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Human Resource Planning: A Core Element in SME's Performance? A study in the Tema Metropolis of Ghana

by

Daisy Ofosuhene, PhD and Joyce Nartey

Abstract

There is a growing recognition of the importance of Small and Medium-sized Enterprise (SMEs) in most economies in the world. In Ghana, SMEs are said to be a major feature of the production landscape contributing to employment creation, income generation and poverty reduction. The notion that human resource management practices augment the performance dynamics of SMEs is not in dispute, because there have been significant empirical findings indicating the role of these practices in the performance of SMEs. This study aimed to determine the extent to which human resource planning contributes to SMEs performance dynamics in the Tema Metropolis of Ghana. Using a descriptive research survey design, the study purposively selected 40 SMEs in the Tema Metropolis of Ghana. Data collection was done through a survey questionnaire administered to 200 employees of SMEs. The study adopted the quantitative approach in analysing the variables. The main analytical tools employed included descriptive statistics, Pearson product moment correlation and a simple linear regression. Results of the study indicate that human resource planning significantly contributes to the performance dynamics of SMEs. The study concludes that, owners and managers of SMEs must link human resource planning policies with the strategic plans of their enterprises to ensure a regular supply of human resources to avoid uncertainty and cost and to increase the performance of these enterprises.

Keywords:

Human resource planning, SMEs Performance, Tema Metropolis, Ghana.

Introduction

There is growing recognition of the important role Small and Medium Enterprises (SMEs) play in the economic development of nations (Abor & Quartey, 2010; Opoku-Mensah, 2012). SMEs are often described as efficient and prolific job creators, the seeds of big businesses and the fuel of national economic engines. Globally, Small and Medium-sized Enterprises (SMEs) contribute significantly to nation building. They are an integral part of every nation's economic activity. SMEs create employment and serve as a major tool for poverty alleviation. According to Preuss and Perschke (2010) SMEs are the engine of the European economy. They are an essential source of job creation, entrepreneurial spirit and innovation and are thus crucial for fostering competitiveness and employment. SME definition, which entered into force in 2005, represents a major step towards an improved business environment for

SMEs and promoting entrepreneurship, investments and growth (OECD, 2005). SMEs are often said to be responsible for driving innovation and competition in many economic sectors.

In Ghana, SMEs are said to be a major feature of the production landscape and have been noted to provide about 85% of manufacturing employment and are also believed to contribute about 70% to Ghana's GDP and account for about 92% of all businesses (Katua, 2014). These enterprises contribute immensely to the macroeconomic development of the economy by providing employment for poverty reduction, training entrepreneurs, generating income and improving the living standard of most of the low income households in the country and thus stimulating general growth. Yeboah (2015) found that the bulk of SMEs in Ghana are within the services sector, particularly hotels, restaurants, transport and storage, business and real estate. The services sector

contributed 49.3% to GDP in 2012, having grown at an annual rate of 8.8% over its 2011 contribution. This makes SMEs the most important sector in the Ghanaian economy for policy makers, development practitioners and community leaders to continue to initiate, develop and direct pragmatic strategies to improve the sector. Akugri, Bagah and Wulifan (2015) posit that an improvement in the SME sector in Ghana will help to improve the unemployment conditions and the well-being of the people in the country. In Ghana, Small and Medium-sized Enterprises have been defined based on several classifications. The Regional Project on Enterprise Development (RPED) classifies firms into micro enterprise (less than 5 employees), small enterprise (5 - 29 employees), medium enterprise (30 – 99 employees) and large enterprise (100 and more employees) (Opoku-Mensah, 2012).

According to Aryeetey (2011), many of these Ghanaian SMEs do not have the necessary structures for growth and development. Wall and Wood (2013) observed that one important area in achieving organizational sustainability is through effective planning and management of human resources. SMEs are facing looming challenges in attracting and retaining skilled and valuable employees to meet changing service delivery needs (Thompson, 2013). Together with rapid advances in communication technology, these factors are already having a profound effect on what, and how services are provided, to whom, and at what cost. This condition calls for the need to effectively plan for the most valuable asset, (human resources). The issue of HR planning has been a growing area for SMEs and management research especially among large and listed firms (Hafeez & Aburawi). Studies have suggested that most SMEs do not have an HR department, probably because of their small sizes, and as such nothing like HR planning takes place in these enterprises (Opoku-Mensah, 2012; Souksayanh, 2017; Wang, Thornhill & Zhao, 2016). Therefore, Souksayanh, (2017) suggests the need for an HR department in every organization (if they can afford it), be it large, medium or small to ensure the efficient mix (the right quality and quantity) of human resources at all times.

The notion that human resource management practices augment the performance of any organization is not in dispute, because there have been significant empirical findings indicating the role of these practices (effective recruitment and selection, training and development, performance management, succession planning and compensation management)

on the performance of organizations. Such studies as Omolo, Oginda and Otengah (2013), Nzonzo and Matashu, (2014), Aruna and Gamage (2015) and Shafeek (2016) have alluded to the role that human resource management practices play in diverse organizations. However, none of the existing studies revealed or were specific on the exact contribution of human resource planning to organizational performance. With an aging workforce and shortage of critical talent being among the biggest challenges facing today's businesses, strategic workforce planning - the discipline of forecasting future gaps between demand and supply of critical talent to ensure the appropriate workforce mix - has become one of human resource management's most important responsibilities. Teal (2012) affirms that human resource planning can ensure proper career planning for employees and help them in achieving their goals.

This study is therefore, specifically designed to examine the extent to which human resource planning impacts performance dynamics among SMEs in the Tema Metropolis of Ghana. The rationale for the approach adapted here is to be able to empirically quantify the impact of human resource planning on SMEs' performance. The uniqueness of this paper, compared to what exists in the present literature, thus, revolves around its focus on identifying the degree or scope to which human resource planning impacts SMEs' performance in the Tema Metropolis of Ghana.

Overview of SMEs in Ghana

Data from the Registrars' General Department indicate that about 90% of companies registered fall under the umbrella of micro, small and medium enterprises. These firms have been identified as the medium for the economic growth of the country as they are a major source of income and employment. As cited by Abor and Quartey (2010) the Ministry of Trade and Industry (MOTI), in 1998 estimated that the Ghanaian private sector consisted of approximately 80,000 registered limited companies and 220,000 registered partnerships. Several forms of definitions for Small and Medium scale enterprises have been churned out for academic purposes. However, the varying degrees of definitions across the world primarily take into consideration headcount (number of people employed) as well as the asset base of businesses in classifying them into either small or medium enterprises. Different research papers have on the other hand sought to establish a

standard definition with the use of varying approaches, but the most commonly used, is the number of employees approach. Accordingly, the Ghana Statistical Service (GSS) classifies firms with less than 10 employees as Small Scale Enterprises whereas those with more than 10 employees are considered as Medium and Large-Sized Enterprises. This brings to fore a level of distinction between the two. Government agencies such as the National Board for Small Scale Industries (NBSSI) in Ghana apply both the fixed asset and number of employees' criteria in defining which firm is micro, small or medium sized (Fuseni, 2015).

SMEs in Ghana are mostly identified in the informal sector of the economy with their products and services for the local market. Abor and Quartey (2010) observed that very few of these firms have international capacity to market their product abroad. This phenomenon according to Fuseni (2015) is largely as a result of the huge capital commitment for engaging in export trade and the level of education, training and awareness of some business owners. Another characteristic of the SMEs is that, they rely heavily on labor and have low technological know-how. These firms are normally owned by one person who makes all decisions and whose resources are usually limited. Ackah and Vuvor (2011) opined that owners of SMEs in Ghana often have limited formal education, weak management skills and lack information in the use of technology and the credit market.

The contributions of these enterprises to the economic growth and development of Ghana cannot be overlooked. For instance, Yeboah (2015) illustrated some of the major contributions of SMEs to the Ghanaian economy. According to Yeboah (2015), the bulk of SMEs in Ghana are within the services sector, particularly hotels, restaurants, transport and storage, business and real estate. The service sector contributes 49.3% to GDP. The SMEs sector in Ghana also employed 85% of the manufacturing labor force who are sparsely distributed across the regions including the rural and urban settlements in the country (Katua, 2014). This makes the SMEs sector the most important sector in the Ghanaian economy for policy makers, development practitioners and community leaders to continue to initiate, develop and direct pragmatic strategies to improve the sector (Yeboah, 2015). It is observed that, an improvement in the SME sector in Ghana will help to improve the unemployment conditions and the general well-being of the people in the country.

Literature Review

Human resource planning (HRP) is one of the critical aspects of Human Resource Management practice but is often taken for granted (Teal, 2012). This is a rational approach to the effective recruitment, retention, and deployment of people within the organization including, when necessary, arrangements for dismissing staff (Fencing, 2012). It is concerned with the flow of people through and sometimes out of the organization. It includes the optimum deployment of people's knowledge, skill and creative abilities. It can therefore be viewed as the process of forecasting the supply and demand for human resources within an organization and developing action plans for aligning the two. HR planning is a part of the larger gamut of Human Resources, and it is defined as the systematic analysis of human resource needs that ensures that the correct number of employees with the necessary skills are available when they are required (Armstrong, 2006). Executing talent management activities before they're needed is an earmark of a successful business (Aryeetey, 2011).

According to Armstrong (2006) HR planning must be linked to the overall strategy of the organization. It evaluates HR requirements in advance, keeping the organizational objectives, operation schedules, and demand fluctuation in the background. Thus, HR planning should be future-oriented, system-oriented, and goal directed. According to Armstrong (2006) it reduces uncertainty, develops HR, improves labor relations, utilizes HR and controls human resource. Forecasting human resource requirements, effective management of change, realizing organizational goals, promoting employees and effective utilization of human resources are the main objectives of HR planning. Souksayanh (2017) asserts that, HR planning consists of various activities, which are: (1) forecasting human resource requirements, either in terms of mathematical projections of trends in the economic environment and development in industry or in terms of judgment estimates based upon the specific future plans of an organization; (2) making an inventory of present human resources and assessing the extent to which these resources are employed optimally; (3) anticipating human resource problems by projecting present resources into the future and comparing them with the forecasts of requirements to determine their adequacy, both quantitatively and qualitatively; and (4) planning the necessary programs of requirements, selection, training and development, utilization,

transfer, promotion, motivation, and compensation to ensure that future human resource requirements are properly met.

