

Leadership characteristics that influence corporate efficiency

Annamaria Kazai Ónodi – Rita Répáczki

Economic focus analysis alone cannot answer an organisation's efficiency issues, as the soft attributes associated with management skills and leadership qualities are also important. According to transformational leadership theory (Bass–Avolio 1994, Bass 1990, Judge–Bono 2000, Bass–Bass 2008), there is a transformation between the manager and the subordinate, in which the two parties interact with and affect each other. A joint two-phase study was conducted to investigate the role of management in increasing corporate efficiency. As a first step, financial data of 1752 Hungarian manufacturing firms were analyzed. Companies were grouped according to their TFP (total factor productivity) (Juhász et al. 2020). As a second step, we linked a questionnaire survey to the preliminary TFP categorization. In our questionnaire research, we examined the individual characteristics, qualities, and specialties of leadership practices concerning the economic performance of the organizations. According to our findings, both the individual qualities of the leader and the characteristics of the leadership practice are decisive for the efficiency and results of the organization.

Keywords: leadership, managerial behaviour, TFP, efficiency

1. Introduction

Economic focus analysis alone cannot answer an organization's efficiency issues, as the soft attributes associated with management skills and leadership qualities are also important. According to Syverson (2011), the different productivity of companies can be caused by the different quality of management. Management itself, more specifically its quality, influences profit. Bloom et al. (2010, 2012a, 2012b) conducted an extensive research on 10,000 business organizations in 20 countries, looking, among other things, at the relationship between management and corporate productivity. Based on the performance scoring system for leadership and the performance of companies in the competitive sector, there was a strong correlation between managerial practice scores and work productivity as well as capital efficiency.

Multinational companies adapt their management methods and best practices to their local subsidiaries, which can also be a reason for the productivity differences between domestic and foreign-owned companies. A more developed market and more intense competition force better management practices, but we should not forget that the qualifications of managers also influence the management practices and methods applied.

One study (Czakó et al. 2016) compared 10 case studies of Hungarian-owned companies with high export intensity (Ábel–Czakó 2013) with a quantitative analysis of 4,000 companies (Reszegi–Juhász 2014). The studies confirmed that on the one hand, the background knowledge and experience of the owner or the top manager largely

influence strategy and export performance. On the other hand, encouraging companies to export is not enough by itself. For companies to be competitive or to remain competitive, they need to operate effectively and in addition to generating income and creating value, they need to be able to thrive, innovate, and continually develop.

A joint two-phase study was conducted to investigate the role of management in increasing corporate efficiency. As a first step, the financial data of 1752 Hungarian manufacturing firms were analyzed. Companies were grouped according to their TFP (total factor productivity). (Juhász et al. 2020) This method is based on Reszegi and Juhász's previous researches (Reszegi–Juhász 2014, Juhász–Reszegi, 2017) that presented the multilayer duality characteristic of the Hungarian economy. As a second step, we linked a questionnaire survey to the preliminary TFP categorization. In our questionnaire research, we examined the individual characteristics, qualities and specialties of leadership practices concerning the economic performance of the organizations.

2. Interpretation of leadership effectiveness

There are different definitions for leadership, each of which clarifies one aspect of leadership operation and process. Leadership is defined as the ability to influence the group and direct it towards the intended goals (Judge et al. 2009). Leadership is a structured unit, consisting of the current needs. In leadership, participation is the key and the most important aspect (Bennis 1999). Leadership is said to be a decisive and powerful process in the day-to-day life of an organization, which influences the entire organization through influencing the way of operation, technology, human relationships, and decisions. Leadership is an extremely complex process, as Stogdill (1950) defines: a process in which the leader, influencing the group, ensures the formulation and achievement of goals. According to this interpretation, leadership is such a process in which the leader is able to influence others and make them behave in a specific way. The leadership process typically takes place in a group setting; members of this group are subordinates and followers of the leader; and the leader's goal is to guide the group members towards the goals, whether they are setting goals or achieving them.

There is an interaction between the manager and the subordinates, and leadership can gain space solely through this interaction process. (Burns 1978, Hollander 1992, Jago 1982). One of the interpretations of leadership efficiency says that the key of managerial efficiency is to achieve goals. After the 1980s, this leadership definition was expanded (Pfeffer 1981, Smircich–Morgan 1982, Weick 1995). According to the new point of view, the role of leadership goes beyond reaching goals. Defining organizational reality and goals was said to be the leader's most important task and responsibility. Thereby the leader defines the main direction of the processes, creating order in chaos, setting goals, expectations and frameworks (Grint 2011).

In business life it is particularly difficult to determine what "effective leadership" means. Burns (1978) defines it as a mobilization process that aims to encourage subordinates with different motivations, values, strengths, and weaknesses

to perform. According to Gardner (1995), a leader is one who can influence the behaviour, thinking, and feelings of others through words and personal example. The essence of effective leadership is a balance of performance and satisfaction that creates value for the leader, the organization, and the wider society at the same time. According to the current scientific view, traits do not guarantee managerial effectiveness, yet there is a consensus among different researchers that certain traits can be used to distinguish effective managers from less effective ones (Van Eeden et al. 2008). Ideas about these traits are very diverse. Some see the key to effectiveness in vision-related characteristics (Bennis–Nanus 1985), others trace good performance to emotional factors (George 1995), and many researchers also emphasize the prominent role of interpersonal skills (Balkundi–Kilduff 2005, Hogan–Kaiser 2005).

