Strategic management

Strategic Management is a quarterly journal addressing issues concerned with all aspects of strategic management. It is devoted to the improvement and further development of the theory and practice of strategic management and it is designed to appeal to both practicing managers and academics. Specially, Journal publishes original refereed material in decision support systems in strategic management.

Thematic Fields

- Mission and Philosophy of the Organization
- Culture and Climate of the Organization
- Effectiveness and Efficiency of the Organization
- Structure and Form of the Organization
- Strategic Analysis
- Aims and Strategies
- Process of Strategic Management
- Characteristics of Strategic Management in the New Economy
- Contemporary Ontological, Epistemological and Axiological Suppositions on the Organization and its Environment
- Analysis of the Organization and its Interaction with the Environment
- Structure and Dynamics of the Organizational Environment
- Uncertainty and Indistinctiveness of the Organizational Environment
- Synchronic and Diachronic Analysis of the Organizational Environment
- Analysis Techniques of the Organization
- Business Processes, Learning and Development within the Context of Strategic Management
- Evaluation and Measuring of the Potential and Realization of the Organization within the Context of Strategic Management
- Strategic Control in Contemporary Management
- Information Technologies in Strategic Management
- Business Intelligence and Strategic Management
- Decision Support Systems and Artificial Intelligence in Strategic Management

All scientific articles submitted for publication in Journal are double-blind reviewed by at least two academics appointed by the Editor's Board: one from the Editorial Board and one independent scientist of the language of origin - English. Reviewers stay anonymous. Authors will timely receive written notification of acceptance, remarks, comments and evaluation of their articles.
Contents

Qunli Sun
Power-Induced Corruption and Income Inequality: An Empirical Analysis in China 3-11

Miroslav Džupinka
The Importance of Audits in the Management Process in Public Sector Companies 12-15

Veselin Drašković, Anđelko Lojpur
Corporate Social Responsibility: Illusion vs. Real Possibility, Voluntarism vs. Compliance 16-21

Dejan Zdraveski, Margarita Janeska, Suzana Taleska
The UML Model of Business Intelligence System in Increasing Corporate Performance 22-27

Svetlana N. Apenko
Leadership of Human Resources and Project Teams in the Management of Strategic Changes in the Organisation 28-34

Marton Sakal, Lazar Raković, Darko Pantelić
Errors in User Developed Applications 35-41

Jovo T. Tauzović
Preliminaries of Modern Systems Management Concepts 42-53
Power-Induced Corruption and Income Inequality: An Empirical Analysis in China

Qunli Sun
Zhongnan University of Economics and Law Income Distribution Research Centre of China, China

Abstract
This paper studies how corruption and growth affect income distribution by using time series data from 1978 to 2010 in China. The analysis reveals that corruption significantly increases the degree of income inequality, while the economic growth is helpful to decrease the degree of income inequality. So, the key to decreasing income inequality is to prevent and punish corruption, reduce the monopoly of the administrative powers of economic and social resources, reduce the administrative powers of market intervention, gradually push forward the reform of political system and strengthen the democratic supervision of administrative power. In the meantime, the government should continue to deepen the market-oriented reforms, accelerate economic development and improve people's income share of national income to narrow the income gap.

Keywords
Public officials, power corruption, economic growth, income inequality.

Introduction
The current income distribution system in China is arranged according to the rule of work as the dominant segment; a variety of modes of distribution coexists, such as capital, labour, technology and management. Obviously, power is not involved in income distribution. However, when public officials use their public authority to interfere with the allocation, especially when the power holders capitalize their power and take the public resources into transactions, then power will affect the efficiency of resource allocation, thereby changing the pattern of distribution of benefits, and even make a significant impact on the distribution of income.

In the long term, the wage level of civil servants in our country is not high compared to other industries, and the growth rate of their wage is also quite low, especially compared to the nouveaux riches. In view of the fact that the overall quality of the civil servants’ performance is higher than most enterprise employees, the wages of public officials cannot reflect their workload and responsibilities. There is, therefore, a serious distortion in the incentive system. In this case, some of the civil servants are likely to seek some extra-wage income. In order to obtain such informal wage income, certain sectors of civil servants may take out some rent-earning activities by using their public powers and resources. When public officials or civil servants take advantage of their power to engage in market activities, and use their influence and public resources to participate in the market transactions, influence is bound to yield the excess revenue. However, this excess revenue is at the expense of public interest. Actually, this shows that corruption may affect the distribution of benefits, but not in a general sense. This allocation is based on the privileged class using their public influence to participate in the economic resource allocation, by ways of illegal or non-standardized operations, and is extremely unfair and works against social justice. As a result, misuse-of-office-induced corruption affects both the allocation of resources and income distribution, and enlarges the distortion of benefits distribution.

In the empirical research, Chen & Li (2010) used panel data for 30 provinces, municipalities and regions (excluding Tibet) during the period of 2000-2007 to study the impact of corruption on income inequality. Chen and Li respectively took
the Gini coefficient, Theil index, the coefficient of variation, and the logarithm of the coefficient of income variation as an indicator of income inequality on the one hand, and the ratio of the annual filing numbers, recorded at the Peoples’ Procuratorates, of embezzlement and bribery, cases of malfeasance in office to the number of public officers, as well as the ratio of the number of involved offenders to the number of public officials as indicators of the level of corruption in China on the other. The study found that corruption is the main reason that causes the income inequality between the city residents. Chen and Li estimated the illegal and abnormal earnings (IAEs), added this part of income to the normal income, and then finally calculated that the Gini coefficient increased from 0.403 to 0.493, and the income inequality increased by 22.49%, indicating that the IAEs increase income inequality.

Tanzi (1995) believes that corruption distorts the redistribution functions of the government. Furthermore, when the corruption-related earnings are held by those groups which are closely linked with government officials, then most of these groups are in high-income brackets. Blackburn & Forgue-Puccio (2007) show that the correlation between corruption and income inequality is positive. When the high earners pay bribes to corrupted officials to evade tax, then the government revenue will reduce, so that the redistribution functions of the government will be weakened. At the same time, the income gap between the high-income and low-income people will be wider than in non-corrupted environment.

Mehrara, Firouzae, & Gholami (2011) use panel data for 11 OPEC countries, as well as 32 OECD countries during the period of 2000-2007 and find that corruption increases the degree of inequality in the OPEC countries, but stands in a significantly negative correlation with income inequality in the OECD countries. Using the multilateral panel data during 1980-1997, Gupta, Davoodi, & Alonso-Terme (2002) find that corruption widens the income gap, increases poverty, inhibits the economic growth rate, distorts the tax system and programs which benefit the poor people, worsening the human capital gap, and increasing the uncertainty during the escalation of the phenomenon. They demonstrate that these are the main reasons that raise the degree of income inequality, and policies which reduce corruption may restrain income inequality and poverty. Li, Xu, & Zou (2000) and Chong & Calderón (2000) discover that corruption affects income distribution in an inverted U-shaped form: corruption in high-income countries maintains a positive correlation with income inequality, while corruption in low-income country stands in a negative correlation with income inequality. Based on the data for OECD, Asian, African and Latin American countries Gymiah-Brempong & Gymiah-Brempong (2006) and Glaeser & Saks (2006), Dincer & Gunalp (2008) based on the data for America, all find that corruption is an important reason which increases income inequality. Ullah & Ahmad (2007) use panel data for 71 developed and developing countries during the period of 1984-2002 and find that corruption not only affects economic growth, and also affects income distribution, so that it increases the degree of income inequality.

This paper is organized as follows: Section 1 presents the situation of power corruption and income inequality in China. Section 2 empirically analyses the effect of the power corruption on income inequality. Finally, section 3 summarizes and proposes conclusions in terms of policy.

1. An analysis of power corruption and income inequality in China

1.1. The wage level of civil servants and public officials

Before the analysis of corruption and income inequality, it is necessary to consider the wage situation of the public officials.

The per capita wage of public officials increased from 655 RMB yuan in 1978 to 38242 RMB yuan in 2010. The average salary of civil servants is 1.05 times the national average wage of urban workers during 1978-2010, and the ratio has not changed much. Over this period, the per capita wage of civil servants grew 1.72 times the per capita GDP in comparison with 1978, then decreased to 1.08 times in 1996, and increases to 1.49 times in 2002, and finally decreased to 1.28 times in 2010 (see Figure 1).

Next, we analyzed the industry ranking of the per capita wage of public officials. By ranking the annual per capita wages in various industries, we can find that the average wage of public officials ranked 7th in 16 industries in 1978, took up the best ranking at the 5th place in 1983 and the worst, at the 13th, in 1988. After that, the ranking increased gradually and took up the 7th place in the ranking till 2002. Overall, the ranking of public officials’ per capita during 2003-2010 fluctuated from 7 to 11 in 19 industries.
The analysis above shows that the average wage of public officials was only slightly higher than the national average wage of the industries during 1978-2010. However, by comparing the ranking of the average wage of the various industries, we can find the average wage of public officials ranked at the central position in general.

As the wages of public officials are relatively low, and the wage gaps between different levels of officials are small, so the wages cannot reflect the public officials’ abilities and contributions from every level. Besides, the average wage of public officials does not have any priority in relation to other industries, so some bad consequences may arise. For example, government agencies may lose or cannot attract talented people, which leads to a decline in the quality of government services. Moreover, some public officials use their influence to interfere with income distribution, impose monopoly on some categories of resources, let rent and rent-seeking and so on. They achieve lot of abnormal income by all means so that distort the income allocation and increase the income inequality. In addition, it is a motive for corruption.

1.2. Power-induced corruption in China

It is difficult to obtain and estimate information on corruption, as individuals involved in corruption activities do not wish to be identified. Hence, it is really hard to estimate the accurate scale and scope of corruption. However, we can still use the information published by the discipline inspection and supervision organs, the prosecutorial organizations and judicial organs annually to analyze the situation of corruption to a certain degree in our country, including the number of public officials violating law and discipline cases, suspected of the crime of corruption, bribery and malfeasance cases, the trial corruption cases, and the number of officials and money which are involved in these cases.

Here, we only use the data published by the interim report of the Supreme People’s Procuratorate every calendar year and the China Statistical Yearbook to analyze the changing trends of corruption since the reform and opening up in China. Figure 2 shows the cycle trend of the number of corruption cases filed by the discipline inspection and supervision organs during 1980-2010. From that we can see the number of corruption cases changed substantially before 1990, and the period of 1990-1998 is the peak period of corruption activities. After 1999, the number of corruption cases decreased and has maintained a relatively stable trend since.

The number of cases of bribery and malfeasance increased from 7000 in 1980 to 63953 in 1995, and then decreased to 32909 in 2010. During this time, the number of major cases increased from 89 in 1980 to 48066 in 1997, and then decreased to 18224 in 2010. In addition, there were 50000 people in total who were former leaders at section and country level involved during 1980-2010, including 3000 department and bureau level officials, and nearly 100 provincial and ministerial officials. Incurred economic losses in the period 1983-1987 1.63 billion RMB yuan, incurred economic losses in the period 1998-2002 amounted to 22.92 billion RMB yuan, incurred economic losses in the period 2003-2007 amounted to 24.48 billion RMB yuan, while incurred economic losses in 2009 and 2010 amounted to 7.12 billion and 7.4 billion RMB yuan respectively.

Figure 3 reports the trend in the number of people involved in corruption cases who were
former leaders at section and country level during 1988-2010. We can see that the number of people increased from 194 in 1988 to 2903 in 1997, decreased to 1714 in 1998, and then increased to the peak amount of 3375 in 2002. After that, the number of people decreased to an average amount of 2700 and levelled off.

![The number of corruption key cases](image)

**Figure 3** The trend in the number of people involved in corruption cases who were former leaders at section and country level.

**Source:** Based on the interim report of the Supreme People’s Procuratorate every calendar year, the China Statistical Yearbook of the relevant years, and the Chinese Procuratorial Yearbook of the relevant years.

### 1.3. Corruption Perception Index (CPI) of China

Above, we analyzed the scale of corruption in our country objectively, and now we will use subjective indicators to analyze it. There are numerous subjective indicators to estimate the scale of corruption in one country, where the Corruption Perception Index published by Transparency International (TI) from 1995 is the most influential and representative one. Besides, TI also published a Bribe Payers Index (BPI) to describe corruption. There are many other international organizations publishing a variety of subjective indicators, such as the Control of Corruption Index published by the World Bank, the Bribery, Corruption and Transparency indices published by the World Economic Forum, Irregular Payment, Legal Corruption, Bribes and Kickbacks indices published by the Swiss International Institute for Management Development, Business International Index, the corruption index published by International Country Risk Guide and so on. In this article, we use CPI to analyze the scale and scope of corruption in China.

The Transparency International investigates the views of observers from all over the world, including entrepreneurs, risk analysts and the general public, and then scores countries and territories based on how corrupt their public sector is perceived to be on a scale of 0-10, where 0 means that a country is perceived as highly corrupt and a 10 means that a country is perceived as very clean. Usually, we take the CPI score of 5 as a critical value. Specifically, when the CPI of a country is between 8 and 10, then it is a clean country; when the CPI is between 5 and 8, then it is a less clean country; when the CPI is between 2.5 and 5, then it is a country with serious corruption; when the CPI is less than 2.5, then it is a country with extreme corruption.

<table>
<thead>
<tr>
<th>Year</th>
<th>CPI Score</th>
<th>Rank</th>
<th>Country No.</th>
<th>Year</th>
<th>CPI Score</th>
<th>Rank</th>
<th>Country No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>5.78</td>
<td>4.22</td>
<td>1995</td>
<td>2.16</td>
<td>7.84</td>
<td>40</td>
<td>41</td>
</tr>
<tr>
<td>1979</td>
<td>5.77</td>
<td>4.23</td>
<td>1996</td>
<td>2.43</td>
<td>7.57</td>
<td>50</td>
<td>64</td>
</tr>
<tr>
<td>1980</td>
<td>5.73</td>
<td>4.27</td>
<td>1997</td>
<td>2.88</td>
<td>7.12</td>
<td>41</td>
<td>52</td>
</tr>
<tr>
<td>1981</td>
<td>5.66</td>
<td>4.34</td>
<td>1998</td>
<td>3.5</td>
<td>6.5</td>
<td>52</td>
<td>85</td>
</tr>
<tr>
<td>1982</td>
<td>5.57</td>
<td>4.43</td>
<td>1999</td>
<td>3.4</td>
<td>6.6</td>
<td>59</td>
<td>99</td>
</tr>
<tr>
<td>1983</td>
<td>5.45</td>
<td>4.55</td>
<td>2000</td>
<td>3.1</td>
<td>6.9</td>
<td>63</td>
<td>90</td>
</tr>
<tr>
<td>1984</td>
<td>5.3</td>
<td>4.7</td>
<td>2001</td>
<td>3.5</td>
<td>6.5</td>
<td>58</td>
<td>91</td>
</tr>
<tr>
<td>1985</td>
<td>5.14</td>
<td>4.86</td>
<td>2002</td>
<td>3.5</td>
<td>6.5</td>
<td>59</td>
<td>102</td>
</tr>
<tr>
<td>1986</td>
<td>4.96</td>
<td>5.04</td>
<td>2003</td>
<td>3.4</td>
<td>6.6</td>
<td>66</td>
<td>133</td>
</tr>
<tr>
<td>1987</td>
<td>4.77</td>
<td>5.23</td>
<td>2004</td>
<td>3.4</td>
<td>6.6</td>
<td>71</td>
<td>146</td>
</tr>
<tr>
<td>1988</td>
<td>4.57</td>
<td>5.43</td>
<td>2005</td>
<td>3.2</td>
<td>6.8</td>
<td>78</td>
<td>158</td>
</tr>
<tr>
<td>1989</td>
<td>4.35</td>
<td>5.65</td>
<td>2006</td>
<td>3.3</td>
<td>6.7</td>
<td>67</td>
<td>163</td>
</tr>
<tr>
<td>1990</td>
<td>4.3</td>
<td>5.7</td>
<td>2007</td>
<td>3.5</td>
<td>6.5</td>
<td>72</td>
<td>179</td>
</tr>
<tr>
<td>1991</td>
<td>3.94</td>
<td>6.06</td>
<td>2008</td>
<td>3.6</td>
<td>6.4</td>
<td>72</td>
<td>180</td>
</tr>
<tr>
<td>1992</td>
<td>3.58</td>
<td>6.42</td>
<td>2009</td>
<td>3.6</td>
<td>6.4</td>
<td>79</td>
<td>180</td>
</tr>
<tr>
<td>1993</td>
<td>3.03</td>
<td>6.97</td>
<td>2010</td>
<td>3.5</td>
<td>6.5</td>
<td>78</td>
<td>178</td>
</tr>
<tr>
<td>1994</td>
<td>2.46</td>
<td>7.54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The 1978-1994 CPI data are quoted from Guo, 2007, p. 223. The 1995-2010 CPI data are from the website of Transparency International, 2013.

Table 1 presents the ranking of the CPI score of China. During 1978-1985, the CPI scores of 1 The number of people here is calculated from the total number of people from 1998 till 2002, minus the number of people between 1998 and 2001.

China were between 5 and 6, showing China was a less clean country. However, the CPI scores went down since 1986 from 4.96 and reached a minimum value of 2.16 in 1995 with a ranking of 40 in 41 countries, presenting a rocketing trend of corruption in China. Subsequently, CPI increased year by year from 2.43 in 1996 to 3.5 in 1998, and during 1999-2010 the CPI scores were quite stable, with an average score of 3.4, showing the degree of corruption had somewhat decreased. However, China is still a country with serious corruption, ranking 78 in 178 countries in 2010.

The release of the CPI deepens the awareness of corruption in the society and provides the data base for the study of corruption, enabling cross-country comparisons and annual comparisons of the extent of corruption. However, the CPI only measures the perception of corruption held by people, rather than being based on the objective data such as number of cases of corruption, effects of corruption and so on. Besides, as different people maintain different opinions, awareness and evaluations regarding corruption, and the subjective perception of corruption cannot equal to the corruption in reality. Because of the secretive nature of corruption, and coupled with the information asymmetry, it is impossible to find and punish all the corruption activities. So the data such as number of cases of corruption, the number of people involved in corruption cases etc. published by the government only reflect a small part of the real scale of corruption, constituting the “Corruption Black Number”.

1.4. Income inequality

Gini coefficient is the most widely used indicator for measuring income inequality, while some researchers use the revenue gap between urban and rural populations to estimate the degree of income inequality (Lu, Chen, & Wan, 2005; Wei & Wu, 2001). The Chinese Residents Income Distribution Group sampling surveyed the households and estimated the Gini Coefficients of China were 0.382, 0.45 and 0.47 in 1998, 1995 and 2002 respectively. (Li, Sicular, & Gustavsson, 2008, p. 13) Different Gini coefficients estimated by different researchers (Hong, 2008; Wang, 2009) all show that the overall Gini coefficient of China is increasing, and the degree of income inequality is rising.