HR planning also involves planning to achieve competitive advantage by developing intellectual capital; employing more capable people than rivals; ensuring that they develop organization specific knowledge and skills; and taking steps to become an employer of choice (resource strategy). In the planning, it is important to assess in broad terms where the organization is going in its environment and the implications for human resource requirements (scenario planning). HR planning involves estimating the future demand for people (number and skills), and assessing the number of people likely to be available from within and outside the organization (demand/supply forecasting). Finally, it is important to conduct labor turnover analysis. This involves analyzing actual labor turnover figures and trends as an input to supply forecasts. HR planning also helps the organization to develop a succession plan for all its employees. In this way, it creates a way for internal promotions. It compels the organization to evaluate the weaknesses and strengths of personnel thereby assisting management in taking remedial actions. The organization benefits when it comes to increases in productivity, profit, skills and more, thus giving it an edge over its competitors (Hafeez & Aburawi, 2013)

According to Huselid (2011), organizational performance constructs include such variables as competitive advantage, market share, profit, costs, sales revenue and customer satisfaction. Evidence from a study by Havenga and Linde (2012) suggests that large organizations use both financial and nonfinancial measures to assess organizational performance but favor financial measures. Chadwick, Way, Kerr and Thacker (2013) noted that SMEs also use both financial and nonfinancial variables to measure performance. Laitinen and Chong (2012) found, in a cross-country survey, that SMEs in developing countries focused on profitability, product margins, customer satisfaction and liquidity, whereas SMEs in the developed countries were similar in the use of both financial and non-financial indicators, giving less emphasis to overall profitability but also giving debt levels more attention.

Laitinen and Chong (2012) found that with the availability of the right human resources, with the requisite skills at all times and management ability to predict an organization's human resource needs,

employees would always be in the position to deliver their best as they would be doing what they know how to do best. This would ensure employee job satisfaction, and increase employees' morale to perform. Chadwick et al. (2013) argued that effective HR planning ensures effective planning and allocation of staff. Thus effective HR planning ensures that people with the right skills, knowledge and experience are placed in the right positions with the right responsibilities. Mursi (2003) confirmed a significant and positive relationship between human resource planning and organizational performance.

HR planning contributes to organizational success because it ensures that organizations always have a concept of the job market and how it relates to failure. A company that refuses to engage in HR planning in order to be proactive may find itself with a number of unfilled positions. A study conducted by Pamela, Umoh, and Worlu (2017) to analyse the effect of human resource planning on organizational performance in oil and gas firms in Port Harcourt, found a positive correlation between human resource planning and organizational performance. They emphasized that, having the required numbers and qualified personnel in the organization help to achieve the firm's success. They recommended that managers should continually carry out manpower audits and planning, and collaborate with training institutions to develop tailored programs to suit their HR needs in order to promote good performance of individuals that work.

SMEs performance measures the degree to which these firms are able to achieve their goals. It measures transactional efficiency as well as input-output efficiency (productivity). Productivity is the measure of how well resources are brought together in an organization and utilized for the accomplishment of a set result. Productivity measurement therefore, serves as a scorecard of an effective use of resources. It is the driving force behind an organization's growth and profitability. The higher the numerical value of the ratio, the greater the productivity, according to Anyadike (2013). Efficiency in production can be assessed by; increase in the size of the production, less time in the production of a unit of output, less wastage in resources including defective output and the use of same or less factor inputs per more output than before. Daft (2000) described organizational performance as an effective and efficient manner for firms to achieve their goals, using available resources. SMEs performance is also measured through how satisfied their customers are. Customer

satisfaction is one of the most important issues concerning business organizations of all types which is justified by the customer oriented philosophy and the principles of continuous improvement in modern organizations (Arokiasamy, 2013). It deals with how customers are satisfied with the product or service of a firm. Customer satisfaction is the individual's perception of the performance of the product or service in relation to his or her expectations.

Research Methodology

This is a cross-sectional study which makes use of descriptive survey design. The sampled population comprised forty (40) SMEs, which were purposively selected from a hundred and fifty (150) SMEs identified in the Tema Metropolis of Ghana. The criteria for the selection was based on the number of years in operation as well as the number of employees and the structure of the firm, particularly, the existence of a human resource department in the firm. SMEs with less than ten (10) years of operation and staff strength of less than fifty (50) employees were excluded. SMEs with no human resource department were also excluded in the analysis. Five respondents; comprising general managers, operations managers, human resource managers and two senior employees were selected from each of the forty (40) SMEs, giving a total of 200 respondents. A semi-structured questionnaire was used for the data collection. A five-point scale, ranging from strongly disagree to strongly agree was used to measure the variables (1: Strongly Disagree; 2: Disagree; 3: Undecided; 4: Agree; 5: Strongly Agree). The response rate was 87%, of 200 questionnaire distributed, 175 were valid responses and as such were used for the analysis. Data was analyzed using descriptive and inferential statistics. The effect size of human resource planning on SMEs performance was calculated with a simple linear regression coefficient. The SPSS version 21 was utilized for the analysis.

Discussion of Findings

SMEs Perception about Human Resource Planning

The study sought to find out the perception of staff on human resource planning. This was necessary because human resource planning and employees' awareness, participation and involvement are critical in meeting the goals of firms. On the basis of this, respondents were asked to rate their levels of agreement or disagreement with some items in the questionnaire pertaining to their perception of hu-

man resource planning on a scale of 1 to 5. Table 1 indicates the descriptive statistics of the respondents.

Table 1. *Employees of SMEs Perception about HR Planning*

Statement	5	4	3	2	1	\bar{x}	σ
HRP is the process forecasting the supply and demand for HRs	49	53	37	27	9	3.6	0.69
HRP ensures effective utilization of human resources	54	55	37	24	5	3.7	0.66
HRP enhances competitive advantage	48	65	32	22	8	3.7	0.68
HRP ensures the attainment of firm's goal	44	67	33	23	8	3.7	0.69
HRP ensures quality of human resources	48	69	38	15	5	3.8	0.64
HRP ensures adequate supply of human resources	48	59	37	27	4	3.7	0.69
HRP enables the operationalization of firm's objectives	48	59	37	27	4	3.7	0.65

Source: Field survey, (2019)

The result from Table 1 represents the responses from the study, with mean and standard deviation. The result suggests that, there was a general awareness of human resource planning and its benefits among respondents. For instance, respondents generally agreed that human resource planning is a process of forecasting the supply and demand for human resources, ($\bar{x}=3.6$; $\sigma=0.69$), and that HR planning ensures effective utilization of human resources in the organization ($\bar{x}=3.7$; $\sigma=0.66$), thereby enhancing the creation of competitive advantage in production of goods and market share ($\bar{x}=3.7$; $\sigma=0.68$). Respondents also agreed that human resource planning ensures an adequate supply of manpower at all levels at all times ($\bar{x}=3.6$; $\sigma=0.69$). Respondents thus have a positive perception about human resource planning.

Table 2. Whether or not SMEs have HR Planning Policies

Statement	5	4	3	2	1	\bar{x}	σ
There are laid down procedures							
For filling up of vacancies in my company	49	53	37	27	9	3.6	0.86
To assess the surplus or shortage of human resources	20	40	62	48	5	3.1	0.97
To minimize imbalances due to non-availability of human resources	30	40	52	38	15	3.2	0.68
To make the best use of human resources	49	53	37	27	9	3.6	0.59
To estimate the cost of human resources	48	65	32	22	8	3.7	0.41

Source: Field Survey, (2019)

Human Resource Planning Policies in SMEs

The study further verified if SMEs have human resources policies. Items were given to respondents in the questionnaire to solicit their views on the existence of human resource planning policies in their organizations, considering the fact that respondents were aware of the relevance of human resource planning to an organization. Table 2 represents the results of the descriptive statistics.

Further, respondents generally agreed that their companies have laid down procedures to make the best use of human resources, a critical role of HR planning ($\bar{x}=3.6$; $\sigma=0.86$). Respondents also agreed ($\bar{x}=3.7$; $\sigma=0.41$) that structures were in place to estimate the cost of human resources in their company, which is an important feature of HR planning (Souksayanh, 2017). However, respondents could not establish whether there were any procedures or structures in place to minimize imbalances caused due to non-availability of human resources in the company ($\bar{x}=3.2$; $\sigma=0.68$) or assess the surplus or shortage of human resources and take measures accordingly ($\bar{x}=3.1$; $\sigma=0.97$). This could be explained by the fact that most SMEs do not use complex calculations in the labor market to determine the qualifications and availability of labor in the economic environment, unlike large and multi-million companies. SMEs must therefore take the necessary steps to be able to anticipate future HR needs in order to take advantage of the availability of these resources.

Challenges SMEs Encounter in the Implementation of HR Planning Policies

Armstrong (2006) observed that most organizations with well-established human resource departments have problems with effective implementation of human resource planning policies. It was on the basis of this, the study explored the challenges associated with the implementation of HR Planning policies in the selected SMEs. The responses are represented in a descriptive table, in Table 3.