Trait theory approach (Stogdill 1950, House 1976, House–Jacobsen 2001) strongly emphasizes the importance of leadership qualities and competencies. This approach presumes that the leader's personal qualities are the key of effective leadership. This theoretical framework assigns a prominent role to the leader himself in the leadership process, eliminating other components of leadership (i.e. followers, leadership situation or the leadership process itself) (Kotter 1999, Klein 2002). The main message of the trait theory approach is that it depends on the presence of certain qualities to become an effective leader. According to the concept, these qualities are either innate or not.

However, this approach is worth looking at a little further. Based on the concept of skills theory approach (Katz 1955), leadership competencies can be developed by gaining experience in the leader role. So even if one were not born with the necessary leadership qualities, one can take the chance to acquire them by developing themselves properly. The skill theory approach also considers the leader to be the focus of the leadership process (Northouse 2007), but sees the attributes as variable and upgradeable. If leadership can be learned, more people will have the opportunity to become a leader and even more can become effective leaders.

Although the approach to managerial effectiveness along personality also concluded with a number of valuable research findings, by the early 2000s it became apparent that this approach did not provide an explanation for understanding managerial effectiveness. In addition to managerial characteristics, efficiency is also closely related to the manager-subordinate relationship. This conceptual commitment grounded transactional and transformational leadership theories. These theories were immediately preceded by the results of GLOBE research on leadership, which found that personality traits that characterize a leader act only as mediating variables in leader success and effectiveness (Lord–Emrich 2001). The concepts of transactional and transformational leadership provide a much more realistic theoretical framework for interpreting managerial efficiency. These theories were developed by Burns (1978) and were further developed by Bass (1985). While Burns viewed the two styles as two endpoints of one dimension, Bass declared that transactional and transformational leadership conceptions have already been treated as two separate dimensions, i.e. he believed that a leader could be characterized by both styles to some degree (Judge–Bono 2000).

Leadership process itself ensures the greatest chance of development of a leader. According to transformational leadership theory, the leader and subordinates are in constant relationship with each other, influencing each other. In Burns's concept, transformational leadership is about exploring and harnessing subordinates' motivation to achieve common goals. Thus, in his view, the essence of leadership is not power, but the leadership-subordinate relationship itself (Burns 1978). Burns (1978) distinguishes transformational and transactional leadership. A transactional leader relies on business based on exchanging or dealing with subordinates. (Klein 2002). Depending on the completion of the defined tasks, the transactional leader rewards or punishes. However, the transformational leader already goes beyond this: his goal is to establish a relationship with his subordinates that will increase both the subordinates and the leader's motivation and morale. This type of leader is sensitive to feedback from subordinates and wants to help them make the most of themselves. Such a leader can become much more effective than a leader who cannot go beyond the level of transactional leadership. The transformational leader is able to assess and consider when and where change is needed. This leader constantly develops and adapts himself to meet the changes taking place around him. He is able to activate and mobilize his subordinates for development and needed change (Anderson 1992). This leader is able to think in a system and strive to see things in their own reality. He goes beyond the present status and organizes his own leadership activity in a longer term (Bono–Judge 2004). As its name implies, transformational leadership is a process by which people are constantly transformed. According to Northouse (2007), transformational and transactional leadership are two interrelated concepts, since the concept of transformational leadership encompasses the essence of transactional leadership, somewhat expanding it with modern features of leadership. A transformational leadership style cannot replace the transactional, but can complement it and make it more efficient (Northouse 2007). Transactional leadership style is characterized more by task-oriented behaviour, and transformational leadership style is characterized more by relationship-oriented behaviour (DeRue et al. 2011). Transformational leaders, therefore, act as mediators of social and organizational change over transactional leaders. The theoretical approach that handles the dimensions of transactional and transformational leadership together is commonly referred to as a comprehensive model in the literature (Van Eeden et al. 2008). Transformational leadership is currently the most widely accepted leadership paradigm (Rubin et al. 2005). Research over the past twenty years has most often made leadership effectiveness dependent on transformational leadership style (Judge–Bono 2000), so we can state that this behaviour is considered to be the leadership style best suited to the ongoing market changes of the modern age (Van Eeden et al. 2008).

3. Research method and database

The goal of the research is to test the assumption that different companies' performance is based on different management knowledge, methods, manager characteristics and personal preferences. We aimed to discover the relations among these factors in a joint two-phase study. In the first step, László Reszegi, Péter Juhász

and Miklós Hajdú conducted a comprehensive financial analysis for the period between 2014 and 2017 of Hungarian companies which submit an annual report according to the Hungarian Accounting Standards. The Bisnode company provided a database. The final database contained 5392 companies. (For trends in manufacturing see Juhász–Reszegi 2019 and Juhász 2019.) The second phase of the research focused on the 1725 manufacturing companies involved in the financial analysis. The importance of manufacturing companies is verified by the fact that 55.4% of Hungarian employees and 85.3% of the Hungarian export are related to this sector.