Li & Yue (2004) divide the overall personal income gap of China into three parts: inner-urban, inner-rural and urban-rural income gap, and find the contribution of urban-rural income gap to the total personal income gap had increased by 7 percent, rising from 36% in 1995 to 43% in 2002. World Bank (1997) points out that the urban-rural income gap can account for more than half of the total personal income gap of China in 1995, and the changes of urban-rural income gap can account for 75% of the changes of the total personal income gap.

Figure 4 shows the Gini coefficients of the national resident incomes. (Ravallion & Chen, 2007)

Li & Yue (2004) divide the overall personal income gap of China into three parts: inner-urban, inner-rural and urban-rural income gap, and find the contribution of urban-rural income gap to the total personal income gap had increased by 7 percent, rising from 36% in 1995 to 43% in 2002. World Bank (1997) points out that the urban-rural income gap can account for more than half of the total personal income gap of China in 1995, and the changes of urban-rural income gap can account for 75% of the changes of the total personal income gap.

Figure 4 shows the Gini coefficients of the national resident incomes. (Ravallion & Chen, 2007)

If we do not adjust the cost of living between urban and rural areas, then the Gini coefficient was 0.31 at the beginning of reform and opening up in 1981, and 0.42 in 1993 which exceeded the international warning line of 0.4. Despite a slight reduction to 0.4 in 1996, the Gini coefficient gradually increased to 0.45 in 2001. However, if we adjust the cost of living between urban and rural areas, then the Gini coefficient was 0.28 and 0.39 in 1981 and 2001 respectively. Although the income gap had widened, yet it had not exceeded the international warning line.
Since the reform and opening up, the incomes of Chinese urban and rural populations have enjoyed a significant improvement. The per capita disposable income of urban residents rose from 343.4 RMB yuan in 1978 to 19109.4 RMB yuan in 2010, an average annual growth of 13.38%. The per capita net income of rural residents rose from 133.6 RMB yuan in 1978 to 5919 RMB yuan in 2010, an average annual growth of 12.58%. During this period, the Chinese GDP shared an average annual growth rate of 15.82%. If we take the prices of 1978 as the comparable prices, we can calculate that the annual growth rate of the real per capita disposable income of urban residents is 7.6%, the annual growth rate of the real per capita net income of rural residents is 6.83%, and the annual growth rate of the GDP is 6.83%. That is, both at the current and comparable prices, the growth rate of the income of the urban residents is lower than the growth rate of the GDP, while the growth rate of the income of the rural residents is not only lower than that of the income of the urban residents, but also the growth rate of the GDP.

Although the per capita income of urban and rural residents has been greatly improved, yet it cannot be ignored that the per capita income gap between urban and rural residents is expanding. Figure 5 shows the trend of the per capita income gap of urban and rural populations as well as urban-rural income ratio during the period 1978-2008.

Figure 5 shows the per capita income ratio of urban residents to rural residents was 2.57 in 1978. As the reform and opening up of China first started from the Rural Household Contract Responsibility System, the income of rural residents enjoyed a significant improvement during 1979-1985, and the urban-rural income ratio decreased to 1.86 in 1985. However, after 1985, with the beginning and deepening of urban system reform, the income of urban residents increased rapidly, and the urban-rural income gap expanded again. The urban-rural income ratio increased to 2.86 in 1994. After the mid-1990s, due to the large-scale reform of the state owned enterprises, lots of urban residents were laid off, and the urban-rural income ratio decreased to 2.47 in 1997. Subsequently, the income gap between urban and rural areas further expanded. The urban-rural income ratio rose to 3.33 in 2009, and then went down slightly to 2.23 in 2010.

2. The effect of the power corruption on income inequality

Corruption leads to unequal opportunities, inhibits the economic growth rate, reduces social welfare spending, decreases the educational opportunities of the marginalised groups, increases poverty, and decreases the opportunities and potentials of the marginalised groups to earn income. Therefore, a
considerable part of the income gap is caused and expanded by corruption. Besides, in the previous studies, most of the researchers ignored the impact of economic growth on income inequality, and some scholars believe that the pursuit of high efficiency of economic growth may widen the income gap. We can therefore use the following empirical model to analyze how corruption and economic growth affect income inequality in practice.

2.1. Model, variables and data description

To analyze how corruption and economic growth affect income inequality, we can establish the following model:

\[ \text{Inequality}_t = \beta_0 + \beta_1 \text{Corruption}_t + \beta_2 \text{GDPRate}_t + \beta_3 X_t + \epsilon_t \]

In the formula above, \( t \) is time, while \( \text{Inequality} \), the explained variable, represents income inequality indicators; here we use Gini coefficient and the real urban-rural income ratio. \( \text{Corruption} \), the main explanatory variable, represents corruption; here we use Corruption Perception Index. \( \text{GDPRate} \) is the real economic growth rate; \( X \) is a set of control variables, which we can use the indicators such as trade dependence (open), the ratio of government expenditure to GDP (govsize), and the degree of denationalization (reform) and so on. \( \epsilon \) is the random error term. Table 2 shows the descriptive statistical results of the variables.

Table 2 The descriptive statistical results of the variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observation</th>
<th>Mean value</th>
<th>Std. deviation</th>
<th>Min.</th>
<th>Max.</th>
<th>Variable description</th>
</tr>
</thead>
<tbody>
<tr>
<td>gini(^5)</td>
<td>31</td>
<td>0.37</td>
<td>0.07</td>
<td>0.24</td>
<td>0.46</td>
<td>Gini coefficient</td>
</tr>
<tr>
<td>inequality</td>
<td>33</td>
<td>2.62</td>
<td>0.48</td>
<td>1.82</td>
<td>3.33</td>
<td>the urban-rural income ratio</td>
</tr>
<tr>
<td>corruption(^7)</td>
<td>33</td>
<td>5.99</td>
<td>1.07</td>
<td>4.22</td>
<td>7.84</td>
<td>Corruption=10-CPI</td>
</tr>
<tr>
<td>gdprate</td>
<td>32</td>
<td>0.10</td>
<td>0.03</td>
<td>0.04</td>
<td>0.15</td>
<td>real GDP growth rate</td>
</tr>
<tr>
<td>govsize</td>
<td>33</td>
<td>0.19</td>
<td>0.05</td>
<td>0.11</td>
<td>0.32</td>
<td>the degree of denationalization</td>
</tr>
<tr>
<td>open</td>
<td>33</td>
<td>0.34</td>
<td>0.16</td>
<td>0.10</td>
<td>0.65</td>
<td>the degree of denationalization</td>
</tr>
<tr>
<td>reform</td>
<td>33</td>
<td>0.85</td>
<td>0.04</td>
<td>0.81</td>
<td>0.92</td>
<td>the degree of denationalization</td>
</tr>
</tbody>
</table>

\(^5\) We use the ratio of employee numbers in non-state-owned economy to the total numbers of employees to represent the degree of government expenditure.

\(^7\) The national Gini coefficients are from Wang, 2009.

Corruption index is quoted from Table 1 in this paper.

The data used in the econometric analysis including GDP, population, number of workers in non-state-owned owned economy, total numbers of employees, total imports and exports, per capita disposable income of urban residents, per capita net income of rural households, financial expenditure budget and so on are all quoted from the China Statistical Yearbook of the relative years.

2.2. Empirical results and analysis

Table 3 shows the results of the empirical model. The results show that the estimates in the table, regardless of whether it is using the Gini coefficient or the urban-rural income ratio as the income inequality indicator, when we control the size of government, the openness and privatization indicators, the effect of corruption on income inequality at the 1% level is significantly positive. That is, corruption leads to increased levels of income inequality. Economic growth and income inequality stand in a significant negative correlation, which fully illustrated that with the development of economy, the improvement of income is conducive to shrinking the income gap.

In addition, we can find in the results that such indicators as govsize, open and reform show a positive correlation with income inequality, which means these factors expand the income gap to a certain extent.

Our empirical results show that the expansion of income inequality is not due to emphasizing the priority to efficiency; on the contrary, the rapid growth of economy has narrowed the income gap. As corruption leads to unequal opportunities and affects the social fairness and justice, corruption is an important reason that expands the income gap.

Figure 3 The empirical results of the effect of corruption on income inequality

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Gini coefficient as the explained variable</th>
<th>The real urban-rural income ratio as the explained variable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>corruption</td>
<td>0.092</td>
<td>0.042</td>
</tr>
<tr>
<td></td>
<td>(0.22)</td>
<td>(3.74)</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>gdprate</td>
<td>-0.305</td>
<td>-0.413</td>
</tr>
<tr>
<td></td>
<td>(2.89)</td>
<td>(2.11)</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>govsize</td>
<td>1.070</td>
<td>0.460</td>
</tr>
<tr>
<td></td>
<td>(4.39)</td>
<td>(2.38)</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>open</td>
<td>0.252</td>
<td>0.149</td>
</tr>
<tr>
<td></td>
<td>(5.82)</td>
<td>(2.08)</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>reform</td>
<td>0.443</td>
<td>1.244</td>
</tr>
<tr>
<td></td>
<td>(1.75)</td>
<td>(0.72)</td>
</tr>
</tbody>
</table>

In view of the above, the government should focus on the equitable distribution of social wealth in the pursuit of efficiency, strengthen the democratic supervision of the executive power, intensify efforts to prevent and punish the power corruption, reduce the monopoly of the administrative powers of economic and social resources, inhibit the impact of administrative power on the market intervention, and gradually push forward the reform of political system. In the meantime, the government should continue to deepen the market-oriented reforms, accelerate economic development, and improve people’s share of national income so as to narrow the income gap efficiently.

### References


Correspondence

Qunli Sun
Zhongnan University of Economics and Law
82# Nanhu Avenue, East Lake High-tech Development Zone
Wuhan, China
E-mail: sunqunli@znufe.edu.cn
The Importance of Audits in the Management Process in Public Sector Companies

Miroslav Džupinka
Alexander Dubček University of Trenčín, Slovakia

Abstract
Public sector companies constitute an important part of creation, distribution and use of social resources. Trustworthiness of information presented in financial statements is of substantial importance for decision making by the management of such companies, but also for external users. Credibility and truthfulness of information is achieved by a correct approach to the creation and structure of financial statements, and quality of independent verification of objectivity of presented statements. Auditing has become an irreplaceable tool for assessing the truthfulness and faithful depiction of a company’s financial situation and actual economic status. Application of international standards is a practical prerequisite for the quality of auditors’ services.

Keywords
Companies in public sector, audit, management.

Introduction
Since 2008, the Slovak Republic has launched the process of reforms of public finances and accepted a new methodology of accounting and financial reporting in the public sector, with the application of standards of the European Commission and the International Public Sector Accounting Standards (IPSASB, 2013). One of the obligations of the Slovak Republic as an EU member is to report the fiscal position of the public administration according to an international methodology and apply procedures of accounting consolidation of statements, i.e. a profit and loss account. The public sector was “immune” to modifications of substantial character for a long period of time and the cash flow aspect of its transactions survived till 2008. The transition to accrual accounting with application of the components of business accounting meant accumulating a database for creation of requested outputs of individual financial statements and consolidated financial statements in every accounting unit, which represents meeting the obligation of the Slovak Republic in the area of state reporting as a final consequence.

Changing conditions in public sector companies and a higher risk of inaccuracy related to this fact are reflected first of all in the dilemma of authors, users and verifiers of economic information contained in financial reports. Usefulness and benefit of the information derived from accounting is the most important feature of financial statements. The degree of trustworthiness of accounting information is determined by the correctness and efficiency of the decision making by the users: founders of individual companies, budget creators, the general public, suppliers, consumers, financial institutions, rating agencies, etc.

Dilemmas of an information user, i.e. company management, can be solved by thorough knowledge of the rule of accurate and truthful information presented in balance sheet statements.

1. The environment of financial reporting information creation and presentation
First of all, the authors of financial statements, the users of information, and the verifiers of financial statements participate in a process of increasing
the trustworthiness of the financial management of a company. An ethical approach to the creation, presentation and use of accounting information, characterised by qualitative features such as relevance, timeliness, intelligibility, comparability, and prognostic value, is a common goal of all. The role of an audit – an independent verification of objectivity of provided information, is irreplaceable in this process. (Fabian, & Majorová, 2011)

1.1. A change in the approach to accounting
A traditional environment of information creation and use changes in parallel with changes in economy. Several new factors changing the procedures of authors and the needs of users of information from financial statements can be identified with changes of the national system, but also due to impact of international standards (globalisation):

- processes of globalisation and regional integration, e.g. EU expansion, acceptance of IPSAS,
- increased risk of an economic activity resulting from the effects of competition,
- changes in understanding of the role of a public sector company in a society, e.g. the issue of impact of a company on a state of environment or impact on welfare of society members,
- extended scope and forms of international cooperation, e.g. cross-regional cooperation, drawing of EU funds,
- a process of privatisation in countries with system transformation,
- allocation of free excess capital in retirement funds,
- development of knowledge-based economy reflected in a growing role of intangible assets in economy.

The most important changes in the new methodology of accounting and reporting of public sector companies:

- simplified monitoring of trading income from all activities of a company,
- introduction of an obligation to defer costs and revenues,
- an obligation to create reserves,
- an obligation to create adjusting entries,
- changes in the method of accounting the finances of subsidiaries aimed at the correct structure of the founder’s consolidated financial statements,
- introduction of the term “transfers” for describing mutual accounting relations of both monetary and non-monetary, budgetary and off-budgetary character,
- a new concept of accounting and reporting of transfers divides public sector subjects into the main groups: central administration, public administration, territorial self-administration, other subjects, e.g. businesses, foundations, different associations, and others.

1.2. A truthful and accurate representation
A rule of truthfulness and accuracy of presented information is the basis of accounting systems in all types of accounting units all over the world. Independently from legal systems, political and economic relations, the usefulness of contained information is the most important feature of financial statements. A useful piece of information must be helpful in the valuation of past, present and future events. Features such as accuracy and truthfulness, complexity, comparability, and its prognostic value depict the usefulness of financial reporting data.

The following entities shall observe rules of creation of an accurate and truthful representation:

- authors in common accountancy and in a balance sheets, including information in notes,
- auditors expressing their opinion if financial statements are structured in all important relations in accordance with a valid frame of reporting,
- users of information in its interpretation (i.e. without excessive reduction and simplification) and decision-making.

The procedure of authors (creators) of accounting information is defined by an internal ethical codex of a company in addition to statutory standards (an Act on Accounting, accounting procedures, account classification, and others).

Example: An obligation of financial management to achieve the state wherein all statements and accounting books, recording, records and accounts of a company must provide an accurate and full summary of transactions and events and be in compliance with current legislation, as well as with accounting principles and standards, results from an ethical code. Creation of reports and statements in a company internally, as well as providing false information to external users is not
allowed. The author complies with the rule of providing full, fair, accurate, timely, and understandable information in all her/his reports, statements and documents issued or provided in accordance with current legislation. The same also applies to all other public information outputs of a company.

The procedure of verifiers: A purpose of the auditor’s work is to verify if common accounting is maintained correctly and to verify an accurate and truthful representation of financial statement structure in all important relations in accordance with a current legal framework of accounting, accounting and audit of a public sector.

An auditor of financial statements observes current International Standards of Auditors (ISA) and acts in accordance with the Ethical Codex for accounting specialists issued by the International Federation of Accountants (IFAC). However, auditor are not users of information from financial statements – they do not make decisions concerning an accounting unit; however, they express their opinion on financial statements; thus financial statements become a subject of their interest.

The procedure of users has two aspects: A variety of needs and interests of the users of accounting information, such as founders of companies, managers (i.e. company management), the general public, suppliers, creditors, employees, potential investors, government and its institutions, financial institutions, rating agencies, is reflected in a wide range of requirements for accounting information (by meeting the functions of accounting).

The quality of information used depends on the level of its interpretation to a large extent.

Accountancy is to depict (i.e. model) an economic reality with a maximum true view. The reality (its modelling) is live and any piece of information contains a part of this reality or its simplification, respectively. The rate of truthfulness and accuracy is not dependent only on the creation and presentation of data characterising the reality itself, but primarily on its interpretation.

In the interpretation of the same information in relation to the reality, it is necessary to define, codify (e.g. account classification) and aggregate (e.g. in a form of indices, indicators, standards, rates) the information. The information processed in thus arranged manner is a complex depiction of reality, tendencies, and interests. Modelling reality is of concern.

The following rules are observed in modelling (analyses or evaluations) of reality:

- Reality is simplified down to its basic aspects (basic characteristics); the data and facts are reduced down to only substantial data and facts;
- Every reduction and simplification that is done with a specific intention and interpretation is subject to this intention (tendency).

2. The importance and quality of audit

Audit of financial statements refers to their verification, i.e. examination by an independent specialist – the auditor. The result is the expression of an auditor’s opinion, i.e. statement if the audited accounting information contained in financial statements and notes provides an accurate and truthful image of the proprietary and financial standing of a company.

Audited financial statements are a credible source of information for decisions by all users, including public sector company management. Thus, the main goal of audit, i.e. to ensure credibility of accounting information of those economic companies having an obligation to publish financial statements and annual reports, is achieved as a result.

In their activities, auditors are bound not only by the obligation to provide services correctly, but also to observe ethical principles, standards and rules. Those are the principles on which the trust by both the clients and the professional public in an auditor is based that s/he will meet her/his mission correctly and on an adequately professional level.

An auditor is to observe ethical principles applying to an auditor’s professional responsibility such as: independency, integrity, objectivity, professional ability and due care, confidentiality of information, professional behaviour, and the application of specialised standards. (Slovenská komora auditrovo, 2009)

The following is decisive for permanent improvement of auditor’s services:

1. Within the range of auditor’s activities:
   - respecting ethical standards, first of all independency, confidentiality, internal quality control of auditors and auditing firms,
   - meeting technical standards, i.e. thorough application of standards, primarily those intended for audit documentation and standards for documenting specific procedures,
establishing public control of audit quality, allowing the professional public to enter the process of improving quality of the auditor’s profession, but also representing an option for auditors to assure the public of the quality of the auditing services provided.

2. Within the range of authors and users of the auditing services:
- apply audit as a tool for improving the trustworthiness of financial statements published by the company management,
- understand audit as an important component of protection proprietary rights and public property administration,
- not to limit the range of public sector companies subject to compulsory audits. (Slovenská komora auditrovo, 2009)

Conclusion

The use of economic information is becoming one of the decisive issues of financial control of public sector economic subjects. Rather than the availability of information, the crucial issues are the trustworthiness and ability to master it, selection, and the application itself.