Table 3. Challenges SMEs Encounter in Implementing HR Planning Policies

Statement	5	4	3	2	1	\bar{x}	σ
Inadequate budget and funding	38	49	62	21	5	3.5	0.58
Lack of support by both management and staff	48	65	32	22	8	3.7	0.55
Absence of employees' involvement in the HRP	49	53	37	27	9	3.6	0.69
Lack of commitment from top management	38	49	62	21	5	3.5	0.58
Inadequate personnel to staff the HR department	54	55	37	24	5	3.7	0.58
There are no vivid efforts from top management to find permanent solutions for HRP problems	30	40	52	38	15	3.3	0.53
HRP not linked to organizational goals	49	53	37	27	9	3.6	0.58

Source: Field survey, (2019)

From the results, respondents generally agreed that their SMEs lacked qualified personnel to staff the HR departments ($\bar{x}=3.7$; $\sigma=0.58$) which was identified as one of the challenges. It was also discovered that SMEs in the Tema Metropolis were characterized by inadequate budget and funding of HR planning activities ($\bar{x}=3.5$; $\sigma=0.5$). The results also indicate that both managers and staff of SMEs in the Tema Metropolis have no appreciation of HR planning activities ($\bar{x}=3.7$; $\sigma=0.55$). Respondents generally agreed that employees were not involved in the human resource planning process on the SMEs studied ($\bar{x}=3.6$; $\sigma=0.69$) which is considered a challenge to the implementation of the HR planning policy. Above all, lack of commitment from top management ($\bar{x}=3.5$; $\sigma=0.58$) was also regarded as a challenge to the implementation of human resource planning policy. It is believed that if management

was committed, all the other challenges could have been taken care of. Respondents also believe that the HR planning activities were not linked to SME goals ($\bar{x}=3.6$; $\sigma=0.58$). They also agreed that there are no vivid efforts from top management to find a permanent solution for HR planning problems ($\bar{x}=3.3$; $\sigma=0.53$). This could be explained by lack of commitment on the part of management to HR planning activities.

Effects of HR planning on SMEs performance

In spite of the challenges identified, respondents generally agreed that HR planning has a positive effect on their performance.

Table 4. *Effects of HR Planning on SMEs Performance*

Statement	5	4	3	2	1	\bar{x}	σ
HRP leads to high employee motivation and satisfaction	49	53	37	27	9	3.6	0.44
HRP reduces turnover and absenteeism	54	55	37	24	5	3.7	0.13
HRP enables the organization to overcome employee deficit, thus increasing performance	38	49	62	21	5	3.5	0.51
HRP ensures the right people at the right places in the organization	54	55	37	24	5	3.7	0.18
HRP brings about skill development among employees.	48	69	38	15	5	3.8	0.25
HRP enhances staff promotion	48	59	37	27	4	3.7	0.48
HRP encourages high performance	49	53	37	27	9	3.6	0.98

Source: Field survey, (2019)

From Table 4, respondents agreed that effective HR planning was a source of motivation to them and also gave them some form of job satisfaction ($\bar{x}=3.6$; $\sigma=0.44$). The results also showed that HR planning activities reduced turnover and absenteeism ($\bar{x}=3.7$; $\sigma=0.13$). This could be explained by the fact that employees are properly placed and challenged with tasks that give them the opportunity to prove their competence for rewards or for promotion. Respondents also agreed that HR planning enables the organization to overcome the deficit of employees, thus increasing performance ($\bar{x}=3.5$; $\sigma=0.51$). With the right people available for the right jobs, SMEs ensure that there is no vacuum created when an employee falls sick, retires or suddenly quits the job. Well articulated HR planning comes with a well thought out succession plan, so employees are adequately prepared to assume higher

responsibilities anytime. With regards to the effects of HR planning to their performance and the general performance of the SMEs analyzed, respondents noted that if only the planning were effective, it would help in assigning people to tasks they are comfortable with, and enjoy performing.

To determine the strength of relationships between human resource planning and SMEs performance, the Pearson product-moment coefficient was computed, with an alpha level of 0.05. Table 5 illustrates the result of the correlation analysis.

Table 5. *Correlation Analysis: HR Planning and SMEs Performance*

		SMEs Performance	Human Resource Planning
SMEs Performance	Pearson Correlation	1	
	Sig.		
	N	175	
Human Resource Planning	Pearson Correlation	.572	1
	Sig.	.001	
	N	175	175

Source: Field survey, (2019) (Sig. 2-tailed, .05 alpha level)

The result from Table 5 indicates a strong positive correlation between SMEs performance and human resource planning ($r = .57$, $n = 175$, $p < .001$). This means that as SMEs effectively embark on human resource planning activities, their performance will increase since there is a strong positive relationship between SMEs performance and human resource planning.

To determine the extent to which human resource planning affects or impacts the performance dynamics of SMEs in the Tema Metropolis of Ghana, the study also employed the simple linear regression coefficient. Table 6 illustrates the results of the regression analysis.

Table 6. *Effect of Human Resource Planning on SMEs Performance*

Model	Unstandardized Coefficients		Standardized Coefficients			
1		B	Std. Error	Beta	t	Sig.
	(Constant)	1.343	.203		6.616	.001
	HR Planning	.471	.102	.443	4.618	.002

Source: Field survey, (2019)

Data from the study showed that human resource planning explains 47% of variations in respondents' score on the performance dynamics of SMEs in the Tema Metropolis of Ghana. With a p-value of 0.002, the total variance explained was statistically significant. The regression model indicates that when SMEs in the Tema Metropolis of Ghana effectively implement human resource planning activities and policies, their performance can increase significantly by 47%.

Conclusion

Small and Medium-sized Enterprises (SMEs) contribute enormously to the economic development of Ghana in terms of job creation, income generation and poverty reduction. Planning is a very important strategic tool used by most organizations to minimise the effect of the changing economical, political and global environment. Human resource planning undoubtedly augments and safeguards the present and future demand and supply of human resources in an organization. Human resource planning ensures an adequate supply of employees at the right time and in the right quantity and quality. This study aimed at determining the contribution of human resource planning in the performance of SMEs in the Tema Metropolis of Ghana. Using a sample of 40 SMEs with respondents of 200 employees, the results of the descriptive statistics, as well as the Pearson product moment correlation and the simple linear regression analysis indicate that, human resource planning has a positive contribution to the performance of SMEs. Therefore, for owners and managers of SMEs to ensure a regular supply of human resources with the requisite qualifications at all times, and to increase their performance, reduce employee turnover and absenteeism and to boost the morale of employees, it is recommended that human resource planning must be linked with SMEs strategic plan for effective utilization of human resources, re-

duced uncertainty in labour supply and the cost associated with it, maintenance of industrial harmony and effective control of human resources.

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Issues of Assessment, Measurement, and Evaluation

by

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Abstract

Assessment, measurement, and evaluation are important if individuals, teams, and organizations ever hope to make correct, data-based decisions that can assist in efforts to keep the organization competitive and solvent. Personality trait, interest, and cognitive ability assessments are extensively used for development purposes and screening and selection decision making, despite concerns about who is trained and credentialed to properly administer and interpret the assessments. There are ethical, moral and legal implications related to assessments that cannot be overlooked. Environmental context, faking, face-to-face versus computer-based testing, cultural diversity, disabilities, second language, stereotype threat, social networking websites, and formative and summative evaluations are explored as issues that impinge upon the proper use of personality trait, interest, and cognitive ability assessments. Research is advocated to develop cross-culturally valid measures and training and credentialing are presented as means to deal effectively with these issues.

Keywords:

Assessment, Measurement, Evaluation, Personality, Faking, Disability, Diversity, Stereotype Threat, Social Networking

Assessment, measurement, and evaluation lies at the heart of best organizational research and practice (Spitzer, 2005; Wang & Wang, 2005). It is hard to imagine how developmental or screening and selection activities would be able to proceed without the benefit of the information gleaned from assessing a characteristic of an individual or team and evaluating its relative importance to the individual, team or organization (McDonald & Hite, 2016). If we were interested in a learner's creativity, for instance, creativity would be assessed first through a series of instruments designed to measure its multidimensional nature (Bang & Reio, 2017). Poor performance on the measures would become a significant concern (evaluation) if being adept at working creatively was a prerequisite to advancing to career-related specializations that require quite a bit of creativity.

Although the terms are often used interchangeably, for the purpose of this article assessment refers to the process of gathering, synthesizing, and deciphering information for the purpose of decision-making and problem solving (Hattie & Leeson, 2013). Mea-

surement, on the other hand, refers to the process of ascertaining a quantitative or qualitative characteristic of an individual, team or group that is of theoretical, research or practical relevance (Michell, 1999; Stevens, 1951). Tests are used as a means to discern the characteristic, such as a spoken question, an observation or a paper-and-pencil or online test (Stemler & Sternberg, 2013). Evaluation, in turn, is the process of combining what we have measured with other relevant information to distinguish the measured characteristic's relevance and importance. With evaluation, therefore, one goes beyond associating numbers or the qualitative characteristics of what we see (measurement) to judging the value of the characteristics relevant to the aims of the evaluation. For example, the work portfolio of a landscape architect student, replete with examples of creative work-related products and accomplishments, is in effect a broad assessment of the individual's competencies and therefore qualifications. An evaluation of the portfolio by a competent teacher or prospective employer would entail contrasting the portfolio's content with meeting some specified aim (e.g., evi-

dence of successfully designing the landscape of an office building in a semi-arid area using xeriscape principles) and determining the extent of its desirability or value.

Assessment, measurement, and evaluation efforts are global and international (Rothstein & Goffin, 2006) and are generally led by human resource (HR) professionals and to a lesser extent managers in workplace contexts. Yet, there are significant issues that call into question the appropriate interpretation of the data generated from these activities and its subsequent use for decision-making and problem solving. The aim of this article will be to highlight nine of the most important of these issues, as suggested by Lundgren, Poell, and Kroon (2019), Heikkila and Reio (2016), Rothstein and Goffin (2006), and Hough and Oswald (2008), including environmental context, faking, face-to-face versus computer-based testing, cultural diversity, and disabilities, second language, stereotype threat, social networking websites, and the purpose of formative and summative evaluations.