Our research objective is to combine financial performance with soft management factors while maintaining anonymity. Although dealing with this dual goal together was a challenge, forming company groups eventually solved the problem. Reszegi and Juhász (2014) pointed out the double duality of the Hungarian economy. Based on their research it was important to distinguish between foreign and domestic owned companies, exporting and non-exporting companies, and low and high-wage companies, because considering these features revealed significant differences in productivity. Besides these three dimensions, we included TFP (Total Factor Productivity) as the fourth investigative factor in the research. The questionnaire related to this research surveyed the ownership structure and export intensity, therefore, the groups formed were only based on TFP and average wage level. TFP groups were based on cluster analysis and were tested by regression analysis. Juhász et al. (2020) also used the 2016 wage survey data of the Hungarian Central Statistical Office for creating two wage level groups. Manufacturing companies were classified into two groups based on their wage levels and three groups based on TFP, so there were eventually 6 company groups along these two dimensions.

Different codes identified the six groups. A separate questionnaire was constructed for the groups which differed only in one factor that is the corporate group ID code. Using an online questionnaire supported anonymity and facilitated further processing. We examined the characteristics of the company managers, the applied managerial methods and the application of knowledge with the online questionnaire. The study also covered manager motivations, qualities, and preferences. We applied an interdisciplinary approach, combining a financial analysis with information obtained through psychological tools. The questionnaire consisted of 7 question blocks: respondent details, respondent career path, company characteristics, corporate relationships, human resources management, development and decision making.

The online questionnaire was sent to a total of 3970 managers in the manufacturing industry, sorted into six groups. 9.5% of the managers contacted showed initial interest in the questionnaire. 51% of these managers answered all the questions. A total of 197 managerial responses were received. In most companies, only one senior manager completed the questionnaire. Two questionnaires arrived from 13 companies and there were only 3 cases where more than two managers completed the questionnaire. 64.5% of the managers of domestic owned companies responded, while the proportion of responding managers of foreign-owned companies was only 35.5%, which is below the population parameter (49.4%). Based on the number of employees, the majority of respondents (56.8%) belonged to the mid-size category, but small companies (22.4%) and large companies (20.8%) were also

represented in the sample. Slightly more than half (58.9%) of the respondents belonged to the low-wage company category. This is only slightly different from the population parameter (55.6%). 41% of respondents were currently in a managerial position at a high-wage company. More than 67% of the respondents were managers of a company with exports above 25%. 48% of them had an export intensity of 90% or above, so the average export intensity in the sample was 84%. The managers of medium-productivity companies represented the highest proportion (54%) in the survey, this is slightly above the population parameter (46.7%). Managers of companies with low productivity were less likely to respond thus fewer questionnaires (27.4%) arrived from them than expected according to their proportion (44.3%). Although companies with the highest productivity were only represented with 17.8% in our survey, they are still overrepresented in their population (9%). 56% of the respondents are CEOs, managers, 15% are sales managers, 14% are financial managers, 4.6% are production managers, but there are chief accountants, technical directors, quality managers, site managers, office managers and an HR director among the respondents.

In this paper, we focused on explaining the factors behind productivity differences. The starting point of our research was the financial analysis of Juhász et al. 2020. They analyzed the influencing factors of total factor productivity (TFP) with regression analysis. Companies were grouped according to their productivity (TFP). Three clusters have been created. The cluster with the lowest productivity is labelled TFP 1 (TFP value: 10.9). The cluster with the highest productivity is labelled TFP 3 (TFP value: 12.21) and the cluster between these two is TFP 2 (TFP value: 11.42). Significant differences among clusters were verified by correlation and regression analysis. The explanatory power of the regression model (dependent factor: TFP) on the full-sample was 66%. Linked to the Juhász et al. 2020 research we investigated the effect of non-financial factors on productivity. At first, we investigated the individual characteristics of managers (age, gender, educational background, language skills, career path, professional experience). We used an independent samples t-test comparing TFP clusters. Second, factor analysis was used to investigate leadership competence. Finally, we introduced some significant differences among clusters in connection with leadership practices.

4. Results

4.1. Individual characteristics of managers

4.1.1. Age

Several studies address the relationship between top managers' age and corporate performance. (Hambrick and Mason 1984) In our company sample, the average age of the respondents was 50 years. The proportion of corporate executives aged between 41 and 50 was 38%, and it was 28% for managers aged between 51 and 60. An examination of the relationship between the age of the manager and productivity shows that there is an inverse correlation between company productivity and the age

of the manager. (Some other researches have also shown a negative correlation between the age of managers and the profitability of companies. See Belenzon et al. 2019.) The proportion of managers over 61 was the highest (29.6%) in the lowest productivity group (TFP 1), while among the high productivity companies this proportion was only 11.4%. In the case of top managers, the difference was even greater (46% and 18%) (Table 1).

Table 1 Age distribution of managers by corporate productivity (TFP)

	TFP cluster			TFP cluster – only for top managers		
	1 (n=54)	2 (n=108)	3 (n=35)	1 (n=26)	2 (n=62)	3 (n=22)
Age of managers						
Between 21–30	0.0%	0.9%	2.9%	0.0%	1.6%	4.5%
Between 31–40	14.8%	14.8%	20.0%	7.7%	11.1%	9.1%
Between 41–50	29.6%	41.7%	40.0%	23.1%	34.9%	31.8%
Between 51–60	25.9%	29.6%	25.7%	23.1%	33.3%	36.4%
Over 61	29.6%	13.0%	11.4%	46.2%	19.0%	18.2%

Source: own constuction

The independent samples t-test did not verify the difference among the TFP groups when the age of the leaders was used as an investigation factor, but in the case of the age group it was confirmed. The correlation analysis also indicated a significant but weak negative relationship. In the lowest productivity cluster, the proportion of the managers who belong to an older generation is significantly higher than in the highest productivity cluster.