With the increasing volume of information (data):
- demands for its qualitative features such as correctness, relevancy, timeliness, and comparability are increasing,
- the volume of misleading, erroneous and incorrect information is also increasing;
- author’s responsibility for correctness of information is disappearing.

- changes of the strategy, organisation and control of public sector accounting units (cyberspace, integrated consolidated units, etc.) are taking place.

Finally, it can be expected that all companies should comply with both the letter and the spirit of rules for appropriate cost-effectiveness, accounting and presenting of both individual and consolidated financial statements.

The commercial management of a company should:
- use and present reliable and objectively verified information presented in financial statements,
- accept rules that will assure that all financial transactions must be recorded accurately, correctly and honestly in corresponding accounting books available to counsellors (supervisors) and auditors for review,
- take necessary steps to establish an independent audit system with an effort to clarify all transactions in conflict with ethical principle,
- finally, take reasonable corrective measures for the company to avoid any consequent tort.

References


Correspondence

Miroslav Džupinka
Alexander Dubček University of Trenčín
Prúdy 23, 911 05, Trenčín, Slovakia
E-mail: dzupinka@interaudittn.sk
Corporate Social Responsibility: Illusion vs. Real Possibility, Voluntarism vs. Compliance

Veselin Drašković
University of Montenegro, Faculty of Maritime Studies in Kotor, Montenegro

Anđelko Lojpur
University of Montenegro, Faculty of Economics in Podgorica, Montenegro

Abstract
The contemporary process of globalization as a determinant of development of institutionally pluralist market economies causes the business community to acknowledge a number of factors that go beyond the boundaries of classical economic theory. Effective company management entails building mutual rational relationships and constructive communication with all the stakeholders in the business processes. The financial success of companies depends on this. Analysis of the activities of modern-day companies entails the acknowledgement of their positive and negative impacts on society and natural environment. In such conditions, corporate social responsibility (CSR) is becoming not only an increasingly important research phenomenon, but also an institution, which serves as an indicator of civilization and sustainable development.

The aim of this article is to demonstrate the importance of the institutional framework in regulating CSR, to analyze some key aspects and issues related to the observed phenomenon, and define its current position. It starts from the assumption that CSR gradually changes, but its position is on the line between rhetorical illusion, real (voluntary) options and forced (institutional) commitments. The conclusion is that achieving balance between economic, environmental and social imperatives must be institutionally defined.

Keywords
Corporate Social Responsibility, sustainable development, corporate governance.

Introduction
Although it is increasingly accepted that CSR is about voluntary activities, this does not end the controversy over the voluntary nature of CSR. The controversy is being kept alive by two unresolved questions. The first concerns the adequacy and role of business regulation, and the second is whether business should determine its social responsibility where society has not incorporated its expectations of business into legally binding requirements. Some see CSR as an alternative to regulation, and some proponents of CSR want acceptance of its voluntary nature to be translated into acceptance of the fact that voluntary initiatives are the sufficient and preferred means of addressing the social consequences of business activity.

The proponents of CSR are trying to explain that a company can operate successfully while operating responsibly in relation to stakeholders, the society and the environment. Some western companies have been “involved” in the idea of “broader social responsibility” since the 1970s, but reality shows that most of them have not done much in that field. In the economic realities of transition countries, the process of corporate governance has just got out of the “infancy” phase and, in the language of the life cycle theory, arrived somewhere near the stage of “puberty”. When we know all this, it is clear that one cannot expect much in terms of CSR in transition countries in the near future.

The subject of our analysis in this article is the issue of corporate governance in the context of its
CSR. The activities of creation and development of institutional support of the mentioned phenomenon cannot be seen only as a reaction to the major conflicts of interest, affairs and corruption scandals spawned by corporate governance in market economy countries. On the contrary, through the prism of sustainable development, overcoming the gap between the legislation and its application in daily practice must be constantly worked on.

The European Union has recognized in its numerous documents the rule of law and free economy as key principles for building prosperous societies. In this sense, good corporate governance is expressed in terms of legality, security and transparency. They are necessary conditions for the free flow of capital, goods, people and information. Legality is in all this just a starting point, because the corporate culture is necessary as well. From the perspective of sustainable development, in the previous context, the following question arises: are there any chances for CSR to impose itself paradigmatically as the predominant form of business strategy? This refers not only to the global, European and regional frameworks, but our domestic environment as well, where the institutional framework is underdeveloped.

This issue, of course, entails a few logical questions: is there a place for sustainable development in modern conditions, in which the corporations and their “pathological power” are dominant? Is it realistic to expect corporations to behave ethically in the neo-liberal capitalist system, which has been created at the global level by the largest corporations and states, which is driven by selfish interests and insatiable greed for profit? Is it possible to build a conflict-free relationship between corporations, profit, and sustainable development in the near future? These are all issues that require an urgent response, which is of primary importance for the fate of mankind. It is multidimensional, multidisciplinary, complex and contradictory. As such, it appears to exist more as a theoretical abstraction and alternative for researchers and a practical desire of billion consumers, than as a readily realizable institutional initiative.

In this article, we will try to give at least an approximate answer to some of the questions directly and indirectly, with no pretensions to make our opinions and suggestions final.

1. Strength and weakness of the corporation – illusion vs. real possibility

Providing long-term yield to the shareholders is the primary aim of each corporation. However, managers often make decisions resulting in a negative outcome, not only for the corporation but also for its environment. Let us recall the various frauds (Arthur Andersen, WorldCom, Enron, Parmalat, TE, ImClone etc.), which have caused a drop in public confidence in corporate governance, the morality of today’s companies and socially responsible behavior of corporations. A recent study by Gallup showed that 90% of Americans thought that the people who run corporations do not care about the interests of their employees; only 18% of respondents believe that corporations care about their shareholders, while about 43% of respondents believe that the members of the Executive Board are obsessed only by concern for personal gain. A similar survey in the UK has shown that such an opinion is present even at 95% of the respondents.

A. Chandler characterized the modern corporation as the most important creation of the 20th century. But, nearly two centuries before that, even in the initial stages of forming a corporation, when they were far away from their current forms and power, B. Thurow uttered a cautionary note that they “do not have a soul that could be saved, or a body that could be detained”. N. Chomsky points out that “the corporation has no moral conscience ... and as an institution it is monstrous”.

Understanding the corporation in the manner that J. Bakan did in his cult work „Corporation-the Pathological Pursuit of Profit and Power” suggests that the evil that corporations today emanate is nothing new and that the examples of corporation immorality are as old as the corporations themselves. Bakan (2004, p. 6) states, “In his work ‘The Wealth of Nations’ Adam Smith warned that because the money of other people cannot be entrusted to managers, neglect will be the result of corporate business organization. Indeed, at the time when Smith wrote this, i.e. in 1776, the institution of the corporation had been banned in England for more than 50 years. In 1720, the English Parliament, laden with cases of fraud on the stock market, had outlawed the institution of the corporation, although with some exceptions”.

Corporations in their infancy in the U.S. were small; they had clearly defined contracts with the
state, they knew what they could produce, how long they would have the right to work, the amount of capital was regulated, they were not allowed to take over the other companies, etc. Therefore, they were subordinated to serve a man. Over time, deviation from the initial idea occurred. The corporations have grown to huge proportions, so that some of them go beyond the economic power of many states. For example, the Wall Mart, the world’s largest company by the number of employees, stands immediately behind the 20 largest world countries according to the earned income, and behind it there are other 15 companies. Looking through this prism, as well as in the context of extremely serious environmental problems caused by the corporations, it is logical to raise the question of endangered global social development and its sustainability.

It is not disputable that the power of corporations (and their owners) grew out of the exploitation of social resources, wherever they are. In economic jargon, this means that the Pareto optimum is not being respected, as the private interest is being forced to the detriment of the public interest. Forcing the ideology of individualism, unlimited private property and economic freedom (ignoring the fact that the above principles should be applicable to all, to the masses, and not only to the rare individuals) is the motto of economic neo-liberalism. The former is possible only in conditions of fiasco of social and economic institutions. Therefore, the establishment of an institutional framework and its application is a prerequisite for CSR, both in their internal and external environment, because many “morbid” disorders of corporations are evident, relating to a) indifference to the feelings of others, b) inability to maintain stable and enduring social relationships, c) indifference regarding the safety of others and d) dishonesty (repeated lies and deception of the consumers, society etc.).

When all of this is known, in modern conditions of a fairly big threat to the planet, and through the prism of the saying that “a big business is too big to be human” (H. Ford), and that the corporation was an “ingenious tool for obtaining individual profit without individual responsibility” (A. Biers), one can rightly ask the question whether CSR category may be more a necessity or is it the result of consciousness and notions of responsibility and ethics, and even necessity, or be subject to strict institutional changes (orders). It seems that for the salvation of the planet and of humanity, the second variant must be imperative for the sustainable development. Until today there were too many consequences to be able to continue to ignore the needs and interests of those who may in the future suffer even greater consequences of irresponsible business decisions made by corporations and their managers.

2. Why is CSR needed?

CSR implies that companies are not responsible only to shareholders for the earned profit, but also to individuals and groups (i.e. all stakeholders) to which the profit reflects in any way. It consists of obligations of businessmen to pursue those regulations, make those decisions and take those steps which are desirable in terms of objectives and values represented in society. Most often cited in the literature is the definition by the World Business Council on Sustainable Development (2000), which states that CSR stands for “constant commitment of the business world to behave ethically and contribute to economic development, at the same time improving the quality of life of the work force and their families, and local communities and society in general”. An interesting definition of CSR is proposed by Carroll & Bucholtz (2003, p. 36), who believe that it should “unite economic, legal, ethical and philanthropic expectations of the society, in relation to the organizations at some point”.

Being socially responsible means not only to fulfill legal obligations, but also to go further and invest more in human capital, the environment and relations with stakeholders (Green Article, 2001). M. Porter believes that social responsibility in many forms, including philanthropic, directly determines the competitive advantage of the company, so it could be concluded that it is a “high-demand commodity” on a global scale.

It is indisputable that the following key principles that connect all the existing definitions of CRS are being imposed: participation in community life, accountability, sustainability, transparency, ethical behavior (corruption), honesty, etc. In that sense, their common features are subdivided into the following: a) they are universal and apply to all types of businesses; b) their realization is on a voluntary basis; c) they are focused on cooperation with the stakeholders; d) they express obligation to contribute to the quality of life; e) they emphasize development, and not only the economic growth; f) socially responsible companies hold onto the “triple results” approach (the impact on society, economy and environment).
Acceptable approach to CSR involves the integration of three basic concepts: the concept of profit, which assumes that the primary responsibility of management and managers is business and profit maximization, stakeholder concept, which advocates that the management should take care of the impacts of the activities of the company to its stakeholders and recognize their interests in decision-making and social power/social responsibility concept, which assumes that the company and the business must have a certain social responsibility for the possession of power.

Proponents of emphasized corporate social responsibility do not question the legitimacy of profit. They are just trying to redefine it to include the set of goals that are of general public interest. Notion of “corporate conscience” is an attempt to humanize the company, to give their managers a whole range of motives that transcend selfish race of their owners (shareholders) for the wealth. Arguments “pro” the emphasized social responsibility start from the fact that the organization is a natural member of society, that it takes resources from society and that it should pay an equivalent amount, helping the company to solve many problems. Furthermore, among the arguments “pro” that are most often heard are that organizations need to fix what went wrong themselves (air pollution, environmental accidents, etc.), and that the organizations that treat the community with care gain the goodwill on that basis, the society treats them kindly and more.

According to the CSR literature, the motives for engaging in social and environmental initiatives differ significantly. Some companies think of CSR as an instrument to improve the relationship with the stakeholders (customers, regulatory authorities, local communities, NGOs etc.), others as a means to increase operational efficiency and reduce costs, and still others are motivated by the market potentials from having a reputation as a good corporate citizen. In addition, some companies may simply believe that commitment to CSR is morally right (Pedersen & Neergaard, 2006). Based on the existing body of literature, it is actually quite difficult to predict whether companies are dominated by instrumental or more emotional motivations. Some empirical studies report that concern for corporate image/values is the primary motivation whereas others conclude that ethical/moral reasons are the main driving force for companies implementing various CSR activities (TNS Gallup, 2005; Pedersen, 2006; Poksinska, Dahlgaard, & Eklund, 2003).

The heterogeneity which characterized the managerial perceptions of the responsibilities toward society can also be found when looking at the managerial motives for CSR. The quoted authors based on the research carried out in one company have reached the conclusion that, as seen from Figure 1, the managers consider “It is the right thing to do” as the main reason for pursuing CSR. However, a large number of managers also see the company’s CSR activities as having something to do with the corporate image/brand. The results also indicate that top management commitment is seen as an important implementation factor. As one of the manager argues in an interview: “There has to be a will behind it, and if there is no top management who wants to do these things, then nothing happens.”

![Image](https://via.placeholder.com/150)

**Picture 1** The reasons for CSR Question: To what extend do you agree with the following statements? (1= strongly disagree, 5= strongly agree)

*Source:* Pedersen & Neergaard, 2009, p. 26

3. CSR - voluntarism vs. compliance

Practice has proved that it is not enough that corporations adhere to regulations. Society therefore cannot be satisfied, because the law did not anticipate many aspects of sustainable development, nor is the law being consistently applied in many cases. CSR goes beyond the rule of law. It entered into the practice of ISO standard forms by extending itself to human rights, the environment, consumer protection and fraud and corruption prevention.

In the part relating to the principles of social responsibility, in addition to general views, seven principles have been set out in detail: accountabil-
ity, transparency, ethical behavior, respect for stakeholder interests, and respect for the rule of law, respect for international norms of behavior and respect for human rights. These principles are not a substitute for legal obligations arising from the rule of law in a state. They serve as “aids” to give responsibility a moral component in addition to legal.

With this very statement, one enters the institutional zone, which generates the behavior of all participants of economic activities and their relationships, because they are implemented within the constraints, which are conditioned by the institutional structure of society and narrow the field of individual and corporate choices. Effective institutional environment is able to reduce the negative consequences of opportunistic behavior of corporations, because its basic element - the norm, is understood as a rule of conduct and / or an obligation, generating penalties for non-compliance. The norm is based on the principle of compliance and as such represents a complete opposite of the voluntary principle, which characterizes CSR.

Too many institutional factors (ownership, control, institutional investors, laws, standards, instruments of economic policy, etc.) are involved in the activities of corporations for such an important and propulsive area as institutional conditions, which constitute the institutional environment, to be left to the principle of voluntarism. Since the escalation of environmental and economic problems is increasingly emphasizing the issue of sustainable development, it is clear that the output is to be sought in the application of mandatory limiters, which are called institutions.

Specifics of particular models of corporate governance and appropriate CSRs are predominantly conditioned by the character of relations between the two environments - corporate (voluntary, based on market laws) and institutional (binding, based on the regulations and standards). It can be assumed that all models of CSR preferring sustainable development in the future will be increasingly leaving the first zone and accept the rules of another environment.

**Conclusion**

Demands for greater corporate responsibility come from a number of stakeholders. They are gaining intensity with the increase of various scandals and fraud. With a range of negative consequences caused by socially irresponsible behavior of firms, there is a growing awareness that social responsibility pays off and that there is a positive impact that CSR has on consumers. The leading companies in the world are expected to build a new paradigm of responsible behavior. It will rest on the knowledge that this is a new opportunity to develop new ideas, demonstrate new technologies and new ways to serve the market, and also meet the needs that had not previously existed. In this way, the entire process becomes profitable for the company and for the community. In this sense, many companies accept and apply the so-called “threefold essence” formula which involves the combined application of the principles of financial, social and environmental impact.

Our analysis has confirmed the initial hypothesis that CSR gradually changing, but its position is still within the relation between rhetoric and willingness, which is far from institutional obligation. In order to move CSR from the zone of voluntarism to the zone of obligation, it is necessary to institutionally define and achieve a balance between economic, environmental and social imperatives. If this really happens, then Toffler’s “adaptive corporations” will indeed have to change and adapt, in the interest of sustainable development.

Instead of a formal conclusion, we may ask a few logical questions: is this new development a paradigm or a rhetorical facade at the scene that will easily be ‘smeared’ by corporations? Is it possible to set a balance between “moral capitalism” and the concept of “sustainable development”, which is intended to be imposed on corporations? Is there a chance to adjust the concept of CSR to the phenomenology of global markets and the challenges of a global civilization in the 21st century? All previous issues may be synthesized in one crucial question: who really needs and can control a modern corporation? One of the answers was offered a long time ago by Mintzberg (1984, pp. 98-100) in the form of “conceptual horseshoe” with eight key demands: “Trust it! Nationalize it! Restore it! Democratize it! Regulate it! Pressure it! Induce it! Ignore it!”.

Most of these elements are still present.
References


Correspondence

Veselin Drašković
Faculty of Maritime Studies in Kotor
Dobrota 36, 85330, Kotor, Montenegro
E-mail: veso-mimo@t-com.me
The UML Model of Business Intelligence System in Increasing Corporate Performance

Dejan Zdraveski
University St Kliment Ohridski, Faculty of Economics Prilep, FYR of Macedonia

Margarita Janeska
University St Kliment Ohridski, Faculty of Economics Prilep, FYR of Macedonia

Suzana Taleska
University St Kliment Ohridski, Faculty of Economics Prilep, FYR of Macedonia

Abstract
In the new environment of open economy and high competitiveness on the market of products and services, the operation of companies must be based on information-based structure. To a large extent, of a company’s performance depends on how well its business processes are conceived and coordinated. Business processes can be a source of competitive advantage if they allow the company to be more innovative or to perform the activities better than other competitors. Also, business processes can have negative effects if they are based on the traditional ways of working that impede the company’s rapid response and efficiency. From that point, companies must evaluate their information systems: whether they represent a strategic business tool to achieve the main goal of the company, whether they only support or are an integral part of business processes, and so on. Modern-day information systems and information technology automate many steps in business processes and modify the flow of information, allowing parallel execution of multiple activities and efficiency in the decision-making process. The world has become a “small village” with a highly competitive environment that provides opportunities for rapid growth in profits, but also a quick way to failure. From that point, business intelligence is an important tool to support both functional and business and corporate strategy.

In this article, a system for business intelligence based on UML language will be applied for inventory management process as part of the input logistics value chain in order to optimize corporate performance. UML modelling should allow tracking warehouse inventory, analysis and disclosure of the reasons for their effectiveness or ineffectiveness. In particular, it should enable top management to report on key performance indicators, such as: inventory accuracy, the accuracy of deliveries, the percentage of deliveries made on time, the time of execution of the order, the availability and turnover of stocks and so on. The main purpose of the application of modelling inventory is to adapt to the continuous changes in the environment and improvement and/or innovation of this business process.

