by the two political blocks cannot take decisions that would not be backed by their political godfathers, who see these enterprises mainly as tools for achieving their own political goals (Brezar, 2007). Thus no significant organisational transformation of work tasks can be given the go ahead in these enterprises, because it would cause significant personnel changes (hiring of new, firing of old, promotions, demotions). These changes could drastically increase worker unhappiness by disturbing the status quo and cause a significant loss of votes (Brezar, 2007).

After the group of state owned enterprises the second biggest group of enterprises in Slovenia is comprised of businesses that went from state into private hands (also referred as the tycoon group of enterprises) through MBOs (management buyouts). Ironically this move did not usher in freedom to increase productivity and profits by enabling fast and efficient radical organisational transformations to increase their long-term success (Hovelja, 2006), even though this was the main selling point of the privatisation supporters. Although this group of enterprises was no longer bound to follow the goals of the political elite, the amount of debt these enterprises took on to go private (Finance, 2009) de facto prevented any significant organisational transformation. The costs of adequate transformation are very high in the short term, even though the long-term benefits are significantly higher (Bresnahan, 2001). Because of this the managers in Slovenia that conducted MBOs usually focused on short-term improvements in the enterprise at the expense of long-term benefits (Babič, 2003). Thus even this second group of enterprises, which is potentially willing to transform its organisation for a successful deployment of IT, was unable to do so for financial
reasons. The situation described above makes it clear that in addition to a general lack of relevant knowledge the unresolved issue of enterprise ownership strongly impacted the behaviour of the interest group of (top) managers throughout the entire transition, so much so that it can be seen as one of the primary causes for the mismanagement of IT deployment in Slovenia.

5. DISCUSSION AND CONCLUSION

In the previous sections I have presented the necessary review of the literature, the methodology and the analysis of results of my empirical study to respond to the four research questions posed in this paper. To tackle the first question asking about the main factors affecting the deployment of IT I reviewed the relevant literature from the major OECD countries. On the basis of this review I developed a model of key environmental interest groups and key organisational characteristics that affect the successful deployment of IT in an enterprise. By using this model to conduct an empirical analysis of the deployment of IT in enterprises in Slovenia, I was then able to find the answers to the other research questions. The analysis of environmental interest groups showed that in Slovenia the important interest groups of IT sellers, IT consultants, knowledge-forming institutions and government institutions do not exhibit behaviours that would positively affect the success of the deployment of IT. Such behaviours are in contrast to the positive influences these interest groups have on successful IT deployment in major OECD countries. The inadequate organisation, lack of know-how and insufficient knowledge transfer policies that these interest groups created are in large part connected to their socialist past and Slovenian cultural incrementalism. Even though the transition in Slovenia has now been going on for almost 20 years the dominant organising vision of how things should be done in the society still exhibit significant socialist rigidity and a specific “transitional” corporate governance culture that weakens the innovative and productive potential of the business environment. The negative consequences of these economy-wide processes form significant barriers to enterprises needing or wishing to transform their organisations for successful IT deployment.

It thus does not come as a surprise that the analysis of organisational characteristics important for the successful deployment of IT showed that their implementation in all organisational dimensions stopped long before the international literature would deem it completed. However such serious mismanagement of the deployment of IT in the enterprises would not be possible without the current corporate governance culture in Slovenia, which limits the top management’s
and supervisory board members’ ability to implement significant changes. In the biggest group of enterprises which are directly or indirectly controlled by the state the limiting factors preventing a better deployment of IT are the inadequate personal abilities of politically appointed managers and supervisors and the interests of the political godfathers that put them there. In the second largest group of big enterprises, the so-called tycoon enterprises, these limiting factors are not present. However these enterprises are exposed to another, potentially even stricter, limiting factor of a high debt to equity ratio, which is the consequence of privatisation financed by debt. Because of the increased burden of debt in this group any significant organisational changes that would require large investments are also off the table.

Based on the findings above we can answer the second research question posed in this paper. We can state that because it is a transition economy Slovenia needs to address two additional challenges when deploying IT, which the major OECD members do not need to. These two challenges are a significantly slower knowledge transfer in the economy and a systemic mismanagement of the deployment of IT. These two issues also explain why there are no noteworthy organisational transformations taking place in enterprises in Slovenia that would significantly increase the productivity of the deployed IT. They also answer the research question which asks why IT deployment does not generate MFP growth in Slovenia, and frame the answer to the last research question posed in this paper, which asks which managerial and political issues need to be solved before the deployment of IT in Slovenia can generate similar benefits to those in the major OECD countries. To respond to this question in a way that would enable Slovenia to achieve OECD levels of success in the deployment of IT one cannot but call for significant reforms of the ways key interest groups in Slovenia behave.

These reforms have to reach the following three goals for the long-term success of the Slovenian economy. The first goal is a drastic improvement in scope, speed and size of the knowledge transfer process inside the Slovenian economy. Labour market and knowledge forming institutions in particular need to be redesigned in a way that will enable them to better satisfy the needs for knowledgeable IT sellers, IT consultants and workers using IT in the enterprises deploying it. The second goal that needs to be reached is a sweeping redesign of the appointment process to the supervisory boards and top management positions in enterprises directly or indirectly controlled by the government. This process has to start to include standard industry benchmarks as goals the management must achieve in their appointed term as well as strict oversight by the supervisory boards. The powers of oversight have to make the supervisory boards independent of managers (in
appointment and remuneration issues) and must include the ability to impose severe penalties on managers if they fail to reach the goals set at the start of the appointment process.

The third goal is to impose limitations on the state owned banks to prevent them from being the main underwriters of debt-financed management buyouts. If the state owned banks stop being the main financers of MBO’s in state owned enterprises the possibilities for political corruption will drastically decrease. Consequently the borrower’s debt to equity ratio will never be considered a non-issue for political reasons. The current financial crisis clearly exposed how unstable the foundations of “tycoon enterprises” privatised with the help of such political connections are and how shallow their free cash flow for investments is (Lahovnik, 2009). It is my hope that the above-identified problems of the deployment of IT as well as the suggested solutions will move policymakers in Slovenia and in other transition economies that recognize themselves to be in a similar situation towards the needed reforms. The current financial crisis can be seen as an opportunity for serious reforms as it has highlighted all the drawbacks of the current institutional system. Further research into the necessary institutional changes that would respond to the highlighted problems could galvanise public opinion that is presently hungry for solutions, and increase the pressure on the policymakers to finally take the needed steps.

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