4.1.2. Gender

78.7% of the respondents were male and only 22.3% were female. The proportion of female managers in the low TFP group is higher (27.8%) than in the highest TFP group (14.3%). The independent samples t-test also confirmed that the higher the TFP of a company is, the lower the proportion of female executives will be.

4.1.3. Educational background

95% of the respondents had a tertiary level education degree. The proportion of holders of a doctorate / PhD / postgraduate diploma was 6.6% of the total sample. When examining the qualifications of managers by TFP clusters, significant differences can be found. In the highest-productivity company group, the proportion of top managers with university qualifications is over 90%, while in the lowest TFP group this number is only 50%. The independent samples t-test confirmed this difference. There was a 31% correlation between the qualifications of the top managers and TFP. (Table 2)

Table 2 Distribution of manager qualifications by corporate productivity (TFP)

Highest level of qualification	TFP cluster – total company sample			TFP cluster – for top managers only		
	1 (n=54)	2 (n=108)	3 (n=35)	1 (n=26)	2 (n=62)	3 (n=22)
Secondary school diploma	7.4%	3.7%	2.9%	7.7%	3.2%	0.0%
College/bachelor's degree	46.3%	29.0%	25.7%	42.3%	24.2%	9.1%
University/master's degree	42.6%	62.6%	54.3%	42.3%	66.1%	68.2%
Doctoral degree/PhD/postgraduate degree	3.7%	4.7%	17.1%	7.7%	6.5%	22.7%

Source: own construction

4.1.4. Language skills

In the entire company sample, 84% of the respondents were at some level of English and 85% had intermediate-level skills in a certain foreign language. The proportion of managers who do not have any foreign language skills is below 4%, their average age is 55 years. 58% of responding managers had a high level of knowledge (fluent) of at least one language, their average age being 47 years (Table 3).

In a high-productivity group, more than 70% of executives are fluent in at least one language, and there is no top manager who does not have at least a basic knowledge of one language. In the lowest productivity cluster, the proportion of those who have a good command of a foreign language is lower than 50%. However, we cannot claim that the level of the managers' foreign language knowledge directly influences productivity. Further analyses have shown that managers' language proficiency correlates more strongly with the firm's ownership structure than with the firm's productivity. There is a significant correlation between the ownership background and TFP, and between the ownership background and the language proficiency level of the managers. The independent samples t-test verified that the managers at the foreign-owned companies have a higher level of language proficiency than the managers at the domestic-owned firms. Such a clear relationship could not be detected in the different TFP groups.

Table 3 Distribution of managers' language knowledge by corporate productivity (TFP)

	TFP cluster – total company sample			TFP cluster – for top managers only		
	1 (n=54)	2 (n=108)	3 (n=35)	1 (n=26)	2 (n=63)	3 (n=22)
Does not have any language skills	5.6%	3.7%	0.0%	3.8%	3.2%	0.0%
Has basic knowledge of at least one language	14.8%	11.1%	5.7%	11.5%	11.1%	0.0%
Intermediate or basic knowledge of one or two languages	33.3%	33.3%	22.9%	38.5%	27.0%	27.3%
Advanced knowledge of one or more languages	29.6%	23.1%	42.9%	26.9%	28.6%	45.5%
Advanced knowledge of several languages	16.7%	28.7%	28.6%	19.2%	30.2%	27.3%

Source: own construction

4.1.5. Career path, professional experience

More than half (57%) of the managers have been working for the same company for more than 10 years. The average length of time spent at their current company in the full sample is 15 years. The longest time was 50 years, where the respondent was 82 years old. The proportion of the managers who joined their current company less than three years ago is below 10%. In the low productivity group (TFP 1), the average time spent at the company was 18 years, while in the highest productivity group (TFP 3) it was 12 years. More than half of the top managers have been at the company for more than 20 years in the TFP 1 group. (Table 4) A negative correlation can be found between the time spent at the company and the productivity of the company. The majority of the executives in each company group has been with the company for more than 10 years. The assumption is that this negative correlation is due to the age of managers. There is a significant (62.6%) correlation between the age of managers and the time spent at the company. Although there is a negative correlation between company productivity and the age of executives (-18.7%) and time spent at the company (-20%), if the partial correlation is considered a control variable, no significant relationship can be detected between the time spent at the company and the productivity.

Table 4 Distribution of time spent by managers at their current company by company productivity (TFP)

	TFP cluster – total company sample			TFP cluster – for top managers only		
	1 (n=54)	2 (n=108)	3 (n=35)	1 (n=26)	2 (n=63)	3 (n=22)
Time spent at the current company: 0–3 years	11.1%	11.1%	2.9%	11.5%	6.3%	4.5%
Time spent at the current company: 3–5 years	9.3%	11.1%	28.6%	0.0%	11.1%	22.7%
Time spent at the current company: 6–10 years	13.0%	21.3%	22.9%	7.7%	19.0%	18.2%
Time spent at the current company: 11–20 years	27.8%	32.4%	28.6%	26.9%	28.6%	31.8%
Time spent at the current company: more than 20 years	38.9%	24.1%	17.1%	53.8%	34.9%	22.7%

Source: own constuction

70% of respondents have been in a managerial position for more than 5 years. The proportion of those in managerial positions for 10 years is 45%. (Table 5) In the group with the lowest TFP, more than half of the top managers have been in leadership positions for over 20 years. The proportion is 22.7% in the group of high-productivity companies. The independent samples t-test confirmed the difference. However, it is also true that if we introduce the age of managers as a control variable, there is no significant relationship between productivity and time spent in a managerial position.