The Use of Assessments in Organizations

The use of personality trait, interest, and general cognitive ability assessments, either face-to-face or online, is a major issue because they are used extensively in workplaces for development (Lundgren, Poell, & Kroon, 2019) and screening and selection (Rothstein & Goffin, 2006) purposes. HR professionals sometimes administer tests for selection and potential for advancement purposes at assessment centers, but that is usually not the case for non-managerial applicants (Thornton & Krause, 2009). For developmental settings like executive coaching and management training, personality trait assessments are used as “ice breakers” (e.g., Myers-Briggs Type Indicator; Occupational Personality Questionnaire; Neuroticism, Extraversion, Openness Personality Inventory; Team Management Profile) by trainers in team-building exercises as well as tools to facilitate team- and organizational-learning, management coaching and mentoring, leadership development, and management learning (Lundgren et al., 2019). Although challenges have been made as to the validity and usefulness of personality test assessments for HR and managerial practice in developmental settings (e.g., Ford & Harding, 2007), on the whole, they have been shown to be serviceable when handled appropriately, as in being administered and

interpreted by a trained and credentialed professional (Furnham & Jackson, 2011).

With regard to screening and selection, on the other hand, personality trait assessments are used for personnel selection where possible issues related to their validity and usefulness can be magnified because the decisions related to performance on the measure can impact the livelihood of another human being (Hough & Oswald, 2008). Ethical, moral, and legal questions arise when the instruments employed in an assessment have low discriminant and predictive validity and have been administered and interpreted by individuals who are untrained and uncredentialed, especially with psychological tests (Lundgren et al., 2019). It is hard to fathom how an evaluation related to a screening or selection decision can be appropriate when such conditions exist. Still, by a significant degree, personality trait assessments are the most prevalent screening and selection tool used in organizations, followed by interest and cognitive ability assessments (Rossier, 2015). Although each of the nine issues presented in this research has application to interest and cognitive ability assessments, we will focus then primarily on personality trait assessment because of its extensive use by HR professionals and managers (Lundgren et al., 2019).

Personality trait assessment can be especially informative to organizations because traits are indicators of employees' behavioral tendencies in organizational contexts (Ones, Dilchert, Viswesvaran, & Judge, 2007). Personality assessment is a \$500 million industry growing currently at 10 percent annually in the US alone (Meinert, 2015). Meinert noted that nearly 60 percent of workers take workplace assessments and 22 percent of organizations use such assessments for pre-employment screening. In the case of employment screening, applicants need to “pass” the personality, interest or cognitive ability assessment to qualify for an interview. In the case of personality, a pass would be earned if the applicant's personality test scores matched the personality profile of what was deemed the pattern of characteristics of a successful employee for the position in question at the organization. For example, the personality profile of a successful customer service manager might be one where the employee is high in conscientiousness, agreeableness and emotional stability and low in aggressiveness and impulsiveness. In a school setting, in contrast, spatial cognition tests (e.g., Cube Perspectives Test, Visual Memory Test, Hidden

Figures Test) might be used to screen prospective medical school students; high spatial ability is best for surgeons in particular (Reio, Czarnolewski, & Eliot, 2004)

Millions of applicants worldwide complete personality trait assessments annually for positions ranging from entry-level workers to mid- and upper-level managers and CEOs (Rothstein & Goffin, 2006). The assessments are useful for gaining evaluative insights into an applicant's conscientiousness, reliability, motivation, risk aversion, values, teamwork and relationship-building propensity, and leadership, to name a few (Heikkila & Reio, 2016). Conscientiousness and positive self-concept, for example, are the traits that best predict job performance (Thorenson, C., Bradley, Bliese, & Thorenson, J., 2004). Conscientious employees tend to be motivated and reliable, and positive employees upbeat and persistent. HR professionals and managers increasingly rely on personality trait assessments because they have been shown also to reliably forecast not only job performance, but good employee and job fit. The thinking is if there is a solid alignment between the employee and job, the employee's attendant job satisfaction, organizational commitment and technical and interpersonal job performance would be enhanced, reducing the likelihood of poor productivity and costly turnover (Hattie & Leeson, 2013).

Personality trait assessments are used extensively in the airline, health, hospitality, food preparation, manufacturing, education, and service industries, as well as in the military (Lundgren et al., 2019). Assessment use is particularly prevalent for entry-level jobs in the food preparation and retail industries (Heikkila & Reio, 2016). Although these positions are desirable for individuals from all age groups, including retirees, younger workers tend to be represented most proportionally for food and retail jobs than the other age groups (Van Iddekinge, Raymark, & Roth, 2005).

Issues and Challenges Associated with Personality Trait Assessments

Although their use is prevalent and increasing (Hattie & Leeson, 2013; Lundgren et al., 2019), there are a number of concerns worldwide about personality trait assessment. Nine of the most salient issues identified in the research literature are presented below.

The environmental context. In Bronfenbrenner's (1979, 1999) bioecological theory, we develop through reciprocal, increasingly complex interactions between the curious, proactive individual and the individuals, objects and symbols in that individual's immediate environment. Thus, to understand the development of individuals and the behaviors that entails, HR professionals and managers need to acknowledge the environment when interpreting the behavior of oneself and others. Bronfenbrenner (1999) decried the lack of suitable research designs and methods of measurement for what he called the "discovery research" (p. 24) necessary for theory generation related to the bioecological theoretical model. Indeed, to date, many social science research designs, which includes those within the field of organizational psychology, still honor hypothesis and theory testing through quantitative methods, rather than theory generation through qualitative methods (Reio, 2016).

Hattie and Leeson (2013) also noted the negligible attention to assessing the interactions with learning contexts, such as what we see in the workplace, and how they interact with individual skills and personality functioning. For instance, it seems unlikely to find a job situation that did not have some sort of environmental or situational constraint impinging upon optimal performance. Situational constraints would include unforeseen circumstances, resource inaccessibility, impossible deadlines, lack of co-worker cooperation, and/or uncivil treatment by a supervisor, coworker or vendor. Thus, when making a performance evaluation, these types of situational constraints require acknowledgement through precise measurement if we are to fairly and more accurately evaluate the individual's performance on an internship- or job-related task. Lack of contextual information is a therefore significant barrier to valid data interpretation and evaluation. The issue, then, is two-fold: a) we need to assess the environment to be more predictive of learning and performance or some other desired outcome and b) through rigorous research, design better measures that will more accurately reflect the setting in question.

Faking responses to look better. Faking responses or "gaming a test" can make it relatively easy to claim to be dependable and hard working in job application settings. Faking is prevalent and should be a concern because it may offer unfair advantage to those who do not fake (Lee, Smith, & Geisinger,

2017). In a Croatian study, Galic, Jerniec, and Kovacic (2012) found that university students were able to fake desirable profiles, albeit to a limited degree. A solution to this dilemma might be posting warning messages; in a Chinese setting, posting messages did reduce faking partially, but the effect was minimal and impractical to implement (Fan et al., 2012). Further, as a possible means to reduce the likelihood of faking, Connelly and Ones (2010) reported through their meta-analytic work that observer-rated personality ratings were far better forecasters of job performance than self-report measures of personality. Moreover, Lee et al. (2017) found that faking was linked to job performance as well, but not selection. Taking observer-ratings of personality would be largely impractical in that the observer needs to be trained to perform such assessments, including finding ways to interact with the applicant, and the time required to do them could be costly. Future research is required to refine our knowledge about how best to manage faking far more effectively.

Testing face-to-face versus computer-based.

Face-to-face versus computer-based testing remains a relatively unexplored area of assessment. Unquestionably, computer-based testing (which includes web-based, online testing) is growing appreciably because of its use to not only administer tests, but also to collect and present pertinent data, and interpret the results (Hattie & Leeson, 2013). Online versions of tests are increasingly available, particularly personality tests and interest inventories. As with any data collection method, there are limitations to consider. Online security and therefore cheating is clearly an issue because it is difficult to guarantee. This situation becomes problematic in the sense that systematic measurement error may result for two reasons. First, applicants may be selective about what information they choose to disclose online because of security and anonymity concerns. Second, the test taker may not be who they claim to be. Further, there are substantial issues related to web-based versions of tests as they remain relatively untested psychometrically, especially for equivalency and reliability as comparable instruments to paper-and-pencil versions of tests that have undergone rigorous validation. The lack of validity evidence for the web-based version of a test leaves the HR professional or manager in a difficult position because it is not appropriate to apply test norms aligned with paper-and-pencil-based data to those data acquired from online results (Hattie & Leeson, 2013). Future

research is required to validate both paper-and-pencil and online versions of personality trait assessments. HR professionals and managers are cautioned to only use a measure that has been validated for both delivery formats.

Cultural diversity. Another issue related to making valid assessments is cultural diversity (Hough & Oswald, 2008). First, we must remember that most of the psychological, sociological, and anthropological theories that undergird our assessment tools are Western-based and therefore may not necessarily be valid tools for use with those from non-Western cultures (Sue, 1999). There is little doubt of the increasing diversity of distinct populations within respective countries and this reality must be acknowledged in our measurement and assessment efforts. Thus, the psychometric properties of assessment tools need to be calibrated with a more global or international perspective. We have discussed earlier how face-to-face tests are not necessarily equivalent to web-based versions of a test; the same idea extends to working with diverse populations. Unless a test has been validated for use with a certain population, there is little reason to support its use for that population, particularly as a tool to make selection and career-based decisions (Hattie & Leeson, 2013; McDonald & Hite, 2016). There are, however, some useful means to address this issue psychometrically (Nimon & Reio, 2011).

Nimon and Reio (2011) introduced the notion of testing for measurement invariance or equivalence, defined as the consistency of measurement across groups (e.g., age, sex, ethnicity, culture, nationality, online vs. face-to-face), to address the issue of construct validity by group. We must be aware that perceived differences or lack of group differences is problematic without establishing the across-group construct validity of the data; thus, the items in an assessment should mean the same thing to each group. Nimon and Reio recommended investigating measurement invariance through a three-step process (the second and third steps would require large sample sizes to run factor analyses). First, compute and compare the reliability estimates of each group for evidence of similarity. Second, conduct exploratory factor analysis by group and determine whether the same number of well-defined factors, accompanied by sufficiently high factor coefficients ($> .40$), appear per group; subsequently, compute factorial invariance indices (i.e., Salient Variable Similarity Index,

Coefficient of Congruence, and correlations between factor pattern coefficients) to find preliminary measurement invariance evidence. Third, conduct confirmatory factor analysis by group and examine whether the fit indices are comparable per group, followed by performing four measurement invariance tests (configural, weak, strong, and strict). If sufficient evidence of measurement invariance has been found, then the HR professional has reasonable assurance that whatever is being assessed is being perceived similarly by the group or groups in question (construct validity), which renders valid interpretation of the data generated by the measure.