Keywords
UML, modelling, business processes, logistics, inventory, performance.

1. A need to introduce business intelligence strategies to companies

Business intelligence is one of the areas of information technology which has been experiencing an explosive growth in recent years. According to AMR Research study, total investments of companies in business intelligence for 2011 amounted to $ 57.1 billion, while the market for business intelligence is growing by 4.2% each year. Business intelligence offers a number of opportunities to improve the decision-making process, while more advanced tools enable analysts’ greater functionality and, at the same, time become available to an increasing number of users. On the other hand, the IT requirements of companies
grow exponentially, from a few gigabytes of data a few years ago, through data repositories containing terabytes of data, to most data warehouses which are, in some cases, measured in petabytes. Also, many companies in modern-day operating environment are making their information available to external users such as suppliers and customers, in order to improve business processes.

Current estimates are that a typical company analyzes only 10% of the collected data. By applying the concept of business intelligence, every company can benefit from the remaining data collected from various sources and converting it into high-quality information. The concept of business intelligence provides companies with the opportunity for timely perception of problems, so companies can focus on eliminating the causes rather than the consequences of problem solving. The need for the introduction and use of business intelligence systems is imposed by the stronger competition, developed channels of distribution, and supply of products and services that significantly exceeds demand (30% according to some sources). Also, in many industries, there is a trend of introducing substitute entry of new companies in the market, increasing demands as consumers and suppliers at the same time. Precondition for the successful introduction of business intelligence system in a company is a well-defined strategy of the company including the development strategy of the company's overall information system.

There are a number of key factors required to define an effective strategy for introducing a system of business intelligence in a company such as (Elliot, 2003):

- ongoing compliance with the overall business objectives and strategy of the company,
- functional integration of business intelligence applications in the company's key business processes,
- consultation with those who cannot tell what is good and what is not in the current business intelligence applications to be used by the company that end users and technical staff that supports these end users,
- establishing the best technical architecture for gaining competitive advantage,
- implement an effective process for implementation of the strategy for the introduction of the company's business intelligence system.

Information needs of companies are constantly changing in accordance with their goals. Alignment strategy for the introduction of business intelligence with the company's business strategy can produce a number of benefits. The concept of business intelligence is part of the answer, through information technology to meet exactly these identified needs. It is a simple concept that can greatly contribute to the success and stability of the company, i.e. the sustainability of the global market. Business intelligence enables companies to choose key parameters for the definition of corporate priorities.

2. Models in business intelligence

In order to maintain their competitiveness, companies must assess the quality of their products and the efficiency of their services. In doing so, they have to assess their environment: their competitors, their subcontractors, their suppliers, legal and other regulations, and, above all, their customers. They must also objectively analyze their own business, searching for an answer to the following questions: Can I improve my product or service in any way? Can production be realized in a more efficient manner? Is it possible to expand the portfolio of my products/services to new markets and customers? This list of questions is by no means complete. The answer to all of them can be given by means of business modelling and business environment.

The Business model is an abstraction of business functions, whose goal is to provide a simplified view of the business structure, which will be the basis for communication, improvements or innovations and defining the information requirements necessary to support the business users. The Business model is the focal point for conducting business or to enhance certain business operations. It is the basis for the introduction of new opportunities to improve the business.

Business modelling can be used to create new models in order to perform experiments as fit new business concepts in the current model. The models are used to determine whether the current organization, resources, and information systems are adapted to the new process. Models should serve as the basis for creating and modelling appropriate information all in one company. Models are also useful in terms of assessing the value of a business intelligence system and the justification of its investment. From that point of view, they serve as a basis for such a comparison maturity models. They determine the level at which such systems
are implemented and their effectiveness, manage-
ability and measurability. Maturity models show
where the organization is situated on the scales
maturity of business intelligence. It is shown in
the following picture:

![BI Maturity Levels](image)

**Figure 1 BI maturity levels**

Source: Boyer, Frank, Green, Harris, & De Vanter, 2010

Maturity Models are the basis for revising the
strategy of business intelligence. This article looks
into developments of the TDWI maturity model
(the data warehouse institute business intelligence
maturity model) and Gartner’s maturity model
(Gartner’s Maturity Model for Business Intelli-
gence and Performance Management).

TDWI maturity model was originally devel-
oped by Wayne Eckerson in 2004. TDWI model
focuses on the main aspect the Technological as-
sement of maturity. Maturity assessment is con-
ducted through eight key areas—scope (scope),
sponsorship, funding, value, architecture, data,
development, and delivery. Each of these eight
aspects was assessed on the following scale with
five levels: infant, child, teenager, adult and the
elderly (Rajteric, 2010).

Besides the assessment of the maturity of
business intelligence, the value of this model is in
helping people to realize that their efforts are not
isolated, but that they share the same challenges
and obstacles with the other employees in the
company. Groups working on business intelli-
gence often begin their work with great enthusi-
asm, which will over time subside when they face
cultural, organizational and technical challenges.

In Gartner’s maturity model, the evaluation of
the model consists of three key areas: people,
processes, metrics and technology. This model
defines five levels of maturity: unknown, tactical,
focused, strategic and widespread (omnipresent,
piercing) level.

Applying these models of business intelligence
provides a combination of business strategy and
technology company structure in order to focus on
achieving goals and achieving higher corporate
performance.

3. Modelling a business intelligence
system for inventory optimization in
companies

To achieve competitive advantage, companies
need more and complex analyses in the area of
inventory management. By applying systems of
business intelligence, companies are able to in-
crease barriers for its competitors, as well as to
maximize income through appropriate responses
to new market opportunities and establish stronger
relations with suppliers. The main purpose of
the company’s strategy should be better management
of operating costs because research shows that
reducing general and administrative expenses by
one monetary unit has the same effect as an in-
crease in sales of 13 money units, i.e. reduction of
these costs by 1% will increase the company’s
revenue by 2.3%.

The purpose of the analysis of data relevant for
the process of inventory management is to iden-
tify trends and patterns, to predict likely future
outcomes by formulating a series of scenarios,
and to discover the potential opportunities and
risks in the company’s operations. Considering the
amount of money that is spent on inadequate in-
ventory management process, it becomes clear
why companies need a business intelligence sys-
tem for consolidation, optimization and transpar-
ency of this process. Effects that can be achieved
with the application of business intelligence in the
inventory management system are numerous
(Luetic & Seric, 2011):

- reduction in the cost of supply of certain
  products,
- acceleration of the duration of the supply
cycle,
- reduce and eliminate unauthorized sup-
plies,
- increasing of inventory turnover ratio,
- full control over the supply chain,
- qualitative coordination and synchroniza-
tion of activities,
- proactive management that results in fast
  business decision with high quality, etc.

In this way business intelligence system is a
useful tool that enables detecting risks and oppor-
tunities, enables prediction of future trends, gives
manoeuvring space for management and ensures
the company’s survival and competitiveness. The
application of the concept of business intelligence enables the company to concentrate and the ensure free flow of necessary data and information in one place—in the data warehouse, in order to improve decision-making on the one hand, and minimize the cost and time required for execution of certain processes, in other hand. How this concept can serve as support in managing inventories is illustrated by data published in an issue of Business Week from 2010 which states that companies that have business intelligence system showed a 20% faster growth than companies that do not own a business intelligence system.

The figure below shows the place of the business intelligence system within the process of inventory management.

![Figure 2 Business intelligence system as part of inventory management](Source: Zdraveski, 2013, p. 87)

As shown in the figure, business intelligence system would consist of three key elements, Data Warehouse, applications or tools for analyzing data (Data Mining) and interface by which users would receive data in form that they want. The data repository will contain its own data markets that will address specific areas of operation, orders, suppliers, products, payments, etc., which would be integrated into the central data warehouse.

Microsoft Access as will be used a database management system for the design and development of the data warehouse. A big advantage of Access is that it can work with large databases, and as a Microsoft product it is compatible with other Microsoft Office applications. In order to facilitate the work of end users, they can have a dynamic overview of the data in any application known to them, such as Excel, Word, PowerPoint using ODBC (Open database connectivity) driver, etc. It is a standard method for access to database from any application, no matter what database management system (DBMS) is used. ODBC allows access to the data at the middle layer, between the application and the database management system, called a database driver. The purpose of this layer is to enable transformation of questionnaires created with user application in appropriate commands that will be understandable to the warehouse management system (database) data. For all this to be possible, the application that is used must be compatible with the ODBC driver, but the database management system should also be compatible, so that it can receive commands from the ODBC driver. In addition, access to the data in the Data Warehouse through these drivers will be read-only, or users will have authorized access to the data they need, without being able thing to change in their structure. In this way, ODBC driver allows the application to access the different databases, using the same set of commands.

4. The UML model of business intelligence system

This article presents a model of business intelligence system, created using the UML, but because of limited size, it will include only those phases which are crucial to get the basic framework for the functioning of the system. In addition software application StarUML will be used for UML modelling, which supports all diagrams that is necessary for creating UML models. UML is a unified modelling language, and using it allows object-oriented development of the information system. Object oriented development of an information system is an iterative process and consists of the following four processes with several sub-phase of each of these processes: Defining requirements, Object Oriented Analysis, Object oriented design, and Implementation.

The most important diagrams in the design of a logical model of the system are context diagram and decomposition diagram. Contexts diagram represents the highest level of abstraction, but decomposition diagram translates the contexts diagram into a low level of abstraction. Decomposition diagram is shown in Figure 3.
The Use Case Diagram is defined on the basis of the functional model. The Use Case Diagram specifies the behaviour of the system or part thereof and describes a set of sequential activities by which the system will achieve visible results. Also, Use Case is used to achieve the desired behaviour of the system that develops, without obligation to determine the manner of realization of the behaviour. The Use Case is a technique for modelling the functionality and specifications for the system requirements. It is a description of the functionality of the system from the point of view of the user, i.e. the user view of the system. This diagram is shown in Figure 4.

Activity diagrams are used for object oriented specification of information systems, i.e. for the description of parallel activities related to the business process. In addition, development of activities diagram includes the definition of the situation diagram activities, as well as defining the transition.

Sequence diagrams belong to the group of interactive diagrams that are used to describe the dynamic aspects of the model. In sequence diagrams focus is placed on the time sequence of the movement of messages between objects of different classes and a specification of temporal needs in terms of what the system should work in real time.

Collaboration diagram represents the interaction diagram that is used when modelling the dynamic aspect of the system. This diagram is used for modelling the flow of control within the organization. Modelling the flow of control in the company emphasizes structural relationships between instances in the interaction between the sent messages.

Preparation of the full class diagram follows from the already defined conceptual model, and also from appropriately defined interaction diagrams-sequence diagrams and collaboration diagrams. In an iterative procedure, it is necessary to identify all classes and then it should be added to the operations of the analysis of the interaction diagrams. Conceptual model should be upgraded to the new classes, should be added to the visibility of attributes and operations navigation and reliability. Class diagram shows a set of classes and collaborations and their relationships, and specifies logical and static aspects of the model. Class diagram is also called a static structure diagram. Class diagram is shown on Figure 5.

Implementation of the elements of the logical and physical model such as classes, relationships between classes, interfaces and packages, define software components, i.e. the application architecture is defined with them. Hardware components are processing units and other devices that are necessary for the execution of the program, and are defined by the definition of the network architecture. The connection between these two architectures is defined by the chosen technology that defines environment and is performed with the appropriate working within specification.
Implementation process uses object oriented programming, or programming languages like C++, Java, Visual Basic and others for designing components. This process will be used as a platform, i.e. environment for creating the database, making the application, as well as the introduction and testing. This process needs a selected data base management system and an adequate programming language based application that will be realized.

Conclusion

Business intelligence is becoming a necessary concept in company management, which is primarily the result of strategic thinking and the main tool that enables Faculty of Economics Prilep management to achieve accurate, objective and timely recognition of the opportunities and threats.

Business intelligence is the spanning area between the IT (providing information) and business users (who need the information to perform their work). Besides enabling connectivity goals, metric and people within the company, business intelligence helps companies in the management and optimization of information flows. It is therefore necessary to build an appropriate strategy for the application of business intelligence that will be aligned with the strategy of information systems, as well as with the company's corporate strategy.

The basis for reviewing the implementation of the strategy of business intelligence constitutes maturity models as the basis for creating and modelling appropriate information system in a company.

A model for business intelligence system as part of the inventory management system by using the unified modelling language UML is created in this paper. In fact, companies spend huge financial resources because of inadequate inventory management process, so a business intelligence system would greatly contribute to the consolidation, optimization and transparency of inventory management process. This model will have enough general characteristics than can be applied in most of the companies, inventory represent one of the most important categories because in every company.

The modelling of business intelligence system are includes processes that are critical in getting the basic framework for the functioning of the business intelligence system, as part of the process of inventory management. In that way modelled business intelligence system would be a useful tool that will enable the detection of risks and opportunities, to predict future trends, and providing not only survival but also growth and development of the company.

By modelling system for business intelligence in the company which refers to inventory, the resulting knowledge that arises from the analysis of the data can be used for effective measurement, control, forecasting and inventory management aimed at cost minimisation. Application of the business intelligence system enables the management to make timely decisions and maintain the optimum level of inventory, and thus the company’s continuous service. The concept of business intelligence enables such an evolution of the supply process, supports the process of feature operation in its growth into a powerful mechanism to achieve competitiveness and increasing the effectiveness and efficiency of the company.

References


Correspondence

Dejan Zdraveski
Faculty of Economics Prilep
Marksova b.b, 750, Prilep, FYR of Macedonia
E-mail: dejan_zdrave@yahoo.co.uk
Leadership of Human Resources and Project Teams in the Management of Strategic Changes in the Organisation

Svetlana N. Apenko
F.M. Dostoevsky State University, Omsk, Russia

Abstract
The article looks into the role of leadership skills in managing corporate human resources and project teams as a key competency in the management of strategic change within organisations. Contemporary leadership patterns meeting the needs of strategic management are presented, such as division-based, team-based, and transformation-based leadership skills.

Keywords
Leadership skills, strategic management, project team, project management.

Strategic management focussed on securing organisational development in dynamic environment also entails an analysis of the current situation of the organisation, justification of the prospective situation, and a choice of ways of achieving these. Transition from the existing to a desired condition of an organisation is achieved by means of strategic change management, whose success depends on numerous factors, the most significant one being the human resources who are to implement the strategy. For the strategic changes management to produce any effect, the human resources have to possess many professional competencies. Leading people and teams is recognised by specialists in strategic management as the key competency, providing the strategic resource potential and the necessary environment for long-term development of the organisation.

In the majority of cases, strategic decisions are developed and put into practice by means of projects. In particular, enterprise reconstruction, introduction of innovation, organisational modernisation, entry to new markets and other strategic decisions are carried out in project format. In this regard, the leadership of project teams is as particularly relevant as individual leadership. Individual and team leadership patterns are transformed into increasingly demanded forms and types. This fact gives rise to a scientific and practical task of analysing and generalising different forms of leadership skills, and the search for the most optimum avenues of its realisation, taking into account the characteristics and requirements of strategic management.

The requirement for leadership skills as the key competency of human resources and project teams is conditioned by the coordination of leadership skills and leader behaviour with features of strategic management, in particular, strategic decisions (Парахина, Максименко, & Панасенко, 2012, pp. 27-28). First of all, strategic decisions themselves are intrinsically innovative. In order to prevail amid natural resistance to innovation, it is necessary to apply leadership power and leader influence, involvement in the innovative activity of teams of human resources, formation of team leader abilities, and innovative motivation. Second, strategic decisions highlight the prospective purposes and opportunities, rather than the temporary tasks. These reference points differentiate the leader from the operative manager. Thirdly, strategic decisions differ from tactical ones in that they enter the sphere of increased uncertainty, risk and long-term effect. The ability to
cope with conditions of uncertainty and complexity of the environment with orientation to efficiency perspective are the attributes of leader behaviour. All the above described expressions of leadership ability secure the success of the organisation in its strategic development.

We shall now consider the perspectives of using leadership skills in strategic management and, in particular, in the implementation of project activities in the management of strategic change in the organisation.

Leadership skill is the ability to lead people through a process of influencing them to achieve particular goals. This ability may be possessed not only by individuals and teams, but also by entire organisations. It must be pointed out that the essence of leadership is manifested in the ability to both lead and influence in the process, which is achieved by means of this aptitude. That is, this is a feature of both the subjects and their actions. The presence of leadership qualities characterises the potential to be a leader, but not the leadership itself. In order to be successful, it is important for leadership to exist as a real process, which can produce appropriate outcomes in the form of staff performance indicators.

Nowadays we can clearly see the tendencies in leadership development which closely overlap with the characteristics of strategic management, to mention only some of them.

1. The transition from leadership role based on maintaining stability and order to being a leader in a specifically organised process of change tends to give rise to chaos and crisis. In other words, nowadays there is a crisis of relevance of the leadership role, innovation and leadership in chaos, which is reflected in the idea of transformational leadership.

2. The transition of leadership role within a team with similar interests and goals to leadership among different people with different and conflicting interests and conflicting objectives. The outcome of this process is diminishing the relevance of the leadership role of a manager defending the interests of the team, while on the other hand, producing an increase in the importance of mediating leadership, including the conflict of different teams.

3. The transition from individual leadership, where one or more people lead the team, to collective, delegated leadership process, when all team members are leaders. Each team member is a leader in their own field. A strenuous task of forming and managing a team of leaders appears in this case. There is a change in the role of the manager as the “Leader-Captain” or “Leader-Hero” to “Humble Leader” or “Leader-Peer to strong Leaders.” Currently, many companies are characterised by undeniable relevance of delegated leadership through trust and partnership. The current leadership appears to create conditions for developing other leaders and becoming one of many leaders.

4. Expanding the range of forms of leadership, its features, growing relevance of features such as the emotional, teamwork, or inspirational leadership skill.

Thus, at this point, it is clear that leadership skills can be implemented in various forms and with different versions of its outcomes. Leadership behaviour in these various manifestations is especially in demand for project management tasks in the area of innovation and strategic development of the organisation.

A study conducted by the Department of Innovation and Project Management of the Faculty of Economics of the F.M. Dostoevsky State University in Omsk, i.e. research into the competencies relevant to regional market specialists in project management tasks, indicated a high status in the ranking of important leadership skills. The study involved 26 enterprises and organisations in the city of Omsk employing different levels of development methodology and project implementation. These competencies, coupled with some of their generalisations, were drawn from national requirements for project management professionals, developed by the Russian Association of Project Management “SOVNET” based on the standards of the International Project Management Association – IPMA (Управление проектами, 2010). A set of these skills is currently considered fundamental to the objectives of the evaluation, certification and training processes involving project managers.