Table 5 Distribution of time spent by managers in a managerial position at their current company by company productivity (TFP)

	TFP cluster – total company sample			TFP cluster – for top managers only		
	1 (n=54)	2 (n=108)	3 (n=35)	1 (n=26)	2 (n=63)	3 (n=22)
Less than 3 years	14.8%	13.9%	5.7%	11.5%	11.1%	9.1%
3-5 years	11.1%	14.8%	34.3%	0.0%	12.7%	27.3%
6-10 years	22.2%	27.8%	20.0%	15.4%	23.8%	13.6%
11-20 years	20.4%	27.8%	25.7%	23.1%	27.0%	27.3%
More than 20 years	31.5%	15.7%	14.3%	50.0%	25.4%	22.7%

Source: own constuction

Managers have held managerial positions in 2.5 companies on average. 30% of them gained managerial experience only at their current company, 41% at more than two companies. The proportion of managers with managerial experience in more than 5 companies is low at 3.6%. There was no significant difference among the TFP clusters, with the lowest mean (2.39) in the lowest TFP cluster and the highest (2.66) in the middle (TFP 2) cluster (Table 6).

Table 6 Number of companies where the manager has held a managerial position

	TFP cluster – total company sample			TFP cluster – for top managers only		
	1 (n=54)	2 (n=108)	3 (n=35)	1 (n=26)	2 (n=63)	3 (n=22)
1	37.0%	30.6%	17.1%	26.9%	28.6%	9.1%
2	18.5%	27.8%	45.7%	23.1%	22.2%	54.5%
3	22.2%	23.1%	17.1%	23.1%	23.8%	13.6%
4–5	1.9%	4.6%	2.9%	23.1%	17.5%	18.2%
More than 5	1.9%	4.6%	2.9%	3.8%	7.9%	4.5%

Source: own construction

Given the fact that, for the majority of the companies, whether they are foreign or domestic owned significantly influences the work experience of managers (correlation 68%), it is worth examining this issue separately by ownership structure. Looking at the career paths of the managers at the domestic owned companies, it can be stated that 58% of the managers and 67% of the top managers have gained experience only at domestic-owned companies. Only 30% of managers currently working for domestic-owned companies had their previous job at a foreign-owned company. (Table 7–8) We cannot say that managers who have previously gained work experience with a foreign-owned company would be more successful in managing their company. If we consider the ownership structure as a control variable, we do not find a significant relationship between previous work experience and productivity. 64% of managers currently working for majority-owned foreign firms also had their previous position with a majority-owned foreign company. Neither did we find any significant relationship between corporate productivity and the managers' previous work experience in this group.

Table 7 Distribution of managers in the entire company sample based on previous work experience

	Domestic owned company			Foreign owned company		
	TFP			TFP		
	1 (n=42)	2 (n=70)	3 (n=15)	1 (n=12)	2 (n=38)	3 (n=20)
Has work experience only at domestic owned companies.	64.3%	57.1%	46.7%	0.0%	0.0%	0.0%
Has work experience in a foreign owned company but has not held any managerial position.	14.3%	18.6%	46.7%	0.0%	21.1%	15.0%
Less than 5 years of managerial experience at a foreign-owned company.	9.5%	4.3%	0.0%	8.3%	5.3%	10.0%
5–10 years of top managerial experience in a foreign-owned company.	9.5%	10.0%	0.0%	41.7%	39.5%	15.0%
More than 10 years in a top managerial position in a foreign-owned company.	2.4%	10.0%	6.7%	50.0%	34.2%	60.0%

Source: own construction

Table 8 Top managers by previous work experience

	Domestic owned company			Foreign owned company		
	TFP			TFP		
	1 (n=20)	2 (n=40)	3 (n=8)	1 (n=6)	2 (n=23)	3 (n=14)
Has work experience only at domestic owned companies.	80.0%	62.5%	62.5%	0.0%	0.0%	0.0%
Has work experience in a foreign owned company but has not held any managerial position.	0.0%	10.0%	25.0%	0.0%	17.4%	7.1%
Less than 5 years of managerial experience at a foreign-owned company.	5.0%	5.0%	0.0%	0.0%	0.0%	7.1%
5–10 years top of managerial experience in a foreign-owned company.	10.0%	10.0%	0.0%	33.3%	34.8%	14.3%
More than 10 years in a top managerial position in a foreign-owned company.	5.0%	12.5%	12.5%	66.7%	47.8%	71.4%

Source: own construction

4.2. Leadership Competence

4.2.1. Presentation of the Leadership Competence Questionnaire module

In our research we used the Leadership Competence Questionnaire to test the importance of leadership competencies in companies' financial effectiveness. The questionnaire was developed for this research, this was the first time we used it. The development of the items of the questionnaire was based on management models operating with leadership competencies and previous literature results. The Leadership Competence Questionnaire module consisted of 36 items, which we presumably grouped into the following factors: Self-efficacy (7 items), Performance motivation (7 items), Relationship orientation (7 items), Power motivation (7 items), Innovation, Openness (8 items).