Disabilities. One especially challenging assessment issue can be working with those who have disabilities (Heikkila & Reio, 2016). People with disabilities constitute roughly fifty-four million individuals in the US, making them the largest minority group (Rocco, Bowman, & Bryant, 2014). Rocco et al. also make us aware that roughly a third of individuals without a disability become disabled during their peak working years. Thus, it is curious seeing so few diversity researchers in the organizational psychology field dealing directly with those with disabilities, despite their increasing presence in the workplace.

With passage of the American with Disabilities Act (ADA) in 1990 and its reinforcing amendment in 2016, US workplaces have better representation by those with disabilities. One important practice arising from this law, and one that organizational professionals must be acutely aware of, is that organizations must make reasonable accommodations to make the workplace accessible to employees with physical or mental disabilities. The US Equal Opportunities Commission classifies an individual disabled when they have any physical or mental impairments that substantially limits one or more major life activities, such as being able to perform on the job. Autism, hearing and sight impairment, orthopedic impairment, emotional disturbance, intellectual disability, cerebral palsy, alcoholism, sciatic nerve pain, diabetes, and attentional deficit hyperactivity disorder are examples of disabilities. The question is how to accommodate jobs and testing conditions reasonably across a wide range of disabilities. Obviously, reasonable accommodation would not be possible for all situations; for example, a blind person logically could not be an express delivery driver and a person with a seizure disorder could not be a pilot of a plane.

Noting the increasing prevalence of pre-employment testing for screening purposes, especially in the retail and food industries, HR professionals and managers may need to review the practice of using pre-employment assessment tests for selection and career planning purposes for those with disabilities (Heikkila & Reio, 2016; Rocco et al., 2014). Clearly, individuals with intellectual and emotional disabilities may not succeed in their employment quests if they cannot successfully complete the pre-employment personality assessments. For such individuals, participating at adult education centers might afford learning about and practicing dealing with pre-employment testing conditions and taking personality assessments. For example, students in school-to-work programs, typically 16-21 years-of-age, could work with the school, parents and target hiring organizations to help them develop the test taking skills needed to be assessed correctly and evaluated fairly (Heikkila & Reio, 2016).

Second language. Another assessment challenge has to do with individuals whose primary language is not the same language as the majority culture. In US school settings, for example, children of immigrants constitute one-fifth of all school-aged children, with most of their households not having anyone aged 14 or older who speaks English well (Kopriva & Albers, 2013). Second language students too often perform poorly on achievement tests and are twice as likely as native speakers to drop out of school. Dropping out leaves them ill prepared to compete favorably for well-paying jobs because their language skills tend to be poorly developed as compared to native speakers. English language learners' parents in the US also suffer under testing situations because language-heavy tests like personality assessments are administered in English, leaving them with little hope of demonstrating their true personality assessment scores, thereby limiting possibilities for attaining occupational success. This state of affairs is troubling considering the large majority of immigrants are hardworking, honest, and dependable workers (Garcia, Jensen, & Scribner, 2009). HR professionals and managers must find constructive, productive ways to meet this challenge by helping to create and implement versions of tests used to make selection and promotion decisions that are linguistically valid. Thus, if the individual's primary language is French, and the job does not require strong English speaking skills, then the personality assessment should be in

French to ascertain a truer sense of their personality scores. Valid test scores are vital if suitability and fit evaluations are to be unbiased.

Stereotype threat. A stereotype is an overgeneralization about members of a social group. Stereotype threat, defined as the inhibition of performance due to concern about confirming a stereotype, has been linked with group differences in performance on tests. For stereotype threat to exist, knowledge of the stereotype must exist for the affected party. For example, in the case of older workers, the unfounded stereotype that they are not proficient with computers and new technology is widespread in many workplaces. Based on the older worker's knowledge of the ageist stereotype, an instance of stereotype threat occurs when the older test taker fails to demonstrate their true understanding of how to perform a computer task due to the threat. Likewise, stereotypes that males are not good at writing and verbal tasks lead to males underperforming on quantitative writing and verbal ability assessments when gender-based stereotypes are triggered (Walton & Spencer, 2009). Similar stereotype effects have been found with females with regards to mathematical and spatial ability and non-Asian ethnic minorities' performance on graduate school entrance exams like the Graduate Record Examination (Halpern & Butler, 2013). Therefore, stereotype threat should be an issue to HR professionals, considering that performance on assessments can serve as a means to judge an individual's hiring or promotional fitness or whether he or she should advance from training (Ryan & Sackett, 2013). The point is that test scores can systematically underestimate the test scores (e.g., intellectual ability) of individuals saddled with negative stereotypes (Walton & Spencer, 2009). To lessen the possibility of stereotype threat, HR professionals need to be aware first that it exists and that it can systematically dampen test performance. As a possible solution, Steele (2010) suggested that reducing the likelihood of stereotype threat could be accomplished through attending to the assessment context by using validated instruments, offering a comfortable assessment setting, and describing the assessment's purpose, explaining its use, and familiarizing test takers with the assessment to acclimate them to the testing situation.

Social networking websites. Due to the high stakes associated with recruiting and selecting "the right employee" to fill a job, HR professionals therefore

need to be increasingly creative. One relatively new and untested approach to evaluating the personality profiles of current and potential employees is through social networking websites (SNW) like Facebook and LinkedIn. As the fourth most popular online activity (Statista, 2015), organizations are embracing SNWs because they afford the collection of organizationally relevant information, like personality traits, useful for determining job applicant suitability and fit. For example, in one SNW study, conscientiousness was associated with the use of less problematic online posts related to illicit materials and content of a sexual nature (Karl, Peluchette, & Schlaegel, 2010). Moreover, in two studies of university students (justified by the authors because of students' heavy use of Facebook), Kluemper, Rosen, and Mossholder (2012) found that SNW profiles generated from Facebook pages yielded valid other-rated measures of the Big Five personality traits (i.e., extraversion, neuroticism, openness to experience, agreeableness, conscientiousness) (Costa & McCrae, 1992). Thus, they found preliminary support for using SNW profiles to determine the personality traits of college students. Interestingly, after a few hours of training to ensure the fidelity of the study and high inter-rater reliability, the study's evaluators took but 5-10 minutes to complete the Facebook profile evaluations. On the surface, these findings seem promising for busy, cost-conscious HR researchers and managers, but the researchers strongly advised caution to allow for more systematic inquiry into SNW use. Kluemper et al. (2012) also reminded us that there may be unknown legal implications to using SNWs and prospective applicants may simply avoid dealings with the organization because of perceptions that the practice amounts to unethical business practice. Another possibility is that as prospective applicants become more aware of the extent and implication of this organizational practice, just as applicants have been shown to fake face-to-face and online personality and interest tests (Fan et al., 2012; Galic et al., 2012), individuals may also creatively game their Facebook and LinkedIn profiles to appear to be something they are not.

A compelling case could be made that this practice may amount to a situation of social injustice, a label no organization should reasonably risk (Byrd, 2014). Serious, logical thinking must be allowed for considering how this practice is truly equitable and fair and does not violate social norms for reasonable access.

How is it fair that this practice is being used for hiring decisions when many choose not to participate in SNWs? Thus, these individuals may be considered as a less viable candidate for a position simply because they do not possess an SNW for an unknown HR professional to evaluate in the first place. How can we determine equal access when many who are poor or disadvantaged cannot afford a computer or Internet service? How is it fair for those who live in rural or urban areas who have to go the local library to setup a SNW account when there is no “local” library? Even if it exists, without one’s own transportation, or being able to be afford taking the bus, equitable access is again denied. The answers to these societal questions are profound because the lack of access, equity and inclusion falls disproportionately on underrepresented minorities (Kormanik & Nwaoma, 2015), the culturally and linguistically diverse (Fenwick, 2015), and those with disabilities (Rocco et al., 2014). HR professionals are in a unique position to need to lead well-designed cross-sectional, mixed-method and longitudinal research efforts to better understand and increase awareness of social justice issues surrounding the use of SNWs to make important decisions about an individual’s suitability and fit for a job.

Formative and summative evaluation. As one of the pillars of solid organizational practice, evaluation serves as a meaningful tool for providing ongoing feedback relevant to attaining organizational goals. HR researchers and practitioners are well qualified to plan, implement, analyze and interpret the results of an evaluation. In the field of instructional design, the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model is used to develop instructional courses and training programs. The evaluation piece of this generic systematic process model entails determining whether the problem has been solved, if objectives have been met, the relative impact of the course or product, and what changes may be necessary to do a better job of offering the course or product in the future (Peterson, 2003). On the other hand, there are numerous additional evaluation models (see Reio, Rocco, Smith, & Chang, 2017), but most build extensively upon Kirkpatrick’s 4-level evaluation model (reaction, learning, job performance, and organizational impact). Reio et al. (2017)

performed an extensive critique of the Kirkpatrick model finding that although the model has its shortcomings, namely it does not address formative and process evaluations, it remains a viable framework for evaluating training programs.

There are two main types of evaluations: formative and summative. Formative evaluation constitutes collecting information and interpreting it during learning, while summative evaluation entails making interpretations about the learning at the end of the learning endeavor. Each provides useful feedback about how one is performing. In the training classroom, formative evaluation is helpful for providing the learner specific feedback about their performance for the purpose of making “on-the-fly” adjustments. In contrast, summative evaluation provides feedback about the degree to which the learner attained the goals of the training class. At a broader organizational level, periodic formative evaluations offer employees the kind of specific feedback needed to advance their skills during a performance appraisal period, while summative evaluations certify whether performance goals have been met at the appraisal period’s closing. Consequently, each type of evaluation could be used skillfully by HR professionals in development efforts and by managers to help employees attain performance-related goals and aspirations.