As Table 1 below demonstrates, many companies recognise the importance of behavioural competencies. According to the experts’ evaluations of enterprises in Omsk region, studies describe the project manager as an expert capable of effective leadership and showing leadership, involved and motivated by the project activity, reliable, result-oriented, able to work in a team, coor-
dinate interests and solve problems. Leadership ranks as the first on the list of the most important qualities of the project manager. Furthermore, many competencies on the list are the individual indicators of leadership. For instance, an effective leader must be able to work in a team, demonstrate confidence and credibility, be possessed of self-control and resistance to stress, as well as the ability to cope with disagreements and crises. What we consider debatable is qualifying competencies “understanding of the values of organisation and the project” and “ethical behaviour” as unimportant by one-third of enterprises. For a modern leader, the given qualities are very important.

The essential character of leadership is evident in the fact that all international standards, on which project management is based on, related to the leadership process and leadership competencies as essential criteria for assessing the project manager’s ability to harmonise project management processes with the regulatory requirements.

Table 1 Distribution of replies to the question: “What behavioural competencies should project managers possess to perform their professional tasks successfully?” (in % of respondents)

<table>
<thead>
<tr>
<th>Competency (a combination of knowledge, skills, abilities, and personality traits manifested in behaviour)</th>
<th>Competency:</th>
</tr>
</thead>
<tbody>
<tr>
<td>guidance and leadership in the project</td>
<td>very important</td>
</tr>
<tr>
<td>involvement and motivation</td>
<td>73</td>
</tr>
<tr>
<td>teamwork</td>
<td>69</td>
</tr>
<tr>
<td>self-control and self-organisation</td>
<td>58</td>
</tr>
<tr>
<td>confidence and credibility</td>
<td>38</td>
</tr>
<tr>
<td>tension release, stress resistance</td>
<td>26</td>
</tr>
<tr>
<td>creativity</td>
<td>16</td>
</tr>
<tr>
<td>focus on results</td>
<td>12</td>
</tr>
<tr>
<td>efficiency</td>
<td>54</td>
</tr>
<tr>
<td>the ability to align the interests and negotiate</td>
<td>42</td>
</tr>
<tr>
<td>the ability to manage conflicts and crises</td>
<td>31</td>
</tr>
<tr>
<td>reliability</td>
<td>54</td>
</tr>
<tr>
<td>understanding the values of the organisation and the project</td>
<td>19</td>
</tr>
<tr>
<td>ethical behaviour</td>
<td>16</td>
</tr>
<tr>
<td>troubleshooting</td>
<td>42</td>
</tr>
</tbody>
</table>

Source: Collection of papers from the 18th International Conference Strategic Management, Palić, Serbia, April 2013

We shall now look into the different types of leadership and the possibility of their exploitation in project management, i.e. the implementation of strategic decisions. Classical types of leadership are result-oriented and leadership development-oriented creativity, manifested by individual project team members. Which one is the most characteristic of the projects of strategic organisation development? The essence of the project as a set of activities aimed at achieving the desired outcomes and goals of the project, taking into account the established time, budget and quality, accurately attributes the principle of guaranteeing the desired result. But the essence of the project activities testifies to the importance of innovation, which is an attribute of any project, and innovation activity is hard to predict and needs special incentives for motivation through creativity. Consequently, what emerges in the project is a problem of combining these two seemingly contradictory forms of leadership approaches.

Rationalism and the defined condition of drawing benefits from the project lead to the fact that increasingly often, not only in practice, but also in many publications, participants in various training programs are encouraged to develop the result oriented leadership. However, in the 1940s, researchers showed that the behaviour of the leader, “oriented on employees (human relations) and their well-being, is more productive than the behaviour - based results of the high performance of tasks”. (Shermeron, Hunt, & Osbourne, 2007, p. 290) Achieving the highest performance levels of the project team required high level of conforming behaviour, both of the participants of the project and those initiating the fulfilment of project goals.

Advocated by some authors of publications, and based on leadership practice, results-oriented behaviour can have a manifest positive effect on task management. In this, leadership can reach high efficiency levels, if the task is not difficult, and the employees have simple needs and the structure of motivation. High performance levels are the outcome of good organisational skills. This is pure leadership, results-oriented only, which will produce a successful completion a fairly typical, simple project, which involved experts from semi-skilled and motivated ranks of human resources. Building project work technology itself, their control leads to the fact that the planned project results can be achieved under these conditions. At the same time, challenging, innovative, complex projects involving highly
qualified professionals with diverse motivation require leaders directed at both tasks set before them and an individualised approach to working with the team members.

Leadership advocated by some authors and practitioners is result-focussed leadership, and as such may produce a positive outcome. This type of leadership patterns enables achieving high effectiveness, provided that the tasks are not complicated, and the employees have simple needs and motivation structures. High performance is the outcome of well-organised activities, that is, leadership in its pure result-oriented form will be effective in a fairly typical, simple project, involving experts with medium qualification and motivation levels. All by itself, the technology of designing project operation and control thereof result in an opportunity for achieving the planned project outcomes. At the same time, complicated, innovative, complex projects implemented by highly qualified experts with different motives, require leaders focussed at the same time on tasks and individualised approach to work with team members.

In the project activity, it is significant to display not only individual leadership qualities of project managers, project initiators and customers, but also the leadership skills of other project team members. Delegated leadership is of vital importance for the successful implementation of projects. Quality that an effective leader needs is equal to quality needed by effective followers, in particular the project team members. Real followers are able to think for themselves, performing their assigned tasks with energy and enthusiasm. They are committed to something beyond their personal interests, and are able to stand up for their principles. Sometimes a person can be both an effective leader and an effective follower, playing one or the other role skilfully, as the situation may require. Ideally, leadership is distributed evenly between the leader and the team members.

A form that has gained a lot of popularity lately is delegated or allocated leadership, which means the performance of leadership functions by team members as a result of delegating the functions of the head leader to the leader-followers. That is, a team consists of the head leader, leaders-followers and mere followers. There is another possible option, where the team has no principal leader, and leadership functions are performed by team core – the team of leaders, followed by the followers.

The idea of delegated leadership is consistent with the theory of leadership roles. This theory presents the leader as a professional, oriented to solving business problems – or solves the problems of human relations and plays the appropriate role. Leadership role is the behaviour exhibited by leaders, based on their objectives, functions and status in the team.

For example, E. de Beaune distinguishes types of leaders who perform specific roles (Беляцкий, 2006, p. 1):

- **captains** – leaders who seek to make decisions based on their own personal responsibility, people for whom leadership is their natural state, not inherited by birth, but coming from experience,
- **team organisers** - leaders distinguished by knowledge of the followers’ psychology, and best suited to manage small teams, for example, small project teams,
- **artists** – the most efficient type of leaders, distinguished by vigorous activity, personal example, commitment, ability to overcome barriers and build a cohesive team,
- **diplomats** – leaders establishing contact with the staff easily, who can defend their opinions, use personal dialogue and extended negotiations,
- **generators of ideas** – leaders oriented to new challenges promoting the best, characterised by intuition, synthesis of knowledge, and self-criticism,
- **sellers of ideas** – leaders with qualities such as initiative, a fresh look at familiar facts, and able to control their own and other people’s emotions,
- **reactors** – leaders who actively and rationally critically respond to the ideas of others, gathering followers,
- **communicators** – leaders characterised by well-developed sociability skills and ability to listen to people,
- **synthesisers** – able to discern what is the most important from a very large amount of information, allowing them to discover something new,
- **interpreters** – capable of explaining the nature of even the most confusing situation to the followers,
- **researchers** – able to perceive and process information, compare and analyse facts, and conduct experiments,
- **pathfinders** – leaders capable of independent search and implementation of methods.
towards the solution of the problem, attracting followers on their way to the goal,
• information holders - leaders able to gather information, who know where to find and use it; these are expert leaders.

Project managers who build their leadership on the concept of delegated leadership are able to determine what type or amount of leadership each team member is able to implement effectively. Forming conditions for the performance of a particular role, encouraging and promoting the effective performance of the role, the leader-captain takes people to the status from mere followers to the status of leader-followers. For example, a team may consist of the head leader, performing the role of the organiser, and other leaders, performing the role of diplomats, generators of ideas, etc.

The concept of allocated leadership has many advantages in terms of the success of the project and the implementation of strategic decisions. First, it is a better fit with the reality in which the ideal leader, the head of the project team, is very difficult to find. This case allows the execution of various leadership functions by different team leaders, the most successful ones in this particularly functional part of leadership. Second, the concept of delegated leadership helps maximise engagement of all participants in the project team’s activities, helping them realise their potential, and enhance the motivational effect of participation in the project work. As practice shows, the projects mainly involve specialists, for whom self-motivation, creativity, innovation, and other manifestations of the ability play a crucial role. In this case, delegating leadership functions can be a motivating factor for the project activity.

The main task of delegated leadership is to achieve coherence of team leaders, obtaining synergy effect. Delegated leadership does not mean abandoning the function of project manager or delegating all their leadership powers. In the current activity, their task is to coordinate the actions of other team members. In complex situations, crises or situations requiring operational decisions, the head of the project team should be able to fully assume all leadership functions and appropriate leadership responsibilities.

Recognising the significance of delegated leadership is necessary to realise its distinction from team leadership. Delegated leadership suggests that many team members are leaders in their fields. The purpose of the head leader is to provide conditions for the development of other leaders. Team leadership - leadership of the team – is secured by high complementarity and coordination of all the team members’ activities. This form of leadership is realised in self-managing teams or teams with high performance levels – teams that exercise supervision independently. The mission of the head leader in the teams is to form the team and co-ordinate its members’ activity, i.e. keep the team ready to manage the team independently. It applies a combination of task-oriented leadership with the leadership it entails, supports and inspires.

Managing a large part of innovative strategic projects involves a form of leadership such as transformative (one that converts, reforms). It is designed to change the dynamics of the organisation, the team and the people. Bernard Bass, a researcher in the field of management, recognised transformational leaders as the most brilliant representative of the theory of transformational leadership (George & Jones, 2005, p. 246), who:

1. increase understanding by subordinate importance of their tasks and the need to run them at a high level,
2. encourage junior staff to seek personal growth, professional development and performance, and
3. motivate their employees to work for the benefit of the organisation, rather than solely for their own.

The transformative leadership model assumes that the leader and the followers manifest certain behaviour, which is the most suitable for a creative solution to the crisis. The need is recognised for a leader to influence followers through involving them in the management, being part of the team itself, rather than “stand above it”, supporting joint efforts with their enthusiasm. (George & Jones, 2005, p. 247).

Thus, the success of the project team implementing strategically important decisions requires new forms of leadership that can take into account various features of the project activities and strategic management. In this case, leadership should not only be a feature of project managers, but also among many members of the project activity.

To describe the trend of increase in the spheres of influence in the leadership of project management subjects, we shall use the term “diversification.” By diversification of leadership, we propose implying the expansion of the sphere of realisation of leadership of certain subjects at various
levels and in various fields. That is, new areas requiring leadership feature as a result of the diversification of leadership. For example, a human resources manager, as a part of the project management team, must be able to demonstrate leadership, not only in solving the problems of his or her direct role in the project. (S)he should be able to act as the leader in a team with other leaders in the development, monitoring and change the strategy of the project activity, in substantiating the risk management program in the project, in the formation and execution of the project budget, in the course of project marketing, etc. Of course, this member of the project management team will predominantly display expert leadership (lead-professional among other leaders-professionals). However, subject to qualifications of the expert, he can and should lead not just, for example, in marketing the project staff, but also in other marketing of the project areas. This is not “dilution” of leadership or replacement of one leader with others, or loss of leadership by those who should have been to made leaders in this field. This means a more complex process synergy of efforts of the team of leaders, while maintaining a certain structure of their status, lines of authority and responsibility. Diversification means that leadership becomes a pass-through process and direct competency of many participants of the project activity.

Admittedly, the presented idea of an integrated, total leadership is difficult to implement in practice. The concept of a single leadership (leadership of limited number of persons), particularly in the case of identifying only project managers, the clients and several key figures of projects as leaders, everything is quite clear - best practices for leadership functions exist under these conditions. The concept of delegated leadership encourages the search for new technologies and methods of leadership functions. But, when properly implemented in practice, it is the most promising and productive, and much more effective. In this regard, we consider the direction of further in-depth study of the various forms of leadership pertaining to the specific project activities, strategic and project-based management, as important and promising.

**Conclusion**

In conclusion, we wish to further emphasise the special role of leadership in strategic management. Not only material resources are used in the management of the strategic development of the organisation, but also intangibles such as staff competency, ability and motivation of project team members to ensure high efficiency of joint actions to achieve strategic objectives. The contribution of intangible resources to the success of strategic development projects is becoming more important. “After all, it is a well-known fact that the contribution of material resources is significantly inferior to that of intangible in the competition, which is acquiring acute and uncompromising forms: according to Interbrand, the proportion of the first factor at the turn of XX and XXI centuries was only about a third of the market value of business. What is it that gives the power to intangible assets? Of course, the effectiveness of joint and worthwhile actions of people using the right tools”. (Haapysön, 2005, p. 12) A key role in ensuring the quality of the intangible assets is played by leadership. Commitment of human resources and project teams through leadership allows multiple enhancement of the efficacy of joint activities of the human resources.

Thus, leadership in its various forms is one of those resources that help to lead organisations to strategic objectives. It is essential to use this resource properly, enhance and bring it up to date. This requires developing leadership skills and creating the conditions for the manifestation of leadership behaviour of individuals and teams in the organisation, that is, activities such as training for individual and team leadership, diagnosis and development of specialised programs for creating leadership, forming the most conducive entities to environmental leadership, and others that should be part of a complex of measures to ensure the strategic management of the organisation.
References

Паракина, В. Н., Максименко, Л. С., & Панасенко, С. (2012). Стратегический менеджмент. Москва: КНОРУС.

Correspondence

Svetlana N. Apenko
F.M. Dostoevsky State University
Prospect Mira, 55a, 644077, Omsk, Russia
E-mail: apenko@yandex.ru
Errors in User Developed Applications

Marton Sakal
University of Novi Sad, Faculty of Economics in Subotica, Serbia
Lazar Raković
University of Novi Sad, Faculty of Economics in Subotica, Serbia
Darko Pantelić
University of Novi Sad, Faculty of Economics in Subotica, Serbia

Abstract
Volatile market and legislative conditions impose constant changes on business processes, also demanding a change in the requirements set before information systems. As a solution to a situation in which the existing information systems cannot reach an adequate level of quality to keep up with the changes set up before them, user developed applications emerge, which are often developed in spreadsheet programs. Without questioning the benefits and utility of user developed applications in spreadsheet programs, practical experience nevertheless testifies to the consequences of errors in the development. The aim of this article is to give specific examples which draw attention to the seriousness of this issue and the need to introduce a framework for building and using user developed applications in spreadsheet programs.

Keywords
End user development, spreadsheets, errors.

Introduction
Information systems i.e. transaction processing systems and ERP systems provide support to business operations. However, these systems are frequently unable to meet all the requirements of operational staff, business analysts, managers, etc. Due to constant market changes, organisations are forced to continuously change their business processes in order to survive in the market. These changes result in new information requests and modifications in system functionalities that have already been implemented. Because of the fact that it is not possible for organisations to constantly change their information systems, they often turn to creating their own applications (Baxter, 2006), both in terms of operational and in terms of analytical requirements (Pemberton & Robson, 2000; Aberdeen Group, 2009; Excel4apps & Solutions, 2010; Darr, 2010; Kulesz, 2011; Kirkup, 2011; Mint Jutras, 2011; Burnett & Scaffidi, 2013; ClusterSeven, n.d.,a). Results of a research conducted in 2011 (IFS World & Mint Jutras, 2011) indicate that end users who use their own applications as an alternative to complex or poorly designed information systems, predominantly create them by using spreadsheets (Figure 1).

1. End user development
After humble beginnings in the seventies, End User Development (EUD) sees a more significant development during the 1980s (Barker, 2007). This refers to applications that users (who are not IT professionals) develop for themselves or their colleagues in order to solve tasks which they cannot or do not know how to complete by using organisational information systems, or in order to, according to Deng, Churcher, Abell & McCallum...
(2011), overbridge the gap between functionality of the implemented IS and the requirements set before it. These applications are usually developed in an uncontrolled environment without employing appropriate (or any whatsoever) development methodology and are described as „a set of methods, techniques, and tools that allow users of software systems, who are acting as non-professional software developers, at some point to create, modify or extend a software artefact“ (Lieberman, Paterno, Klann & Wulf, 2006).

Reasons for End User Development arise on the one hand due to deficiencies of the existing IS and a variety of other limitations in/directly related to it, and on the other hand, due to the nature of the tools used to develop EUD applications. The first group of reasons may include the following: the lack of budget for information system implementation by ICT experts (Deng, Churcher, Abell & McCallum, 2011), insufficient number of ICT professionals, lack of domain knowledge of ICT experts, time needed to create/change the software, etc. (Taylor, Moynihan, & Wood-Harper, 1998; McLennan, Churcher, & Clemes, 1998; Kreie, Cronan, Pendley, & Renwick, 2000; McGill, 2002a; McGill, Hobbs, & Klobas, 2003; McGill T., 2005; Mehandjiev, Sutcliffe, & Lee, 2006; Lieberman, Paterno, Klann, & Wulf, 2006; Dörner, Heß, & Pipek, 2007; Chen, Holt, & Sun, 2008; Fischer, 2009; Bellino, Ochab, & Rowland, 2010; Dörner, Heß, & Pipek, 2007; Burnett & Scaffidi, 2013).

On the other side, EUD tools encourage end user development through easy access, great flexibility, great functionality and speed of development that all potentially lead to increased productivity (McGill, 2002b). The most frequently used EUD tools are spreadsheets (McGill, 2005; Hole, McPhee & Lohffink, 2009).

According to Burnett & Scaffidi (2013), EUD comprises two concepts: End User Programming (EUP) and End User Software Engineering (EUSE). End user programming (Ko, et al., 2011) is only a phase in creating end user applications, whereas EUD includes the whole life cycle of end user applications, which includes, among other things, the creation, modification and extension of user-developed applications. Ko and associates (2011) include in end user software engineering the following steps: gathering of requirements, design and specifications, reuse of existing components, testing and verification, and debugging.

2. Errors in user developed applications

Even though user developed applications, among other things, provide great benefits by enabling users to directly manage the data (Deloitte, 2011), they also carry significant risks:

- risk of errors in financial statements (Deloitte, 2011),
- risk of a breach of legislation (Deloitte, 2011),
- risk of time loss due to the lack of domain knowledge (Deloitte, 2011),
- risk of redundancy and the existence of multiple versions of data (Deloitte, 2011),
- risk of the lack of recovery option (Deloitte, 2011),
- risk of counterfeiting data (Deloitte, 2011),
- risk of poor quality applications due to insufficient ICT knowledge (McGill, 2002a),
- risk of insufficient knowledge of spreadsheets due to lack of (quality) training and experience (McGill, 2002b),
- risk due to the lack of documentation (McGill, 2002a),
- risk due to inadequate design, poor testing and maintenance (McGill, Hobbs & Klobas, 2003) etc.