4.2.2. Examination of the content structure of the Leadership Competence Questionnaire module by factor analysis

Data were analyzed using SPSS for Windows 26.0. In the first step, exploratory factor analysis was used to process the data obtained during the survey. For exploratory factor analysis, principal component analysis was used by Varimax rotation. Scree-plot test was used to determine the factors (Cattell, 1966). With the help of the Kaiser-Meyer-Olkin (KMO) index, we investigated the suitability of our data for factor analysis. The value of KMO is excellent above 0.9, very good above 0.8, satisfactory above 0.7, and no factor analysis allowed below 0.5 (Ketskeméty et al. 2011, Sajtos-Mitev 2007). The Cronbach-Alpha index was used to examine the internal consistency of the resulting scales, which is acceptable above 0.7, good over 0.8, excellent over 0.9 (Ketskeméty et al. 2011, Schweizer 2011).

Items belonging to the original scales of the original questionnaire were slightly rearranged during the exploratory factor analysis. Based on the answers given by the respondents, not all items that were theoretically scaled remained in their presupposed place. Those items were eventually included in the same groups that were considered to be similar. The main goal of the factor analysis was to see how the items organize themselves.

As the first step of the exploratory factor analysis, we examined how close the variables are to each other, which also shows whether our variables are suitable for conducting factor analysis. The adequacy of the factor analysis is estimated by the Kaiser-Meyer-Olkin (KMO) index, which is 0.853 in our case, and the Bartlett's spherical test, which is significant in $p < 0.001$. During the exploratory factor analysis, the items were organized into eight factors, but based on the analysis, five of them proved to be appropriate. As the factors explored beyond these five factors were not appropriate, they were removed. Since we wanted to keep the best items, the factor loading of 0.40 was set as a minimum; and items below were removed. Based on the above factor analysis, items that did not fit were removed from the rest of the analysis, and the remaining items were categorized into five factors.

4.2.3. Reliability analysis of the Leadership Competence Questionnaire module

The five scales were separately tested by reliability analysis: for the first scale Cronbach's Alpha was 0.854; for the second scale Cronbach's Alpha 0.841; Cronbach's Alpha was 0.684 for the third scale, 0.826 for the fourth scale and 0.643 for the fifth scale. Subsequently, by rerunning the factor analysis (KMO=0.857, Bartlett: $p < 0.001$), a five-component factor structure was formed, where the explained variance is 57.78%. The first factor is Innovation (Eigenvalue: 9.15; explained variance: 15.36%); the second factor is Power (Eigenvalue: 3.04; explained variance: 12.53% of the total variance); the third factor is Performance (Eigenvalue: 1.97; explained variance: 12.04%); the fourth factor is Problem solving (Eigenvalue: 1.69; explained variance: 9.99%); and the fifth factor is Humaneness (Eigenvalue: 1.49, explained variance: 7.86%). The loading of all retained items for the given factors reached the specified minimum loading of 0.4. After the factor analysis, a new factor reliability test was performed separately for the factors. Cronbach's Alpha values indicate that each scale on the questionnaire reliably measures what we have developed and that the five scales can be considered independent of each other. The Cronbach's Alpha value indicates a high degree of coherence across all scales. The Cronbach's Alpha value for the complete questionnaire module is 0.899. In the further analysis of the data, the resulting five-component factor structure was considered definitive and this was the basis of the analyses. The scales created and named are shown below.

4.2.4. Presentation of the final version of the Leadership Competence Questionnaire module

Innovation Scale

The Innovation Scale can be interpreted as follows. Those who score high on the scale tend to be open to trying out and applying new opportunities and encouraging their environment to become open to these. These types of individuals are characterized by creativity, the formulation of innovative ideas and the openness to learning and challenges. Situations with change or unknown novelty are inspiring to them. The factor loads of the items included in this scale were between 0.420 and 0.826. (9 items belong to this factor. For example: "I am looking for new possibilities and solutions." "I like to try new things." "I encourage innovation." "I encourage my colleagues to creativity.")

Power Scale

The Power Scale can be interpreted as follows. Those who score high on the scale are characterized by the need to be able to influence situations and strive to be able to do so. They do not like to drift, but rather want to be the makers of situations. They like to win, to convince, to influence and they feel very bad when they cannot. They like situations from which they can come out as winners according to their objective and self-defined subjective aspects. The factor loads of the items in this scale were between 0.530 and 0.840. (7 items belong to this factor. For example: "The greater my influence over the events, the better I feel." "I try to influence the people around me." "I am only calm when things work out according to my plans.")

Performance Scale

The Performance Scale can be interpreted as follows. Those who have high scores on the scale keep meaningful results important. They like to work and always want to be effective and productive. They are willing to do this themselves and expect their environment to do the same. Situations where they can be challenged are inspiring and motivating. They encourage themselves and their environment to win and achieve the best possible performance. Factor loads of the items in this scale range from 0.525 to 0.718. (6 items belong to this factor. For example: "I always achieve my goals." "To achieve my goal, I find the tools even if someone is against me." "I expect productivity and high speed at work.")