Conclusions

We must be mindful that it is not the test or assessment that is formative or summative, but it is the interpretations that are (Scriven, 1990). Personality, interest, and cognitive skill assessments of course are not suitable for formative evaluations, but they have been shown to be fitting, with caveats, for evaluations (i.e., summative) of prospective candidates for a job or promotion. Thus, HR professionals and managers must be certain that for whatever is being evaluated (e.g., employee-job fit), the data needed to make a proper summative evaluation has been generated from the use of valid measurement tools. The use of widely available survey instruments from online and other non-juried sources is strongly cautioned against unless there is substantial validity evidence for their use with your particular population. Vital decisions about the livelihood of human beings are based on the results of taking tests; as HR professionals, managers, and citizens, we owe it to those taking the tests that they are fair and valid for all or risk contributing to the social injustice issues plagu-

ing our societies. We must acknowledge that issues of interpretation concern the environmental context, faking, mode of test delivery, cultural diversity, presence of a disability, English as a second language, stereotype threat, and if the data were collected from social networking websites. Without acknowledging these issues when interpreting one's data and making the final, summative evaluative decision about a job applicant, the validity of the HR professional and manager's interpretation can be seriously and unnecessarily comprised.

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The Impact of Job Autonomy, Psychological Empowerment, and Japanese-Style Management on Work Performance and Organizational Commitment

by

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Abstract

Currently, Japan's working-age population is on the decline, and the productivity of its current workforce is said to be the worst among all G7 countries. Therefore, Japanese company workers are under pressure to find ways to efficiently increase their performance. However, simply requiring workers to improve threatens their sense of belonging and allegiance. In order to combat this, there is a need for companies to find ways to increase organizational commitment. In this paper, we introduce eight hypotheses based on factors believed to affect work performance and organizational commitment (e.g., job autonomy and psychological empowerment) and unique aspects of Japanese management styles, including the seniority wage system and lifetime employment. Data from surveys were used to conduct a multiple regression analysis to test these hypotheses. As a result of these analyses, it became clear that job autonomy has an effect on work performance, psychological empowerment has effects on both organizational commitment and work performance, lifetime employment does not affect organizational commitment or work performance, and the seniority wage system has a positive effect on organizational commitment but a negative effect on work performance.

Keywords

Job autonomy; Psychological empowerment; Japanese-style management; Seniority wage system; Long-life employment; Work performance; Organizational commitment; Regression analysis; Human resource management; IT industry

Introduction

The working-age population of Japan continues to fall, leading companies to focus hard on improving efficiency and elevating workforce performance. The term "performance" is used in a variety of fields; there is no single definition for it. However, it is often used to express the process followed to achieve results or outcomes. Performance applies to the academic world and to the world of work. Increasing the performance and maintaining a high level over time are very important topics for both for-profit and not-for-profit management teams.

In the field of human resources management, work performance is defined slightly differently by various researchers. Campbell, McHenry and Wise(1990) defined performance as "observable things people do (i.e., behaviors) that are relevant for the goals of the organization"(p.314). However, Viswesvaran and Ones (2000) insisted that work performance referred to "scalable actions, behaviors, and outcomes that

employees engage in or bring about that are linked with and contribute to organizational goals"(p.216). The first definition does not refer to outcomes, but the second one does. These perspectives create different problem scopes. For the purpose of this research, work performance is defined as behaviors and outcomes that are relevant to the goals of an organization.

According to the calculations of the Japan Productivity Center (JPC), who used an Organization for Economic Co-operation and Development dataset, Japan's labor productivity rate is 46 USD per hour, which is two-thirds that of the US. Japan's rate is the lowest among all G7 countries. The JPC have also proven that Japan's labor productivity rate has not changed since 1980 (JPC, 2017). With this low productivity rate, Japan's unique management style, which differs from that of the US and Europe, has reduced labor mobility and contributed to a culture of long working hours and low rates of paid leaves

(AAE Travel Pte. Ltd., 2017). This led to a lack of work–life balance and is now posing a serious problem for the Japanese society. In recent years, the need to change this situation has been discussed, leading to the Japanese government introducing “Work Style Reform” into its policy goals. With this, Japan embarked on measures to reduce the long working hours. For companies to increase value (e.g., labor productivity), work performance is most important. However, as work performance increases and productivity rises, employees’ jobs will not become more relaxed, leading to harm their sense of belonging and satisfaction with their company and career. In order to solve this problem, it is essential for managers to find ways of increasing organizational commitment as they push work performance.

Since the 1970s, organizational commitment has been recognized as a key concept of organizational research. This term has been defined in several different ways (Angle & Perry, 1981; Bozlagan, Dogan & Daoudov, 2010; Gautam, Van Dick & Wagner, 2004; Porter, Steers, Mowday & Bouliant, 1974). Porter et al. (1974) defined organizational commitment as “the strength of an individual’s identification with and involvement in a particular organization”(p.604). According to Salancik (1977), organizational commitment means “a state of being in which an individual becomes bound by his actions and through these actions to beliefs that sustain the activities and his own involvement”(p.62). Later, Allen & Meyer (1990) described organizational commitment as “a psychological state that binds the individual to the organization”(p.14). More recently, Cohen (2003) argued that “commitment is a force that binds an individual to a course of action of relevance to one or more targets”. From these few definitions, it is clear that the concept of organizational commitment refers to unifying both the employee’s and the company’s goals and values (Hall, Schneider & Nygren 1970). This creates a sense of belonging and attachment that the employee needs to feel toward his/her organization.

Japanese companies must consider methods of increasing both performance and commitment within the context of the Japanese management style. This paper does so and focuses on job autonomy and organizational empowerment, using past research examples to clarify how the two are related. In this paper, we review surveys undertaken by employees in the information technology (IT) industry, because this industry is known to have longer working hours per year than the average of all other industries (19.7

extra hours per month) (MHLW, 2015). While those extra hours have decreased compared to 10 or 20 years ago, there is still room for improvement.

With software development, there is a need to design systems and develop programs suited to the customer’s specifications within a designated timeframe. Experience and know-how are essential to achieving this. This drive leads IT company workers to stay at work longer and to work harder to gain essential experience and skills. Furthermore, IT companies often work for other companies, meaning that additional time must be spent in collaboration, leaving less time for actual work. The aim of this research is to identify clear ways to increase both employee performance and commitment and should contribute to solving human resources problems in the IT industry.

Literature Review and Hypotheses

Job Autonomy

The term “autonomy” is used in many academic disciplines. The origin of this word can be traced back to the Greek “autos,” meaning self, and “nomos,” meaning law or rule. This word was first used to express how the Greek city-states created and maintained their laws and autonomous governments (Agich, 2014; de Jonge, 1995; Kühler & Jelinek, 2014). In the field of politics, autonomy is said to be “the ability to participate in the making of collective decisions” (Przeworski, 2003, p.265). In psychology, according to Ryan, Deci and Vansteenkiste (2015), autonomy is defined as “self-regulation and integration in acting”(p.385). From the viewpoint of pedagogy, Little(1991) stated that “Essentially, autonomy is a capacity - for detachment, critical reflection, decision-making, and independent action”(p.4). In the area of human resources management, job autonomy is defined as “the degree to which a job provides substantial freedom, independence, and discretion to the individual for scheduling work and determining the procedures to be used in carrying it out” (Hackman & Oldham, 1975, p.162). These definitions were created on the basis of individual research fields and are, therefore, different. However, all definitions reflect the idea that autonomy is a freedom in which one is allowed to make some independent decisions.

A significant amount of prior research has shown that job or work autonomy has had a positive impact on organizational commitment (Langfred & Moye, 2004). When Sisodia and Das (2013) compared

the effects of organizational commitment across two groups (i.e., high and low job autonomy), they found that the high job autonomy group had higher commitment than that of the lower group. In the workplace, those who have the freedom to plan and undertake their work as they please have greater attachment to and feel a greater sense of unity within their workplace compared to those that work under strict guidance and management controls. This concern has been experienced by many business people and demonstrates a causal relationship that can be easily theoretically understood.

According to the research of Beckmann (2016), working-time autonomy can improve employees' productivity and performance. Saragih (2011) proved that, among sales people, high job autonomy was a predictor of high work performance and greater satisfaction. Leveraging the above propositions, two hypotheses can be made:

- H1. Job autonomy has a positive impact on commitment.
- H2. Job autonomy has a positive impact on performance.

Psychological empowerment

The term "empowerment" has been used in various fields, such as medicine, public hygiene, welfare, social studies, and psychology, as well as in management. However, like most terms, it has many definitions. According to Brymer (1991), empowerment is "the process of decentralizing decision-making in an organization"(p.59). However, Randolph (1995) stated that "empowerment is not just giving people the power to make decisions... at its most practical level, empowerment is recognizing and releasing into the organization the power that people already have in their wealth of useful knowledge and internal motivation"(p.20). It has also been noted that differences in people and context including organizational culture and management styles, contribute to the difficulty of deciding on a general definition (Rappaport, 1984; Zimmerman, 1990). The common factors in each include the fact that empowering employees refers to allowing discretionary work behaviors and the right to make decisions independently. Focus is placed on transferring the authority from the upper management to subordinate employees (Baird & Wang, 2010).

Empowerment promotes productivity improvement by making it possible to distribute power within an

organization and to increase the work satisfaction and performance of the employees (Nykodym, Simonetti, Nielsen & Welling, 1994). Unlike non-empowered employees, those given the authority to make decisions have the opportunity to improve their decision-making skills over time. This increases the attainment of individual outcomes. By looking at past human resources management research, it is clear that psychological empowerment has a positive effect on managerial effectiveness (Spreitzer, 1995), and individual performance (Fong & Snape, 2015). Seibert, Silver and Randolph (2004) analyzed data from 301 employees (i.e., engineers) from a Fortune 100 manufacturer of high-technology goods located in the US, and they found that psychological empowerment was significantly positively related to individual performance.