Since applications developed by end users often provide support to key business processes (ClusterSeven, n.d., b), it is important for organisations to recognise the need to manage these applications at all levels of management (Ko & Hurley, 1995), in order to minimise the number of errors (which are manifestation forms of the risks listed). Bearing in mind that errors are inevitable even with IT specialists who have undergone appropriate training and who use certain methodologies in software design, meaning that when developing “true” software products 80% of the time is spent on error identification and debugging and only 20% of the time is spent on actual design and delivery (Huizinga & Kolawa, 2007), claims on the existence of error pandemic are not surprising (PwC, 2011b). Research indicates that a large percentage, as large as 95%, of all user developed spreadsheet applications contain errors (Evans, 2012), resulting in not only negative financial consequences but also in those affecting organizational reputation.

One of the possible explanations for a significant number of errors in user developed applications, could be the fact that creating spreadsheets
represents a moment when “ordinary” users step out of their primary milieu of (non-ICT) professional knowledge and skills and become developers or at least become significantly involved in the development process whereas they do not possess the needed knowledge and skills to the same extent as ICT professionals do (nor this is realistic to expect). The number of spreadsheet users/developers to whom ICT is not primary business orientation but who yet carry out some form of programming when creating spreadsheets, is much greater than the number of ICT professionals who take part in spreadsheet development (Figure 2) (Scaffidi, Shaw & Mayers, 2005; Burnett & Scaffidi, 2013; Ko et al., 2011). One of the possible reasons for high percentage of errors in use/design of spreadsheets could also be the fact that the approach to their development and creation is not as systematic, careful and methodic as when it comes to the development of “true” software products (PricewaterhouseCoopers, 2004; Baker, Foster-Johnson, Lawson & Powell, 2006).

The number of errors and their negative impact on overall operations of numerous organisations were reason enough for a respectable number of authors to focus their research on the issue of errors in the design and use of user developed spreadsheet applications. Some of the research results have been summarized by Panko and Port (2012) in the table below:

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Percentage of spreadsheets with errors</th>
<th>Percentage of cells with errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brow and Gould</td>
<td>1987</td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>Hassinen</td>
<td>1988</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>Hicks</td>
<td>1995</td>
<td>100%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Coopers and Lybrand</td>
<td>1997</td>
<td>91%</td>
<td></td>
</tr>
<tr>
<td>KPMG</td>
<td>1998</td>
<td>91%</td>
<td>2.2%, 6.7%</td>
</tr>
<tr>
<td>Lukasik</td>
<td>1998</td>
<td>100%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Butler</td>
<td>2000</td>
<td>86%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Clermont, Hanin and Mittermeier</td>
<td>2000</td>
<td>100%</td>
<td>1.3%, 6.7%, 0.1%</td>
</tr>
<tr>
<td>Lawrence and Lee</td>
<td>2004</td>
<td>100%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Powell, Baker and Lawson</td>
<td>2008</td>
<td>86%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Powell, Baker and Lawson</td>
<td>2009</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>Panko and Aurigemma</td>
<td>2010</td>
<td>91%</td>
<td></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td><strong>86%</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 2** Projections for jobs in the US in 2012 (categories are not mutually exclusive)  
**Source:** Burnett & Scaffidi, 2013

Errors in user developed spreadsheet applications are often called „horror stories” in expert literature (Evans, 2012; EuSpRIG, 2012; The Auditor, n.d.). Several examples of errors in user developed spreadsheet applications and their consequences will be given below. References to stories have been mostly found on EuSpRIG group site (The European Spreadsheet Risks Interest Group) and within discussions on Yahoo EuSpRIG group (http://tech.groups.yahoo.com/group/eusprig/). Here are some of the most significant stories listed in chronological order.

Due to an error in a spreadsheet table, projected budget revenue in the U.S. city of Lincoln for 2012/2013 was overestimated by $575,000. A similar situation occurred in the budget for the previous fiscal year (2011/2012). This time, due to an error in the table (the same revenue projection was entered twice) the projected revenue was overestimated by $200,000. The same budget projection contained another error – the projected expenditure was underestimated by $809,000 (Sambides, 2012).

Britain’s second largest pharmaceutical company sent its confidential information on the me-
Confidential information was inadvertently incorporated into the spreadsheet template. Once the error was identified, company’s shares had dropped 0.4% (Kelland & Holton, 2012).

Due to an error in entering data on government spending in the U.S. state of Kansas, an erroneous report was created on government spending in 2010 fiscal year. The error caused a difference of about $2 billion. The report indicated that spending reached $16 billion, while actual expenditures were approximately $14 billion (Hanna, 2013).

American West Baraboo underestimated the total ten-year costs due to an error made by an operator, and consequently the actual costs were $400,000 higher than planned. Subsequent table examination showed that one cell had not been included in the formula (Bridgeford, 2011).

An employee from the Commissioner’s Office of U.S. municipality of Knox County made a mistake of $6,000,000 in the report sent to the audit company. The error occurred because an account had not been well connected in Excell table. The fine the municipality had to pay was $12,500 (Donila, 2011).

Tax assessors in a municipality of California overlooked, and then found, a taxable property worth $1.26 billion. The usual tax liability on a property like this is $12 million. The error occurred because an employee used a wrong table to calculate taxes (Cox, 2011).

Financial department of the U.S. city of Framingham mistakenly calculated that the city had $1.5 million more in the budget than it actually did. The consequence was that they had to withdraw $600,000 of state aid to fill in the gap caused by this error. The head of the financial department took responsibility for the error and said that the error had occurred while the employees had been managing the „monstrous tables“ (Ameden, 2011).

Central Bank of Norway released a wrong table which indicated a 60% to 70% change in interest rates in the following two months (Weisenthal, 2011).

The King’s Fund published an article containing an error in figures on health spending in Wales. Due to a spreadsheet error the report stated that the health service budget in Wales faced cuts of 10.7% over three years while the correct figure was 8.3% (Jacobs, 2011).

Central Service Hungary sent ambiguous tables to bidders during the course of public procurement. The tables contained two columns, out of which only the first column was supposed to be filled in while the other one was filled in automatically. Twenty-five out of twenty-eight bidders did not understand the table and filled in both columns by hand. Due to this error, the procurement had to be repeated and the Procurement Board fined the Central Service with 2,000,000 forints (Budapest Business Journal, 2010).

In its attempts to cut costs, the U.S. city of Abermale offered early retirement to employees in municipal departments. Due to a spreadsheet error, the city offered 42 retirements more than it could pay out. This error cost the municipality $66,000 (Shulleeta, 2010).

Flintshire County Council mistakenly redistributed 1 million pounds to high schools. The error occurred because the amount of money was entered into a wrong column. The error was not noticed until the money had been distributed to high schools (Goodban, 2010).

Irish C & C Group admitted that the revenue forecasts they released contained an error. Forecasted revenue was supposed to be lower than reported. The error occurred after data had been incorrectly entered into an electronic spreadsheet. C & C Group share price fell by 15% (Drinks Daily, 2009).

University of Toledo mistakenly overestimated revenue projections by $2.4 million. Just before a significant reduction in funding from the state budget, the university identified a budget error due to which it had $2.4 million less than assumed. The error was caused by an incorrect formula entry which led to the overestimated projections (Smith, 2004).

A school in England faced a budget deficit of 30,000 pounds. The error occurred when data taken from the accounting system were entered as text in a spreadsheet table. For this reason, the SUM function ignored this cell (PwC, 2011a).
Conclusion
Starting from the 1980s, the importance of EUD is constantly growing. As EUD applications are usually developed in uncontrolled environments, without the use of proper (or any whatsoever) development methodology, the number of errors that occur in these applications raises concern. Unfortunately, the features of EUD tools themselves do not contribute enough to reductions in the number of errors. As end user developed applications often provide support to key business processes, it is important for organisations to recognise the need to manage these applications at all levels of management, with an aim to minimise the number of errors as much as possible.

References

http://www.metrowestdailynews.com/top_stories/x1876834739/Framingham-discovers-1-5-million-error


Bridgeford, B. D. (2011, December 9). W. Baraboo to pay more for borrowed money than believed. Retrieved February 7, 2012 from Wiscnews:
http://www.wiscnews.com/baraboonewsrepublic/news/story-can-you-trust-your-spreadsheets?page=0,0

http://bbj.hu/economy/kdb-fines-central-services-directorate-for-misleading-spreadsheet_53252


http://www.clusterseven.com/storage/datasheets/ClusterSeven%20Goverance%20Compliance.pdf


Cox, J. (2011, November 25). County overlooks, then finds, taxable property worth $1.26 billion. Retrieved February 7, 2012 from The Bakersfield Californian:


Horror Stories: http://www.eusprig.org/horror-stories.htm

http://www.cfoworld.com/technology/30989/cfo-horror-story-can-you-trust-your-spreadsheets?page=0,0


http://www.cfoworld.com/technology/30989/cfo-horror-story-can-you-trust-your-spreadsheets?page=0,0

http://whitepapers.sapinsideronline.com/view.cfm?session=bc100e9d-98f3-4d5b-9c76-a5676ff9a972&action=load&white_paper=747
Errors in User Developed Applications


Shulleeta, B. (2010, March25). *Ex-county workers consider suit over reduced retirement*. Retrieved February 7,


---

Correspondence

Marton Sakal
Faculty of Economics in Subotica
Segedinski put 9-11, 24000, Subotica, Serbia
E-mail: marton@ef.uns.ac.rs
Preliminaries of Modern Systems Management Concepts

Jovo T. Tauzović
Independent researcher into Systems Management Theory, Risan, Montenegro

Abstract
Modern systems management manages not only systems, but, increasingly, their environments as well. Modern Systems Management Concepts (SMC) are used for this purpose. They are a good basis for further, more modern developments of practical and theoretical management of all systems and their environments of (global) economy. Based on Total Quality Management (TQM) through: (1) Systems Management Theory (SMT) and (2) Systems Management Concepts (SMC), they use modern management methodology called the Tauzović’s General Concept (TGC), or in application the Tauzović’s General Continuum (TGC), for the further development, whose implementation it has made it possible to develop a certain number of basic, extended, complex and upgraded SMCs. This article provides the analysis and synthesis of SMC with TGC usage. Since the main concepts of management are: (i) competitiveness (why the system exists), (ii) quality (what the system is supposed to ensure) and (iii) efficient flexibility (how the system is supposed to do it), it has been possible to conclude why modern organizations (business systems) exist – to be prosperously competitive, which means that through their modern management, they provide the real things (the what quality [effectiveness]) and in the right way (the how profitably [efficient flexibility]). Modern management ensures faithful customers (consumers, buyers) and loyal managers (producers, employees), i.e. modern prosperous competitiveness of an organization, as a result of the customers’ and managers’ participation of an organization on a common market.

Keywords
Management, organization, operations, concepts, quality, competitiveness, Total Quality Management (TQM), Tauzović’s General Concept (TGC), Systems Management Theory (SMT), Systems Management Concepts (SMC).

Introduction
As an comprehensive process of universal (and modular) objective setting and achieving, continuous modern management improvement leads not only to new innovative management knowledge and more contemporary explanations of its procedures, but also to their detailed insights and possibilities to perform. By applying the principles of modern Total Quality Management (TQM), based on modern technologies (as contemporary [comprehensive] managerial knowledge), modern management research becomes easier to both understand and use. In order for a modern whole (system), which is used for management, to achieve, use, maintain and develop its general (comprehensive) capacity for survival and provide opportunities for its further improvement, i.e. be competitive, the practice of successful organizations (systems) shows that they have invested significant resources into the specific systems prerequisites for the improvement of management processes. The most important structural prerequisites for these purposes may include: 1. (investing in) research and development, 2. integration of resources (people and facilities), 3. finding modern (innovative) management methodologies, and 4. continuous improvement through a comprehensive whole (system and its environment) (Tauzović, 2012c).

In solving practical problems of comprehensive management (research and management [in the narrow sense]) of all types of organizations (organizational systems), as well as business ones, external (progressively known as strategic) appli-
cation of TQM, based on the internal (progressively known as operational) is gaining increasing importance and significance in its everyday use. Among other things, it represents a very good basis for comprehensive innovative redesign processes, as well as modern global and electronic business organizations, as the most international business systems of comprehensive global economy. Among these innovative methodologies, comprehensive management methodology (research, design, maintenance and further development) of business (as a special type of organization systems) system has a particular importance, starting from working unit system (as the basic organization system), then production system, operations system, business organization system, down to market business activity system as separate parts of business systems (environment) market, in which the business organization conducts its business operations, i.e. processes of (production and) sale of products (goods, information, management, services).

The comprehensive process of modern management is characterized by the Systems Management Theory (SMT – as a practical theory that first “raises” [real] data, through information and knowledge, to the level of theory, and then through its extension [or upgrade] “transforms” it into concepts), which is presently being modernized by Systems Management Concepts (SMC) (Tauzović, 2012c). They use the division of a system into: (1) real (physical) and (2) conceptual (abstract) ones. An organization is a physical system, while management uses conceptual system to manage the organization. The physical system is valuable for what it is, and the conceptual system is valuable for what it represents (McLeod, 1994).

The basic division of real systems is the division into: (i) natural, (ii) technical, (iii) organizational and (iv) social. The systems approach (as modern) defines systems as sets of interrelated elements, components or subsystems (with their mutual relations) which, if working in (systems) harmony, can provide effective and efficient synergistic outputs. Therefore, systems approach, as a fundamental (contemporary) methodology, ensures that the system development progresses in the most effective and efficient way (McLeod, 1994). In the systems approach, systems are open (or systems of permissive borders), as opposed to analytical, where systems are considered to be closed. Open systems are influenced by their environment, which may include:

1. **general or external (real[given]) environment** (economic, technical, financial, informational, political, social, etc. – as being parts of the general market), or macro-environment and
2. **working or internal (goal [target]) (determined [adjusted]) environment** (competitors, suppliers, collaborators, customers – as being parts of the goal [target] markets), or micro-environment (Tauzović, 2012a).

Starting from the general and working environment, which can use “conceptual procedures” for management (Kerzner, 2006), suitable for environment part of management, modern systems management is performed at all (spiral) levels of management, in particular: 1) the institutional [top] level (or level of planning – PL), 2) the strategic level (or level of organizing – OR), 3) the operational level (or level of directing – DI) and 4) the control level (or level of controlling – CO), or its separate parts – (1) external (E – levels of planning and organizing) and (2) internal (I – levels of directing and controlling). Modern management also controls the processes in which: (i) marketing (MA), (ii) resources (RE), (iii) operations (OP) and (iv) finance (FI) (as organizational [operations] functions) take part, the results of which can lead to future prospects of an organization. Since the design and improvement of a system can be considered to be modern methodologies of changing the system, the design and improvement of modern systems are performed on the external part, while the design is performed because of more significant and complete (general) environmental impact, and the improvement is mainly done due to lower or increased influence (“requirements”) of working environment, thus, internal part of management. (Tauzović, 2012a).

Modern innovative methodology, which is obtained through research and verified through business operations (i.e. organizations) management (Tauzović, 1998), can essentially be used to solve all the (operational) problems of a business organization through a cyclical, iterative, continuous and spiral processes consisting of: 1 Preparations activities (1.P – 1.1. External [Ep – Needs activities] and 1.2. Internal [Ip – Policy activities]), 2. Analysis activities (2.A – Support activities), 3. Synthesis activities (3.S – Supply activities) and 4. Control activities (4.C – [Review and] Improvement activities) and it is known as Tauzović’s General Concept (TGC – or in the appli-
cation of management Tauzović’s General Continuum [TGC] of organizational (operations) system research and management.

Systems (comprehensive) management concepts which can be established, verified, developed and confirmed in business, as well as in other operations, systems called Tauzović’s General Concepts (TGC) for solving problems of operating (organizational) systems, are a good basis for further, more modern developments of practical-theoretical management of all the areas of (global) economy. Because of this, there is a scientific and professional duty for so thoroughly confirmed concepts to be published for the first time (or displayed to the public) in such an eminent international journal Strategic Management, Faculty of Economics in Subotica. A particular reason for the publication of the content in that magazine, among other things, is that it published the starting point of modern Systems Management Concepts (SMC) named Modern Management (Tauzović, 2012a), which are analyzed, expanded, systematized and presented in acceptable forms in this paper.

1. Total quality management (TQM)

Modern application of TQM, as an integrated approach to systems management, has traditional management as its basis, through which it is possible to collect various types of (real) data transformed into information and use different levels of its support. The essential differences in the application of TQM are based on foundations from which comprehensive management starts and develops, not only of quality, but also of the overall system and its environment. Lately, especially when considering business management or business organizations (systems) management, the following elements are used, which can be contemporary displayed as: 1) Consumer Orientation (External and Internal Preparations – 1.P), External Planning and Leadership (Analysis – 2.A), Continuous Improvement and (Continuous) Education (Synthesis – 3.S) and Authorization of (Business) Employees and Teamwork (Control – 4.C). However, the comprehensive (modern) approach to the application of TQM, from the standpoint of its contemporary (systems) comprehensive management, can be used as:

1. modern Systems Management Theory (SMT), and

1. TQM as a modern SMT provides processes and capabilities that are absent, but nevertheless essential to management. Achieving a well developed system of operations (as the fundamental and main component of a business) is very important for each management, but the necessary skills for providing the quality of the process and product are usually either missing from these systems, or new, innovative approaches (or attitudes) for achieving the level of those skills are needed. In this case, the role of TQM is significantly greater, because the essence refers to the need to achieve the desired proficiency of an individual and system in an organization in the areas where the usefulness of TQM is particularly emphasized. TGC can also be used for these purposes.

2. TQM as modern SMC, i.e. as an excellent harmony and revitalization of the production (of products) process management, results in customers’ satisfaction, gaining profits, market acceptance of the organization’s competitiveness or service delivery in a specific area of (business activity of) market. In this case, individuals, teams or comprehensive organization management usually operate effectively and efficiently and the philosophy of TQM, as its application, becomes very acceptable and necessary for achieving the competitiveness of an organization. Although this application of TQM is environmental, its successful implementation can mainly be done internally, by using the TGC as management application of Tauzović’s General Concept and with “certain” (necessary) environmental help. The appropriate use of customers’ and managers’ (employees’) behaviour, as well as organizational culture results in the necessary and meaningful support to overall organization management.