Problem Solving Scale

The Problem Solving Scale can be interpreted as follows. Those who score high on the scale are not scared of new or difficult situations but rather find them challenging. They are willing and able to focus on solutions in critical situations, to gather ideas in order to turn the situation into an effective run for a useful output. They can come up with many different solutions and strive to make one of them work. The factor loads of the items included in this scale range from 0.635 to 0.772. (4 items belong to this factor. For example: "I easily get through unexpected situations." "I am a good problem solver." "I always have a suggestion to solve difficult situations.")

Humaneness Scale

The Humaneness Scale can be interpreted as follows. Individuals who deserve high value on this scale are open to people, friendly, and relationship-oriented. They like to talk and they are eager to listen to others. They are interested in problems, thoughts and events in other people's lives. Even when out of work, they are open to connect with their colleagues and others regard them as friendly people. Factor loads of the items in this scale range from 0.527 to 0.740. (4 items belong to this factor. For example: "I often talk to my colleagues about personal things as well." "I am interested in the problems of my subordinates.")

4.2.5. Presentation of TFP clusters along the scales of the Leadership Competence Questionnaire

Differences along the Innovation Factor

Comparing the three TFP clusters along the Innovation scale, we find that there is a significant difference between TFP clusters 1 and 2 ($t = -1.604$; $p < 0.05$). This result implies that innovation in TFP cluster 2 is more pronounced than in TFP cluster 1, demonstrating that there is a correlation between innovation and higher economic efficiency. According to our results, organizations with higher efficiency tend to be more willing and open to innovation. Similarly, TFP clusters 2 and 3 were compared along the Innovation scale but no significant difference was found between the two clusters. Comparing TFP clusters 1 and 3, there is also a significant difference along

this factor ($t = -1.058$; $p < 0.05$). This result implies that innovation in TFP cluster 3 is more characteristic than in TFP cluster 1, indicating that there is a correlation between greater willingness and openness to innovation with higher efficiency.

Differences along the Power Factor

Comparing the three TFP clusters along the Power scale, we can see that there is a significant difference between TFP clusters 1 and 2 ($t = -0.934$; $p < 0.05$). The desire and motivation for power is more characteristic for TFP cluster 2 than for TFP cluster 1. Similarly, we compared TFP clusters 2 and 3 along the Power Scale and found that there is a significant difference between the two groups ($t = -0.522$; $p < 0.05$): power is more typical for TFP cluster 3 than for TFP cluster 2. Comparing TFP clusters 1 and 3 with each other, we found that there is a significant difference between these TFP clusters ($t = -1.217$; $p < 0.05$). These results indicate that the greater the economic efficiency of an organization, the more the competence of power is typical for the leader. In organizations with greater efficiency, it is more common for a leader to demand the ability to influence situations and to strive to influence processes. These types of leaders prefer to shape the situations rather than adapt. They like to win, to convince, to influence, and they love situations where they feel productive.

Differences along the Performance Factor

We first compared TFP clusters 1 and 2 along the Performance Scale and found significant differences between the two groups ($t = 1.367$; $p < 0.05$). Cluster 1 is characterized by the importance of performance, motivation, and effort for good performance. Significant differences were found between TFP cluster 2 and cluster 3 ($t = 0.876$; $p < 0.05$), whereas TFP cluster 3 is more motivated by performance. Comparing TFP clusters 1 and 3, we found no significant difference along this scale. From these results, we can conclude that organizations with very low and very high economic efficiency have high motivation for performance and efforts to achieve good performance. For organizations with medium economic efficiency this aspect has been neglected. This is probably due to the fact that low-performing organizations see better performance as the key to efficiency and therefore make efforts. High efficiency groups also consider performance as an important factor in their efforts to achieve good results, which contributes to their efficiency gains; which is why it is important to pay attention to it.

Differences along the Problem Solving Factor

Comparing TFP clusters 1 and 2 along the Problem Solving Scale, we can see that cluster 1 tends to be more problem solving ($t = 1.061$; $p < 0.05$), and more active in seeking relevant solutions for problems. Similarly, comparing TFP clusters 2 and 3 with each other, we also found significant differences ($t = -1.760$; $p < 0.05$), and we see that cluster 3 is more problem solving than cluster TFP 2. We also compared TFP clusters 1 and 3, where there was not any significant difference, but we found a tendency for TFP cluster 3 to be more problem solving. This result indicates that striving to find solutions to problems and an active willingness to solve problems will most likely lead to a more effective organization.

Differences along the Humaneness Factor

Comparing TFP clusters along the Humaneness Factor, we found significant differences between clusters 1 and 2 ($t = 1.319$; $p < 0.05$). Based on this result, we found that the relationship-oriented characteristics of leadership are more typical of cluster 1. Comparison of TFP cluster 2 and cluster 3 also showed differences between the clusters ($t = -2.254$; $p < 0.05$) and we found that the humane characteristics of leadership are more typical of cluster 3. Comparing TFP clusters 1 and 3 along this scale, we found that cluster 3 has more humane management characteristics than cluster 1, and the difference is significant ($t = -1.065$; $p < 0.05$). The highest value along this managerial competence was found in TFP cluster 3. This is followed by cluster 1, then cluster 2, which suggests that high human competence on behalf of the leader results in a more efficient economic operation at the organizational level. Even in the group with low economic efficiency, there is a relatively high level of human competence of the leader that means a relatively high openness to subordinates. Thus, human competence is most strongly mobilized by organizational results that indicate extreme (low or high) economic efficiency.