It has been shown in copious research that psychological empowerment positively relates to organizational commitment (Chen & Chen, 2008; Dee, Henkin & Duemer, 2003; Joo & Shim, 2010; Kanter, 1984). Rawat (2011) analyzed the results of surveys undertaken by 133 professionals in the service industry and found that psychological empowerment and commitment had a statistically significant relationship. Liden, Wayne and Sparrowe (2000) found that psychological empowerment effectively increased organizational commitment and work performance. Leveraging the above propositions, it is possible to make the following hypotheses:

- H3. Psychological empowerment has a positive effect on organizational commitment.
- H4. Psychological empowerment has a positive effect on work performance.

Japanese-style management

Seniority wage system. The seniority wage system, similar to lifetime employment, comprises an important element of the Japanese management style. The seniority wage effect causes employees' pay to increase with age and company tenure (Genda & Rebick, 2000; Sugimoto, 2010). This system was widely adopted during the high economic growth period in Japan between 1955 and 1973. Then, many companies faced labor shortages, and this system was implemented to deter employees from changing companies. Additionally, employees who gain seniority at a company are likely to gain important skills and knowledge unique to their company. This was a set of traits prized by Japanese firms at the time. From the employee's perspective, this system

resulted in guaranteed financial stability and was eagerly adopted. Owing to these facts, company work was made more appealing, labor shortages were filled, and employees' skills increased over the years (Ando, 2015; Conrad, 2010; MHLW, 2013).

In the 1990s, the bubble economy burst, and a long period of economic stagnation continued for 20 years. Thus, companies faced a growing need to reduce costs. As Japanese companies became more globalized, it became understood that a performance-based pay system is more logical and efficient than the seniority wage system. This led many companies to move away from those legacy systems. While this trend gained traction across the nation, concerns regarding long-term employee retention and training again arose, leading some companies to revert. According to the latest reliable survey (Small and Medium Enterprise Agency, 2009), approximately 38% of Japanese companies still use the seniority-based pay system (excluding firms of less than 20 people). It is clear that this seniority-based pay system increases employees' sense of belonging to the organization, increases long-term employee retention, and contributes to high organizational performance. Therefore, the following hypotheses can be made:

- H5. The seniority wage system has a positive impact on organizational commitment.
- H6. The seniority wage system has a positive impact on work performance.

Lifetime employment. Lifetime employment is defined as the practice of being allowed to work until the mandatory retirement age of 60 years, as long as one passes his/her company entrance exam after graduating from high school or university (Hamaaki, Hori, Maeda & Murata, 2010, 2011; Lincoln, 1999; Kodama, 2015; Sullivan & Peterson, 1991). Lifetime employment was first recognized as one of the three unique features of Japanese companies. The other two were seniority-based wages and promotion and an enterprise union (Abegglen, 1958). Lifetime employment is also one of the most important aspects of the Japanese management style. It first appeared in the 20th century when factories were modernizing. Due to the fact that it took time to train workers to operate new machinery, companies began offering them lifetime employment. During the rapid post-World War II growth period (i.e., 1950s to 1970s), lifetime employment became a common practice in large corporations (MHLW, 2013; Moriguchi, 2014). By receiving guaranteed employment and pay, the

employees developed a high sense of loyalty and worked hard. This relationship was accepted as beneficial by the vast majority of companies and employees at the time (Clark & Ogawa, 1996).

Lifetime employment was beneficial because it made it easy for masters of trade to mentor new hires while allowing for long-term training and the sustainment of a sense of unity within the organization. However, this system made it difficult for companies to adapt to changing economic conditions, and it stifled new ideas and creativity, creating a culture where employees became too dependent. Nonetheless, until the mid-1980s, the merits outweighed the demerits in the eyes of most Japanese company leaders (JIL, 2010).

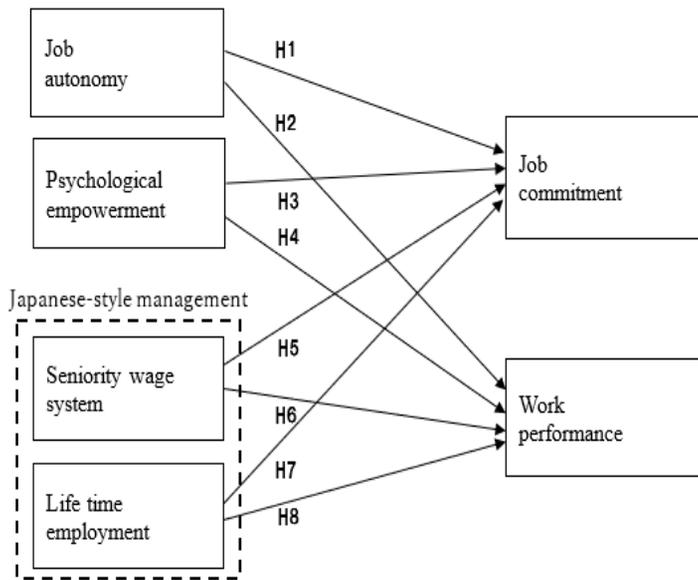
After the economic bubble burst in 1992, Japan entered a long period of economic stagnation, and companies that had adopted lifetime employment were faced with a surplus of labor, leading to difficulty in maintaining the status quo. As a result, in the 2000s and beyond, employees started leaving their jobs before their retirement age to work for other companies. The number of people doing this in Japan is still far lower than in other countries. According to an international comparative analysis conducted by the Japanese Ministry of Health, Labour and Welfare (MHLW) (2010–2012), the percentage of male employees in Japan aged 25–54 who stayed at a single company for more than 10 years was higher than 50%. This is significantly higher than in countries like Germany, France, and Italy and is also higher than in the US, Canada, and the UK, which averaged around 30% (MHLW, 2013).

While this data proves that the number of people working for an extended period at one company remains higher in Japan compared to other countries, there are still the other 50% who changed their jobs within 10 years. Thus, a relatively large number of people changed their jobs, regardless of lifetime employment. From the above information, it became clear that lifetime employment strengthens the relationship between the employee and the organization and contributes to increasing the performance of the organization as a whole. Therefore, despite the limitations, the following hypotheses can be made:

- H7. Lifetime employment has a positive effect on organizational commitment.
- H8. Lifetime employment has a positive effect on work performance.

Figure 1 represents a research model created using the above eight hypotheses.

Figure 1. Research model and hypotheses



Methodology

Research design

In order to test the hypotheses, a questionnaire was created and sent to respondents over the Internet. Regarding organizational commitment, work performance, job autonomy, and psychological empowerment, questions that were previously used in human resources research were used again. However, for Japanese-style management issues, new questions were created. Respondents were asked to respond on a five-point Likert scale (from 1 [strongly disagree] to 5 [strongly agree]), and the Statistical Package for the Social Sciences software v.25 (IBM Corp., Armonk, NY, USA) was used to analyze and test the hypotheses.

For work performance, six items were used, as developed by Kuvaas (2006), including “I often perform better than what can be expected of me” and “I try to work as hard as possible.” For organizational commitment, questions were separated into three types, as defined by Allen and Meyer. These types are affective commitment (the emotional desire to remain in one’s organization), continuous commitment (the costs of leaving the organization), and normative commitment (the sense of obligation or duty to stay) (Allen & Meyer, 1990; Meyer & Allen, 1991). Within these types, the most important was affective commitment, referred to as the essence of commitment (Đorđević, 2004; Mercurio, 2015).

Hence, four questions were selected from the affective commitment scale items (Allen & Meyer 1990). Sample items include “I would be very happy to spend the rest of my career with this organization,” “I enjoy discussing my organization with outside people,” and “I really feel as if this organization’s problems are my own.”

For job autonomy, nine items developed by Breugh (1985, 1999) were adopted. These items include “I am allowed to decide how to go about getting my job done.” For the psychological empowerment index, four items from Cyboran (2005) were used. These questions were designed to discover how much authority the respondent has at his/her job. The four items are based on the concepts of meaning, competence, self-determination, and impact. The question types include meaning (“This work I do is very important”) and self-determination (“I can decide on my own how to go about doing my work”).

The reliability of variables

The reliability of variables was measured using Cronbach’s alpha. If the value is 0.70 and above, the items are reliable (Nunnally, 1978). According to Table 1, Cronbach’s alpha was higher than 0.7 for all four variables (i.e., job autonomy, psychological empowerment, organizational commitment, and work performance).

Table 1. Reliability Analysis Using Cronbach’s Alpha.

Variable	Cronbach’s alpha	Cronbach’s alpha based on standardized items	Mean	No. of items	Adapted from
Job autonomy	0.918	0.919	3.269	9	Breugh (1999)
Psychological empowerment	0.768	0.773	3.345	4	Cyboran (2005)
Job commitment	0.730	0.730	2.969	4	Allen and Meyer (1990)
Work performance	0.862	0.863	3.288	6	Kuvaas (2006)

Therefore, the variables were considered reliable. For Japanese-style management, two questions about the seniority wage system and lifetime employment were developed by the author of this paper: “My company has a seniority-based wage system” (seniority wage system) and “At my company, I am employed for life and can work there until I retire” (lifetime employment).

Demographic characteristics of respondents

The characteristics of the 171 valid responses are shown in Table 2. With regard to gender, 81.9% of the responses were from men and 18.1% were from women. Regarding company size, in accordance with the Small and Medium-sized Enterprise (SME) Basic Act, companies with 100 or more employees are referred to as large enterprises, whereas companies with 99 or fewer employees are referred to as SMEs. A large proportion of responses (62.6%) were from those working at large enterprises. Regarding the years of employment, 27.5% of the responses were from employees who have been working at their current company for less than five years. However, 18.7% reported working at their company for 16–20 years. Employees who have been working at their company for more than 16 years comprised 37.5% of the respondents.