2. Tauzović’s general concept (TGC)

Modern systems approach and analysis of the results obtained through the comprehensive research carried out within the research project “Modern Management of Operations Systems” (Tauzović, 1998), as it has already been indicated in the introductory consolidations, may lead to systems synthesis that components (or functions) of operations (organizational) systems may be globally – theoretically and practically – shown and studied in terms of certain areas of activities (processes), namely: 1.P – (Overall) Preparations activities (1.1.Ep – External and 1.2.Ip – Internal), 2.A – Analysis activities, 3.S – Synthesis activities and 4.C – Control activities. A further analysis and detailed research of such relations have lead to
conclusion that this kind of relations may be used for theoretical and practical needs of management through:

\[
\{ \rightarrow 1.P – \text{Preparations activities} (1.1.Ep – [Overall] Needs activities or \textbf{purpose} [or requirements] for the system existence) \leftrightarrow 1.2.Ip – (System) Policies activities (strategies or \textbf{objectives}) \rightarrow 2.A – (System) Support activities (or inputs) \rightarrow 3.S – (System) Supply activities (or \textbf{transformation of inputs into outputs}) \rightarrow 4.C – (System Control and) Improvement activities (assessment or outputs) \rightarrow \}\ (\text{Figures 1 and 2}).
\]

This innovative (modern-systems) methodology, called Tauzović’s General Concept (TGC – referred to in application Tauzović’s General Continuum [TGC]), can be used to resolve system and comprehensive management problems, through subsequent use of the continuum of four sets: (i) cyclical, (ii) iterative, (iii) continuous and (iv) spiral activities in TGC, based on modern model of operations systems management consisting of, apart from working (internal) and general (external) environment (as well as conceptual participation in preparations), the other four levels: [1] institutional (planning), [2] strategic (organizing), [3] operational (directing) and [4] control (controlling) (Tauzović, 1998). Such a management methodology can be divided into two parts:

i. bidirectional inductive part – in the bidirectional basis, it consists of 1.P – Preparations Activities (1.1.Ep – Needs activities [requirements] or purpose, and 1.2.Ip – Policies activities [strategies or objectives]) \((\rightarrow 1.P/\rightarrow 1.1.Ep \leftrightarrow \rightarrow 1.2.Ip \rightarrow \rightarrow)\), and double unidirection: (i) 1.1.Ep – Needs activities (requirements or purpose) and 2.A – Support activities (or inputs) \((\rightarrow 1.1.Ep \rightarrow 2.A \rightarrow)\) and (ii) 4.C – (Control [Review] and) Improvement activities (assessment or outputs) and 1.1.Ep – needs activities (requirements or purpose) \((\rightarrow 4.C \rightarrow 1.1.Ep \rightarrow)\), and

ii. Unidirectional deductive part – consisting of 1.2.Ip – Policies activities (strategies or objective) 2.A – Support activities (or input), 3.S – Supply activities (or transformation of input into outputs) and 4.C – (Control and) Improvement activities (assessment or outputs) \((\leftarrow 1.2.Ip \rightarrow 2.A \rightarrow 3.S \rightarrow 4.C \rightarrow)\) (Figures 1 and 2).

Through the application of the TGC, as a modern (innovative) management methodology, it is possible to display it conditionally as a modern (i) theoretical, social and organizational or external use, mainly focused on “soft” systems (social and organizational – TGCt) (Figure 1) and (ii) practical, modern natural and technical or internal use, which is primarily related to the modern (supplied with organizational [operations] functions), traditionally referred to as “hard” systems (known as the natural and technical – TGCp) (Figure 2). Various presentations (forms) of the TGC (TGCt and TGCp) are directed to a more acceptable understanding and monitoring of its use in general management (research and management [in a narrow sense]) of various types of
modern systems. TGCp can be used for systems research, while TGCt is used for systems or system parts management (in a narrow sense), as well as their levels. Such forms of (general) systems management offers a good foundation for further initiation and general development of not only future management methodologies, but also operating (business) organizational performance.

When it comes to comprehensive management, the TGC application may be considered, apart from the overall, in some specific contexts. Besides (general) external (as theoretical) and (specific) internal (as practical) application, it is applicable, to each part or management level separately, and it is even applicable to certain parts (activities) of each management level. In all cases of TGC application, the prior procedure refers to why and what should be done (as basic induction), and the subsequent ones are how (the quantity), when (the time) and where (the place), how and for whom (for market participants – customers and managers) it should be done (as deductive part), which again becomes why and what should be done, etc. (Figure 3).

The essence of TQM implementation is based on a suitable balancing of organizational realities (i.e. reality) and human resources (their available knowledge) development to achieve quality objectives. Organizational principles are found in the technical aspects of TQM, while the human principles are essentially found on the communication side of TQM. During the application of TQM, the necessary skills must be understood and balanced, so that they can be connected in a satisfactory way, and thus get possible and desired results from such applications. As with any good management system, such as TQM, environmental customers must be regular buyers (consumers) and good backing for the organization, thus the backing for good “competitiveness”, while managers (employees), as “internal” customers, need to be loyal and certain producers of “productivity” (progressively “profitability”). In this way, the modern application of TQM satisfies cyclical, iterative, continuous and spiral “management practices”, which can be displayed through Tauzović’s General Concept (TGC) of the results of quality business organizations management (Figure 4).

When it comes even to modern (research and) management, together with the development of operations systems, the “considerations” are usually based on the achievement of a definite (general [i.e. external, projected] and individual or specific [i.e. internal, production]) quality of future products of the system, which would be the basis for the system to enable (general and individual [working]) competitiveness in its environment. Since principles of modern TQM are used for these purposes, it has to be based on reliable determination of the real (practical) data. A detailed systems analysis of research led to the conclusion that the level of: (i) controlling must use real (practical) data, (ii) directing the information (obtained from real data too), (iii) organizing knowledge (extended by information of the real data) and (iv) planning theory (supplemented by the knowledge determined on the organizing level) (Tauzović, 1998), while concepts (as distinct ideas and views based on relevant theory and practice [experience]) are used for managing (or
compliance with) the environment (especially working environment).

Having that in mind, in the research of system, after a certain preparation in the “environmental levels” (general and working environment) and “preliminary” planning (as preparations), one starts from controlling, then directing and organizing, and finally to the level of planning (as analysis), where, by including environmental influences (working and general), decisions on purpose of “existence” of the organization (system) which is a basis for determining the objective of the system are made (or established). Besides the determined system objective, decision making and implementation (thus management [in the narrow sense]) are performed from the level of planning, then organizing, directing and controlling (as synthesis), and the final “verification” is performed at the level of planning (as an assessment), which represent the primary (and major) application of TGC. This sequence of comprehensive management, thus research and management (in the narrow sense), has determined the specific ways of applying Tauzović’s General Concept (TGC). It also points out that its practical form should be used – TGCp, for the research areas and its theoretical, TGCt form – for management. Further research into the TGC application led to the conclusion that the theoretical form is suitable for external, and practical for internal [both parts or levels in the parts]) management (Tauzović, 2009). Analogously, special forms (of application) of TGC can be used for design (as an external management) – a theoretical form, and for the system improvement (as the internal management requirements) – a practical form. Consequently, the comprehensive management consists of research and management (in the narrow sense). The research of a system, (mostly) based on the needs of the goal (target) market and “preliminary” planning, starts from the lowest level – controlling (control), then it continues at the level of directing (operational) and organizing (strategic) level and it ends at the planning (institutional [top]) level, whereby four practical TGCp in a way that the synthesis of the previous TGCp represents the external preparation of the next TGCp are used. For management (in the narrow sense), using TGCt, decision-making (including determining the objective of the system) is performed at the level of planning (institutional – using theory), continues on the organizing (strategic – using knowledge), directing (operational – using information) and controlling (control – using data) level, from where it is controlled whether or not the system has implemented the decisions (achieved the objective). When managing [in the narrow sense], four theoretical TGCt are used in sequence, analogously connecting all TGCp as in research.


This chapter summarizes the results of (systems) analysis and synthesis of the managing organization (operations) systems based on their parts – external (E) and internal (I) shown in Modern Management (Tauzović, 2012a, p. 61-76). Using the abbreviations:

i. one-letter – the TGC activities (preparations [P], analysis [A], synthesis [S], controls [C]) and management parts (external [E], Internal [I]),

ii. two-letter – the management levels or management functions (planning [PL], organizing [OR], directing [DI], controlling [CO]), and combinations of TGC activities (as the first letter) and management parts (as the second letter), so that for PE is used for external management preparations, PI for internal management preparations, SE for external management synthesis, AI for internal management analysis, CI for internal management control, etc.,

iii. three-letter, in addition to TQM, TGC, SMT and SMC, – the combinations of TGC activities (P, A, S, C) and management level (PL, OR, DI, CO), as well as the external and internal parts of TGC preparation and management parts, so that PPL is used for planning preparations, AOR for organizing analysis, SDI for directing synthesis, etc; as well as PEE for external preparations of external management (or external [progressively known as strategic] marketing – MAE), PEI for internal preparations of external management, PIE for external preparations of internal management and PII for internal preparations of internal management (or internal [progressively known as operational] marketing – MAI) (Figures 5 and 6),

it was shown that the systems management can be considered as making advanced management modernized using TGCt and TGCp. Under such management, TGCt (used for the external man-
Preliminaries of Modern Systems Management Concepts

1. External management part (E – as [planning and design] production facilities or operations systems), based on the theoretical TGCT which includes: (i) the planning level (with activities) 1.PE – external preparations, as follows: 1.1.PEE – Target (goals) market (for creating the conditions for an individual or group participation [including suppliers, co-operators and competitors], and thus determining the objective markets [for the needs of internal management part]) and 1.2.PEI – Planning (business) processes (the use of modern procedures and making significant innovations in the preparations [structures and ways of performing business for objective markets]), and (ii) the organizing level (activities) 2.AE – Organization (Business Formation of Union [alliance] or determining whether to participate in the overall market in the union [group, association] with other organizations [including supplying, cooperative and competitive] or independently), 3.SE – Designing (production) facilities, thus the operational system, (which provides the organization [or union] with critical competitive advantages, share increase in [selected] objective markets, better negotiations with suppliers, co-operators and competitors, as well as the ability to prevent [not included] competitors to participate in their parts of goals [target] markets), 4.CE – Continuous improvement ([i.e. promotion of] quality, productivity, customer service and competitiveness) (Tauzović, 2009). This part of management (thus, design [and production] of facilities or operations [or operations systems]), determines the objective markets for the purposes of internal management.

2. Internal management part (I – as production [and distribution of individual] products), based on practical TGCP, which consists of: (i) the directing level (with activities) 1.PI – Internal management preparations, namely: 1.1.PIE – Objective markets (determining appropriate objective markets for the production of products [goods, information, management, services], gaining income from advertising and sharing documents accompanying the products) and 1.2.PII – Planning production process (production facilities) (exchange of agreements [messages] between business and production subjects), and (ii) the level of controlling with the activities 2.AI – Production factors (purchase) (contracting and payment options), 3.SI – Production (creating products), 4.CI – Products distribution (product delivery to the final costumer with [end] receiving the revenue for produced products) (Tauzović, 2009).

This kind of systems management: (i) on the external part, starting from the target (goals) market, the system is designed (as operations system), and thereby the objective markets are determined, and (ii) on the internal part, starting from the objective markets, the terms for needs of products production, thus, production system, are determined (for individual markets).

While by the external management, based on a survey of target (goals) market of business activity, the system (planning and organizing [design] operations) for internal management purposes is designed, and thus the objective markets of business activities are determined, the internal management (directing and controlling of [production] operations) is therefore used for examining whether it is possible to produce a specific product in a satisfactory manner for both the customer (consumer – on the business activity market) and the manager (employee [producer] – [priority] in the system). If this is possible the product can also be produced, otherwise one moves to the external management from 3.SI – Production (product creation [as internal supply]) to 3.SE – Designing facilities (as external supply) and the possibilities of producing products are subsequently explored (Figure 5).

Hence, (modern) management is carried out, by using Tauzović’s General Concept (TGC), whose activities are P, A, S, C, through external (E) and internal (I) management (Figure 5). External management is used for the design of op-
erations (organizational) system, while the internal management uses operations as a production system (of an organization). \{\text{PE} \rightarrow \text{AE} \rightarrow \text{SE} \rightarrow \text{CE}\} is used for the external management, while \{\text{PI} \rightarrow \text{AI} \rightarrow \text{SI} \rightarrow \text{CI}\} is used for the internal management. Although these two parts of management may be seen separately, system management is performed using the following process:
\[
\{\text{PE} \rightarrow \text{AE} \rightarrow \text{SE} \rightarrow \text{CE} \rightarrow \text{PE} \rightarrow \text{AE} \rightarrow \text{SE}\} \leftarrow \text{SI} \rightarrow \text{CI} \rightarrow \text{PI} \rightarrow \text{AI} \rightarrow \text{SI} \rightarrow \text{CI} \rightarrow \text{PI} \rightarrow \}
\]

where the activities shown in parentheses indicate the possibility to control internal and external management parts (Tauzović, 2012b).

Symbolically viewing, the merging external management supply (3.SE) with internal management supply (3.SI) the possibilities of operations and production system are brought into direct connection, as being a unique entity (system), which in the first case can be viewed as static (of defined [designed] structure) and in the second case as dynamic (using the processes through the structure) entity (system).

On the basis of more detailed (systems) analyses of individual management parts it is possible to determine their (systems) syntheses as a basis for making decisions about the existence (and the objective) of the system (organization) and subsystems (production system). Determining the synthesis, the objective markets are determined as well, where the products (goods, information, management, and services) produced in the production system will be distributed. As the synthesis of management determines the (overall) system, it should be done through the (compromise) optimization, first, for the external part – as the optimization of the system (organization), and based on the optimization, or in accordance with it, determined (a compromise) suboptimisation of the internal part – as the optimisation of subsystems (production system) (Figure 6). To sum up, the optimization of the production system (made in the internal part) is determined based on obtained optimization of the organization (made in the external part).

Although advance management could have accepted the possibility for both optimizations to use the same evaluation measures, in modern (comprehensive) management it is possible to use different mutually harmonised (analogue) evaluation measures, namely: (i) the following measures may be used \(\rightarrow 1.1\). Organizational competitiveness [as general] \(\leftarrow 1.2\). Organizational quality [as general] \(\rightarrow 2\). Productivity (directed to profitability) \(\rightarrow 3\). Efficiency \(\rightarrow 4\). Effectiveness for optimization of organization (system), i.e. its external part (Tauzović, 2006), and (ii) the following evaluation measures \(\rightarrow 1.1\). Individual competitiveness [of product – as specific] \(\leftarrow 1.2\). Individual quality [of product – as specific] \(\rightarrow 2\). Costs (of product production) \(\rightarrow 3\). Flexibility (production of product) \(\rightarrow 4\). Timeliness (product distribution [delivery] at particular market) may be used for optimization of an individual product (produced in a production, its internal part, system [subsystem]) (Tauzović, 2009). As the basis of the organizational optimization (as system), quality (intelligent) simulation may be used (with which [relatively] much information may be obtained by using a few data), and the quantity (technical) simulation is usually used for determining the optimization of a production system (that is, the mean value of production of all products – as subsystems) (which provides [relatively] few information based on a large number of data).

4. Systems management concepts (SMC)

Development of certain parts of the global economy has not evaded business organizations, as their most international part. The establishment of General Systems Theory (as a scientific discipline) has provided the possibility to determine systems theories in some practical areas as well. It made possible the establishment of the Systems Management Theory (Tauzović, 2000), which is...
being studied in the present and develops system entities management in relation to their environment as well. Modern management systems do not only manage the systems entities, but they also manage the systems entities and their direct (internal), and even indirect (external), environments. Systems Management Theory (SMT) is required not only for this kind of management, but also its extension (or upgrade) called System Management Concepts (SMC). However, these SMT extensions, required some special guidelines in the initial period for their further development. If such guidance related to business systems (organizations), these concepts were named Systems Concepts of Business Management. Thus, it was about “business” management, which had not only business systems managements as its basis, but also business systems management (business organizations, including operations systems, production systems and working units [as the basic organizational unit]) and their (business) environments. Since modern business systems belong to the most complex systems in the global economy, SMC of all other modern (organizational) systems can be established and developed on the basis of the results obtained from their research (Tauzović, 2013).

4.1. Basic Systems Concepts

In the article Modern Management (Tauzović, 2012a) the basic systems concepts were determined, mainly, through TGC, the most significant of which are listed below in Table 1 (Tauzović, 2013).

**Table 1**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3. Organic. funct.</td>
<td>2.3.1. Prosperity</td>
<td>2.3.2. Marketing</td>
<td>2.3.3. Resources</td>
<td>2.3.4. Operations</td>
<td>2.3.5. Finance</td>
</tr>
</tbody>
</table>

Source: Author

4.2. Expanded Systems Concepts

Combination of basic systems concepts can result in obtaining their expanded forms. Therefore, combining:

1) Organizational and management functions concepts may lead to the modern definition of (organizational) systems management. Therefore, modern management of organizational systems can be defined as the process of effective and efficient (based on systems approach) union of organizational (prosperity, marketing, resources, operations and finance) and managerial (competitiveness, planning, organization, directing and controlling) functions. This means that an organization can be prosperously competitive if it effectively and efficiently connects its organizational and managerial functions, i.e. prosperity and competitiveness, marketing and planning, organizes resources, directs operations and controls finances.

2) Managerial and conceptual concepts:

2.1. of management, the needs for (modern) management are obtained:

→ (Competitive Concepts ← Quality Theory) →
→ Productive Knowledge → Efficient Information → Effective Data →.

2.2. of research, the needs for (modern) research are obtained

→ (Competitive Concepts ← Quality Data) →
→ Productive Information → Efficient Knowledge → Effective Theory →.

3) Concepts of external and internal management, leads to the following:

→ (General and Individual Competitiveness ← General and Individual Quality) →
→ Profitable Costs → Efficient Flexibility → Effective Timeliness →.

4) Consumer concepts and concepts of internal management, it is proved that the following links exist:

→ (Why – Competitiveness ← What – Quality) →
→ How much, When, Where – Costs →
→ How – Flexibility → For whom (for consumers and managers [employees]) – Timeliness → etc.

(Tauzović, 2013).

4.3. Complex systems concepts

Although it is possible to specify more complex systems management concepts in different ways, here this will be done using (implementing) the
conceptual Tauzović’s General Concept (TGCc) (Tauzović, 2009). For the direct comparison of internal and external organizations (systems) management, appropriate TGCp actions of internal management (Figure 5) can be “raised” (moved) for two “levels” according to TGCt of external management, so that the activities of the organization and control (as the “initial” [inputs] and “final” [outputs] activities of transformation [synthesis] individual management parts) can be directly compared (Figure 7).