The results obtained show that the leader's human competencies correlate with the economic efficiency of the affiliated organization. In general, the characteristics examined are the parameters of leadership efficiency and competencies that provide feedback on the effectiveness of a leader. Based on the results obtained, we can see that along with the majority of important managerial competencies, management groups that operate in economically more efficient organizations show greater value. Our results show that organizations with higher efficiency tend to be more inclined and open to innovation. We have also seen that in more efficient organizations, the leader is more likely to demand the ability to influence situations and to strive to influence the development of processes. We have also seen that high-efficiency groups see performance as an important factor in their efforts to achieve good results, which contributes to their efficiency gains. The willingness to solve problems and active solution seeking will certainly lead to more effective organizational work. Our results also show that high human competence on behalf of the leader leads to more efficient economic operation at the organizational level.

4.3. Leadership practices

Success factors according to managers, HR management, and factors that encourage and promote change were also investigated in the questionnaire survey. Managers were asked to only evaluate the five most important factors on a 10-point Likert-scale. The frequency of factor selection and the value were multiplied and compared to the total value, thus forming an indicator of the relative importance of the given factor. There were significant differences among different TFP clusters. In this paper we only focus on the most important factors.

The less productive companies (TFP 1) considered increasing domestic market share and being a supplier of a multinational company as a success factor in the highest proportion. The most productive companies' (TFP 3) production technology seemed to be better than in the other two clusters, even though

technological investment was the most important success factor in the TFP 1 cluster. Building a motivated, innovative team was more important in the TFP 3 cluster than in the other two clusters (Table 9).

Table 9 Relative importance of success factors over the last three years by company productivity (TFP)
(12 factors were compared, the average rate was 8.33%)

	TFP 1 (n=54)	TFP 2 (n=108)	TFP 3 (n=35)
We have increased our domestic market share.	10.4%	8.9%	7.0%
We are an audited, qualified supplier of a multinational company.	11.0%	7.3%	6.4%
We have made significant technological investments affecting at least 5 percent of our production.	16.9%	15.7%	14.5%
The technological quality of our production equipment is better than that of our competitors.	5.8%	8.7%	9.5%
We have built a motivated, innovative team.	10.3%	13.2%	15.2%

Source: own construction

The majority of managers emphasized the importance of increasing the efficiency of the workforce. Its proportion was the highest in the lowest productivity group (TFP 1). The higher wages and employee training characterized the productive company group more than the other two clusters.

Table 10 Relative importance of characteristics of HR management by company productivity (TFP)
(10 factors were compared, the average rate was 10%)

	TFP 1 (n=54)	TFP 2 (n=108)	TFP 3 (n=35)
We strive to make our company attractive to the labor market by paying wages above the industry average.	5.9%	6.4%	11.2%
We continuously develop the skills and abilities of our employees.	9.8%	9.8%	13.3%
Our goal is to increase the efficiency of the workforce.	18.4%	17.1%	15.0%

Source: own construction

Considering customer needs during development is decisive in all groups. Responding to consumer needs is not enough to succeed. The most productive companies (TFP 3) relied on employee suggestions more than imitated competitors. Although the proportion of “purchase (license, procedure, product, brand) or cooperation with an external research institute” is one of the lowest encouraging

factors in all clusters, there are significant differences. Purchasing and cooperation characterized the highest productivity group more than the two other groups.

Table 11 Relative importance of factors that encourage and promote change by company productivity (TFP)
(10 factors were compared, the average rate was 10%)

	TFP 1 (n=54)	TFP 2 (n=108)	TFP 3 (n=35)
Customer needs and suggestions	22.6%	21.4%	20.6%
Competitor analysis (from flyers, public information, customers, comparative testing).	11.3%	12.8%	6.7%
Purchase (license, procedure, product, brand) or cooperation with an external research institute.	0.8%	1.8%	3.7%
Internal initiative, based on a proposal from a company employee.	12.3%	14.5%	16.3%

Source: own construction

5. Conclusion

A leader's competencies, attitudes, and behavioural qualities are critical to the economic performance of an organization. Our goal was to test the assumption that different companies' performance is based on different management knowledge, methods, the managers' characteristics, and personal preferences. We conducted a joint two-phase study, linked to Juhász et al. 2020 research. The companies were grouped by their total factor productivity, based on financial analysis. Among the individual characteristics of managers, the educational background proved to be the most influencing factor. Competencies examined are considered to be key factors and show a current state of both managerial and organizational effectiveness. The innate qualities of a leader are decisive for the development of leadership efficiency, but it is a fact that leadership can be learned on the basis of competencies. This means that innate leadership qualities show spontaneous development through situations experienced and hardship endured. Accordingly, leadership is a human characteristic based on life-long development. This spontaneous development can be enhanced and facilitated by the individual through targeted training, either individually or in a group setting, as these external influences, especially in the field of behaviour, can generate changes that gradually make the leader more effective in his or her leadership role. This means that the leader is never "ready". Every new situation, every new problem can be an opportunity and compulsion to reach another level of development if the leader wants to remain effective in his or her leadership role all the time.

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