Figure 7 Conceptual Tauzović’s General Concept (continuum) (TGCc) of organization. Source: Author, 2009

Figure 7 provides detailed separate relations between the activities of external (E) and internal (I) management. Here are the comparisons of particular importance and for further direction of individual synthesis with internal preparations, namely:

1. Target (goal) market of external management (PEE)  
   →  Planning (Bus.) process for needs of (goal) activities markets of internal management (PEI) 
   →  Production as internal management synthesis (SI), which represents the basis for business system (organization) design (redesign), and

2. Objective markets activities of internal management (PIE)  
   →  Planning production (PEI)  
   →  Designing facilities (SE - as external management synthesis), as the basis for business system (organization) improvement (Figure 7).

4.4. Upgraded systems concepts

Procedures for determining complex SMC (Figure 7), based on model systems organisation management by using their parts (Figure 5), possible directions for their further comprehensive research have been determined as well, which is particularly related to the upgraded (internal and external) systems management concepts (or adjustment) of system environments – general (or external) and working (target [goal] or internal) economic activities markets, in which (business) organization participates with its products (goods, information, management, services). If the TGCp activities of internal organization (system) management again “raise” (transfer) for two “levels” through TGCt activities of its external management (Figure 7), then it is possible to determine its systems concepts of its working (goal) or internal environment called the internal system concepts of the environment management (Figure 8). To determine the external systems concepts of environment management, then it is necessary to “raise” (move) the TGCt activities for four “levels” through TGCp activities of internal systems concepts of environment management (Figure 8), so that the overall system concepts of internal (working [goal]) and external (general [business]) environment management, or an upgraded systems concepts of system management, form two specific parts of external and internal environment management, analogous to the parts of systems organisation management. Therefore, the first, or external, part of upgraded systems concepts is specific TGCt, while the other, or internal, part of upgraded systems concepts is specific TGCp, and they are connected to the appropriate supply activities – external (3.Seecc) and internal (3.Siec) environment management (Figure 8).

Figure 8 Basis of environment systems concepts (based on the parts) Source: Author

Based on this, foundation (processes) organization design is based on external (general [busi-
ness]) upgraded systems management concepts, while the base for (the process of) production system based on internal (working [goal]) upgraded systems concepts. Due to the lack of appropriate terminology for a more detailed elaboration of upgraded systems concepts, the names for specific activities of these concepts should be specifically determined, which requires broader participation and agreement of the modern systems participants in management (managers and customers). The basis for such determination (according to Figure 8) is given, in particular:

1. Upgraded systems concepts of the external environment management (Eec [eec]) TGCt \( \rightarrow \) 1. Preparations (Eec) \( \rightarrow \) 1.1. Epee [Eec need activities] \( \leftarrow \)
   \( \rightarrow \) 1.2 Ipee [Eec policies activities] \( \rightarrow \) 2. Aeec (Eec support activities) \( \rightarrow \)
   \( \rightarrow \) 3. See (Eec supply activities) \( \rightarrow \) 4. Ceeec (Eec improvement activities) \( \rightarrow \)}, and

2. Upgraded systems concepts of internal environment management (Iec [iec])

TGCp \( \rightarrow \) 1. Preparations (Iec) \( \rightarrow \) 1.1. Ipiec [Iec needs activities] \( \leftarrow \)
   \( \rightarrow \) 1.2. Ipiec [Iec policies activities] \( \rightarrow \) 2. Aiec (Iec support activities) \( \rightarrow \)
   \( \rightarrow \) 3. Siiec (Iec supply activities) \( \rightarrow \) 4. Cieec (Iec improvement activities) \( \rightarrow \)},

which are analogous to the basic concepts of external (TGCt) and internal (TGCp) – organization management (Figure 8).

The detailed determination and implementation of upgraded systems concepts makes it possible to determine that not only that the electronic business management (as management of virtual organization) (Tauzović, 2012d) does not differ from the traditional system of information management (Chaffy, 2009), but it is a special kind of metamanagement. Since metamanagement belongs to modern systems management, therefore SMC, particularly upgraded systems concepts, can be a good basis for its further systems research.

Continuing the research of modern systems management concepts can result in numerous, more complex concepts and, further on, to principles. All of them, essentially, may have significance, method and way to achieve the competitiveness of the organization as the basis. Under 1.1 Competitiveness, why customer and manager are involved in economic activities market, it should be identified with what it is done – 1.2 Quality. Quantity (How much, When [Time], Where [Place]) is connected to 2. Profitability, and that becomes evident by 3. Efficiently flexible (Why), and For whom (for both customer and manager) refers to the 4. Effectively timely. Presenting the activities why, what and how Tauzović’s General Continuum (TGC) shows supply balance, while the quantity (How mach, When and Where) and for whom represents a profit balance (as the difference between total revenues and total costs) (Figure 3). The same logic can be applied to the external and internal management.

In this way, the supply balance, that is: 1.1. Competitiveness (why), 1.2 Quality (what) and 3. Efficiently flexible (how), determines the possible modern concept of competitiveness. It could be:

Competitiveness of the organization (why) is considered to be the degree to which it can, under free and fair market conditions, provide (produce) high quality products (what) for faithful customers (consumers [buyers]) needs, while maintaining and improving the welfare of its loyal managers (employees [producers]) (how) (according to Tauzović, 1998, p.169).

Having this in mind, it can be considered that systems procedures (processes) of using (real) data led to the establishment of future systems management concepts, which means the basis for future expansion and upgraded of modern management. Since in SMT competitiveness is “determined” by the matrix of performance measures, as its relative quality measure of evaluation (Tauzović, 1998), in SMC competitiveness is determined by the absolute quality measures of evaluation, i.e. good mutual relations between customers and managers. Thus, SMT should be replaced with its extension, or upgrade, SMC.

**Conclusion**

From the standpoint of modern systems (comprehensive) management, Modern application of TQM, is studied through: (1) Modern Systems Management Theory (SMT) and (2) Modern Systems Management Concepts (SMC), using modern management methodology – Tauzović’s General Continuum (TGC). While SMT is primarily focused on management of system entities, the essence of SMC is used to manage systems and their environments, with the necessary support from the system entities themselves. Since modern management does not only refer to management of the systems wholes, but also to management of systems environments, modern SMC, even though essentially based on modern SMT, are significantly different from it. The primary objective of the first one is to achieve competi-
tiveness, while the primary objective of the other one is to achieve productivity (or, progressively, profitability) of all organizations, especially business ones. Even though competitiveness and productivity (profitability) are cause-and-effect connected, comprehensive research into their approaches, contents, results and applications have to start from different demands.

For productivity (profitability), they start from the demands of the whole (system), while competitiveness is based on the demands of environment hence narrow (working [target] – internal) and wider (general [business] – external) market the organization participates in. A successful cause-and-effect connection can be established between productivity (as a result of using the SMT) and competitiveness (as the result of using SMC) in a business organization, but only if quality productivity (profitability) is skilfully „transformed” into the prosperous competitiveness of the business on the (global) business market.

In modern SMC, why (modern) organizations exists should be the starting question, where the answer should be – so that they can be prosperously competitive (and managers [employees or producers] loyal and customers [buyers] faithful), which means that modern management needs to provide the real things (what – quality [effective and timely]) and in the right way (how – profitably [efficiently and flexibly]). This means that only organizations that are prosperously competitive (why), i.e. timely effective (what) and flexibly efficient (how) can survive and be further developed (i.e. be prosperous) in business activities markets and in [specific] business market as well (Tauzović, 2012c). Therefore, modern management of (business) organizations, by using modern SMC, should simultaneously ensure the customers’ (consumers’) faithful (satisfaction) and managers’ (employees’) loyalty, and hence achieve perspective competitiveness.

References


Correspondence

Jovo T. Tauzović
Independent researcher into Systems Management Theory
Bujevina 122, 85337, Risan, Montenegro
E-mail: tauz@t-com.me
Manuscript Requirements

A paper must be written in text processor Microsoft Word. Paper size: A4. Margins: 3.0 cm on top and bottom, and 2.5 cm on left and right sides. As a guide, articles should be no more than 5,000 words in length. In case the paper exceeds the normal length, the Editors’ consent for its publication is needed. Articles submitted for publication in Journal should include the research aim and tasks, with detailed methodology, presenting literature overview on the research object, substantiation of the achieved results and findings, conclusions and a list of references. Manuscripts should be arranged in the following order of presentation.

First page: Title (no more that 10 words), subtitle (if any), autobiographical note (the author's full name, academic affiliation, telephone, fax and e-mail address and full international contact). Respective affiliations and addresses of co-authors should be clearly indicated. Please also include approximately 50 words of biographical information on each author of the submitted paper.

Second page:
- A self-contained abstract/summary/resume of up to 150 words, describing the research objective and its conclusions
- Up to ten keywords, which encapsulate the principal subjects covered by the article; and
- A self-contained summary of up to 200 words, describing the article and its conclusions.

Subsequent pages: Main body of the text with headings, footnotes, a list of references, appendices, tables and illustrations. The paragraph parameters are:
- Font: Times New Roman, 10 pt, regular
- Spacing: Before: 0, After: 0
- Line Spacing: Single
- Alignment: Justified
- Indentation: Left: 0, Right: 0, Special: 0.
- Style: Normal (not Title, Heading1, Heading2,...,Body Text, etc!)

Leave an empty line between paragraphs.

Headings: Headings must be short, clearly defined and numbered, except for Introduction and Conclusions. Apply at most three levels of headings. Please, leave two empty lines before headings and one empty line after. Font: Times New Roman, bold, 16 pt, centered.

Section headings should be in bold with Leading Capitals on Main Words, Times New Roman, 14pt, bold, centered.

Sub-section headings should be in italics, with Leading Capitals on Main Words, Times New Roman, 12 pt, bold.

All tables, graphs and diagrams are expected to back your research findings. They should be clearly referred to and numbered consecutively in Arabic numerals. They should be placed in the text at the appropriate paragraph (just after its reference).

Tables should be centered. All tables must have captions. The title of your table should follow the table number. Tables should not be wider than the margins of the paper. Skip two lines before and after each table.

Figures should be centered. All figures must have captions. The title of figures should appear immediately below the figure. The title of the figure should follow the figure number. Figures should not be wider than the margins of the paper. Skip two lines before and after each figure. Figures will not be redrawn by the publisher. Figures should be high-quality grayscale graphics (please, do not use colors): vector drawings (with text converted to curves) or 300 dpi bitmaps. Please do not supply any graphics copied from a web-site, as the resolution will be too low. In all figures taken or adapted from other sources, a brief note to that effect is obligatory, below the figure. One sentence at least referring to the illustration is obligatory.

Mathematical expressions should be numbered on the right side, while all variables and parameters must be defined.
Copyright
Articles submitted to the Journal should be authentic and original contributions and should have never been published before in full text, nor be under consideration for any other publication at the same time. Authors submitting articles for publication warrant that the work is not an infringement of any existing copyright and will indemnify the publisher against any breach of such warranty. For use of dissemination and to ensure proper policing of use, papers and contributions become the legal copyright of the publisher unless otherwise agreed.

Proof
Authors are responsible for ensuring that all manuscripts (whether original or revised) are accurately typed before final submission. One set of proof will be sent to authors, if requested, before the final publication, which must be returned promptly.

Referencing Guide
The references should specify the source (such as book, journal article or a web page) in sufficient detail to enable the readers to identify and consult it. The references are placed at the end of the work, with sources listed alphabetically (a) by authors’ surnames or (b) by the titles of the sources (if the author is unknown). Multiple entries by the same author(s) must be sequenced chronologically, starting from the earliest, e.g.:


Here is a list of the most common reference types:

A. PERIODICALS
Authors must be listed by their last names, followed by initials. Publication year must be written in parentheses, followed by a full stop. Title of the article must be in sentences case: only the first word and proper nouns in the title are capitalized. The periodical title must be in title case, followed by the volume number, which is also italicized:


Journal article, one author, paginated by issue
Journals paginated by issue begin with page 1 in every issue, so that the issue number is indicated in parentheses after the volume. The parentheses and issue numbers are not italicized, e.g.


Journal article, one author, paginated by volume
Journals paginated by volume begin with page 1 in issue 1, and continue page numbering in issue 2 where issue 1 ended, e.g.


### B. BOOKS, BROCHURES, BOOK CHAPTERS, ENCYCLOPEDIA ENTRIES, AND BOOK REVIEWS

**Basic format for books**

Author, A. A. (Year of publication). *Title of work: Capital letter also for subtitle*. Location: Publisher.

**Note:** “Location” always refers to the town/city, but you should also include the state/country if the town/city could be mistaken for one in another country.

**Book, one author**

Book, one author, new edition

Book, two authors

Book, three to six authors

Book, more than six authors

Book, no author or editor

Group, corporate, or government author

Edited book

Chapter in an edited book

Encyclopedia entry

C. UNPUBLISHED WORKS

Paper presented at a meeting or a conference

Paper or manuscript
Doctoral dissertation

Master's thesis

D. ELECTRONIC MEDIA

The same guidelines apply for online articles as for printed articles. All the information that the online host makes available must be listed, including an issue number in parentheses:


Article in an internet-only journal

Document from an organization

Article from an online periodical with DOI assigned

Article from an online periodical without DOI assigned
Online journal articles without a DOI require a URL.


REFERENCE QUOTATIONS IN THE TEXT

Quotations
If a work is directly quoted from, then the author, year of publication and the page reference (preceded by “p.”) must be included. The quotation is introduced with an introductory phrase including the author's last name followed by publication date in parentheses.

According to Mirković (2001), “The use of data warehouses may be limited, especially if they contain confidential data” (p. 201).
Mirković (2001), found that “the use of data warehouses may be limited” (p. 201). What unexpected impact does this have on the range of availability?

If the author is not named in the introductory phrase, the author's last name, publication year, and the page number in parentheses must be placed at the end of the quotation, e.g.

He stated, “The use of data warehouses may be limited,” but he did not fully explain the possible impact (Mirković, 2001, p. 201).

✦ Summary or paraphrase

According to Mirković (1991), limitations on the use of databases can be external and software-based, or temporary and even discretion-based. (p.201)

Limitations on the use of databases can be external and software-based, or temporary and even discretion-based (Mirković, 1991, p. 201).

✦ One author

Boškov (2005) compared the access range...

In an early study of access range (Boškov, 2005), it was found...

✦ When there are two authors, both names are always cited:

Another study (Mirković & Boškov, 2006) concluded that...

✦ If there are three to five authors, all authors must be cited the first time. For subsequent references, the first author’s name will cited, followed by “et al.”.

(Jovanov, Boškov, Perić, Boškov, & Strakić, 2004).

In subsequent citations, only the first author’s name is used, followed by “et al.” in the introductory phrase or in parentheses:

According to Jovanov et al. (2004), further occurrences of the phenomenon tend to receive a much wider media coverage.

Further occurrences of the phenomenon tend to receive a much wider media coverage (Jovanov et al., 2004).

In “et al.”, “et” is not followed by a full stop.

✦ Six or more authors

The first author’s last name followed by "et al." is used in the introductory phrase or in parentheses:

Yossarian et al. (2004) argued that...

… not relevant (Yossarian et al., 2001).
Unknown author
If the work does not have an author, the source is cited by its title in the introductory phrase, or the first 1-2 words are placed in the parentheses. Book and report titles must be italicized or underlined, while titles of articles and chapters are placed in quotation marks:

A similar survey was conducted on a number of organizations employing database managers ("Limiting database access", 2005).

If work (such as a newspaper editorial) has no author, the first few words of the title are cited, followed by the year:

(“The Objectives of Access Delegation,” 2007)

Note: In the rare cases when the word "Anonymous" is used for the author, it is treated as the author's name (Anonymous, 2008). The name Anonymous must then be used as the author in the reference list.

Organization as an Author
If the author is an organization or a government agency, the organization must be mentioned in the introductory phrase or in the parenthetical citation the first time the source is cited:

According to the Statistical Office of the Republic of Serbia (1978), …

Also, the full name of corporate authors must be listed in the first reference, with an abbreviation in brackets. The abbreviated name will then be used for subsequent references:

The overview is limited to towns with 10,000 inhabitants and up (Statistical Office of the Republic of Serbia [SORS], 1978).

The list does not include schools that were listed as closed down in the previous statistical overview (SORS, 1978).

When citing more than one reference from the same author:
(Bezjak, 1999, 2002)

When several used works by the same author were published in the same year, they must be cited adding a, b, c, and so on, to the publication date:

(Griffith, 2002a, 2002b, 2004)

Two or more works in the same parentheses
When two or more works are cited parenthetically, they must be cited in the same order as they appear in the reference list, separated by a semicolon.

(Bezjak, 1999; Griffith, 2004)

Two or more works by the same author in the same year
If two or more sources used in the submission were published by the same author in the same year, the entries in the reference list must be ordered using lower-case letters (a, b, c…) with the year. Lower-case letters will also be used with the year in the in-text citation as well:

Survey results published in Theissen (2004a) show that…
To credit an author for discovering a work, when you have not read the original:
Bergson’s research (as cited in Mirković & Boškov, 2006)…

Here, Mirković & Boškov (2006) will appear in the reference list, while Bergson will not.

When citing more than one author, the authors must be listed alphabetically:
(Britten, 2001; Sturlasson, 2002; Wasserwandt, 1997)

When there is no publication date:
(Hessenberg, n.d.)

Page numbers must always be given for quotations:
(Mirković & Boškov, 2006, p.12)
Mirković & Boškov (2006, p. 12) propose the approach by which “the initial viewpoint…

Referring to a specific part of a work:
(Theissen, 2004a, chap. 3)
(Keaton, 1997, pp. 85-94)

Personal communications, including interviews, letters, memos, e-mails, and telephone conversations, are cited as below. (These are not included in the reference list.)
(K. Ljubojević, personal communication, May 5, 2008).

FOOTNOTES AND ENDNOTES
A few footnotes may be necessary when elaborating on an issue raised in the text, adding something that is in indirect connection, or providing supplementary technical information. Footnotes and endnotes are numbered with superscript Arabic numerals at the end of the sentence, like this. Endnotes begin on a separate page, after the end of the text. However, Strategic Management journal does not recommend the use of footnotes or endnotes.
005.21


Tromesečno. - Nastavak publikacije: Strategijski menadžment = ISSN 0354-8414
ISSN 1821-3448
COBISS.SR-ID 244849927

Rešenjem Ministarstva za informisanje Republike Srbije, časopis "Strategijski menadžment" upisan je u registar javnog informisanja pod brojem 2213, od 7. avgusta 1996. Rešenjem Ministarstva za nauku i tehnologiju Republike Srbije br. 413-00-435/1/96-01 časopis je oslobođen opšteg poreza na promet proizvoda kao publikaacija od posebnog interesa za nauku.