Table 2. Demographic Profile of the Respondents (N= 171).

Variable	Category	N	%
Gender	Male	140	81.9%
	Female	31	18.1%
Company size	SME	64	37.4%
	Large enterprise	107	62.6%
Years of employment	<5	47	27.5%
	6–10	30	17.5%
	11–15	30	17.5%
	16–20	32	18.7%
	21–25	22	12.9%
	26–30	9	5.3%
	>31	1	0.6%

Note. SME has 99 or fewer employees, whereas large enterprise has 100 employees or more according to the definition (IT industry) of the SME Basic Law in Japan.

Results and Discussion

Table 3 shows the results of a multiple regression analysis, with organizational commitment as the dependent variable and job autonomy, psychological empowerment, seniority-based wage system, and

lifetime employment as the independent variables. Control variables were set as gender, company size, and years of employment. The variance inflation factor (VIF) of the independent variables and controlled variables was under 2.0, ruling out multi-collinearity issues.

From the analysis results, it is clear that the two factors (i.e., psychological empowerment, and seniority-based wage system) exerted a significant effect on organizational commitment at the 5% level. However, there was no proof that job autonomy and lifetime employment have significant effects. Thus, 35.8% of the total variance can be explained by this regression model. Therefore, it is clear that H3, and H5 are supported, but H1, and H7 are not.

Table 3. Multiple Regression Analysis (dependent variable: organizational commitment).

	β	t	Sig.	VIF
(Constant)		1.828	0.069	
<u>Control variables</u>				
Gender (female: 0, male: 1)	-0.126	-1.973	0.050	1.072
Company size	-0.119	-1.835	0.068	1.118
Years of employment	0.087	1.325	0.187	1.145
<u>Independent variables</u>				
Job autonomy	0.115	1.369	0.173	1.881
Psychological empowerment	0.473	5.762	0.000	1.783
Seniority-based wage system	0.205	3.136	0.002	1.134
Lifetime employment	0.093	1.330	0.185	1.292
F		14.537***		
R-square		0.384		
Adjusted R-square		0.358		

***p < 0.001.

Table 4 shows the results of a multiple regression analysis, with work performance as the dependent variable and job autonomy, psychological empowerment, seniority-based wage system, and lifetime

employment as the independent variables. As with the previous analysis, gender, age, company size, and years of employment were the control variables. The VIF of the independent variables and controlled variables was under 2.0, ruling out multi-collinearity issues.

From the analysis results, it is clear that the independent variables (i.e., job autonomy, psychological empowerment, and the seniority-based wage system) had a significant positive effect on work performance at a level of 5%. Moreover, it was proved that the seniority-based wage system negatively affects work performance. Thus, the practice of increasing the pay according to the number of years worked manages to decrease employees' performance. Therefore, it is more effective to increase the pay according to performance, rather than according to the number of years worked. However, lifetime employment did not have a significant effect on work performance.

As the adjusted *R*-squared was 0.382, the multiple regression model explains 38.2% of the total variance in the data. From these results, it was found that H2, and H4 are supported, but H6, and H8 are not.

Table 4. *Multiple Regression Analysis (dependent variable: work performance).*

	β	<i>t</i>	Sig.	VIF
(Constant)		6.893	0.000	
Control variables				
Gender (female: 0, male: 1)	-0.135	-2.157	0.032	1.072
Company size	0.083	1.297	0.196	1.118
Years of employment	0.047	0.726	0.469	1.145
Independent variables				
Job autonomy	0.218	2.631	0.009	1.881
Psychological empowerment	0.433	5.371	0.000	1.783
Seniority-based wage system	-0.156	-2.425	0.016	1.134
Lifetime employment	-0.017	-0.244	0.808	1.292
F		15.989***		
<i>R</i> -square		0.407		
Adjusted <i>R</i> -square		0.382		

****p* < 0.001.

Conclusion

Japanese companies are now facing the need not only to increase employee performance, but also to encourage greater organizational commitment. The purpose of this research was to determine the factors affecting organizational commitment and work performance in Japanese companies. Autonomy, psychological empowerment, seniority-based wage system, and lifetime employment were considered. It is clear from the study that job autonomy had a positive effect on work performance, whereas psychological empowerment had a positive effect on both organizational commitment and work performance. Additionally, the seniority-based wage system had a positive effect on organizational commitment, but it had a negative impact on work performance. This system proved useful for encouraging attachment and a sense of belonging to a company, but it did not result in increased work performance. Moreover, it was shown to have a negative effect. Finally, lifetime employment did not have a significant effect on organizational commitment or work performance.

Currently, many industries in Japan are suffering from labor shortages, especially the IT industry, which is facing a significant shortage of engineers. The concept of employees having the freedom to switch from their companies to others offering better working conditions or pay is gaining traction. The numbers of midcareer recruiters and employment agencies are also increasing. Therefore, it is apparent that employees today value performance-based pay more than lifetime employment, and the system of lifetime employment is less relevant and appealing than it was in the past. Future research and analysis should focus on employees' opinions regarding performance-based pay and job switching.

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Theoretical Aspects of Applied Strategic After-Sales Service Analysis within Balanced Scorecard

by

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Abstract

The paper treats the practical and theoretical aspects of the applied strategic analysis developed by the author and utilized by an organization in the process of its strategic after-sales service aspects research; the after-sales service score being based on the score of the same name of the balanced scorecard. The methodology of the research consists of the concept of the balanced scorecard by Kaplan and Norton and the concept of the applied strategic analysis developed by the author. The applied strategic after-sales service analysis is assumed to encompass comparative assessment, variances diagnostics and forecast of the balanced scorecard after-sales service score value within the organization's strategic goals. The results can be applied for long-, middle- and short-term managerial decisions development in the field of the after-sales service organization activity. The conclusion is drawn that the applied strategic after-sales service analysis is a new and sufficiently effective tool to research strategic aspects of the organization after-sales service activity and to form an analytical support for the strategic after-sales service management in the present-day economic environment.

Keywords: Applied strategic analysis, Balanced scorecard, After-sales service, Management, organization

JEL codes: L29, M19, M41

Introduction

In the present-day economic environment every organization (enterprise, firm, and company) acquires a unique set of business processes ensuring value creation for its customers, developing and retaining its customer base within the target market segment as well as satisfying the requirements of its share holders in terms of high financial profitability. Meanwhile, there is a certain value chain model comprising three successive internal business processes: innovative process, operational process and after-sales service (Kaplan & Norton, 1996a).

The after-sales service, as one of the internal business processes, entails servicing a customer after the goods and services have been sold and delivered to him/her. As a rule it is composed of the goods warranty and repair, goods updating, poor quality goods replacement, billing and payment both for the goods sold and customer credit sales

The after-sales service is assumed as some kind of feedback between the goods manufacturer and the

customers to obtain adequate information about advantages and disadvantages of the goods acquired and trends for their improvement. The after-sales service excellence paves the way to company performance success portrayed by customer satisfaction.

The due after-sales service excellence guaranteed is to exceed the customers' expectations raising their positive emotions and encouraging repeat business with the goods manufacturer. Almost half of the customers suspend their further business contacts with their suppliers owing to the negative company impression gained, since the sales staff of the suppliers have lost their interest in the customers and are reluctant to maintain any further relations with them.

To assess the after-sales service process such indicators as after-sales service cost, after-sales service excellence, time cycle, *i.e.*, time period from the claim arrival to complete defect elimination, speed of billing, and paid customer credit sales time.

Ensuring high after-sales service efficiency by decreasing related cost rises thereby ensures their competitiveness rate is recognized as an essential goal of the continuing (core) operations and overall performance of any organization in the long run.

The goal is certain to be reached within the outcome of the strategic after-sales service management. In addition, an extent of the strategic decision implementation in the field of after-sales service management is to be assessed as well as the causes of variances (if any) are to be found, and a further situation development is to be forecast driving a development and improvement of the appropriate analytical instrumentation.

In view of the above mentioned, the author of this paper seeks to consider his applied strategic analysis based on the balanced scorecard to be employed in the process of the analytical support development for the strategic after-sales service management.

Previous Research (Present-Day State of the Problem)

Before discussing the author's contribution to the problem research treated in the present paper we would like to cover its present-day statement in the relevant references by well-known scholars and specialists falling into two groups:

- those presuming balanced scorecard practical application;
- those avoiding it.

It should be noted, that the scientists of the first group focus, as a rule, on the balanced scorecard (BSC) analysis as a whole rather than its after-sales service score isolated.

Treating the analysis in terms of BSC as a whole Kaplan and Norton (1996a), the founders of the balanced scorecard concept, refer to the regular enterprise strategy analysis of such mechanisms (instruments) as correlation analysis, scenarios and strategic initiatives analyses, reports with examples, expert evaluation of independent specialists, and management games as well. They believe that when a company management faces the discrepancy between the actual BSC score values and their target ones they ought to look at the company strategy since a well-established system of interrelated BSC scores enables business strategy evaluation rather informally than statistically. As for after-sales service research Kaplan and Norton emphasize the impor-

tance of reducing the after-sales service time-period, to raise the related cost efficiency and improve after-sales service excellence.

According to the specialists of Horvath and Partners (2004) the analysis exercised by the BSC scores is to cover the following basic elements:

- Evaluation of the strategic goals attainment based on the actual BSC scores values;
- Finding out the reasons of the actual BSC scores values variance from their target ones;
- Determination of the variance impact on the target BSC scores values;
- Studying the current situation in terms of strategic events implementation;
- Stipulation of the events likely to be implemented;
- Finding structural enterprise divisions with significant variances from the target BSC scores values;
- Determination of rising trends impact on the strategy implementation success;
- Establishment of the analysis subject in terms of the strategy implementation state (a structural division manager proper or a team of experts).

According to Brown (2007), the analysis is to be used for calculation and further research of the analytical BSC scores, being some kind of 'indicators' on the organization management board reporting to the managers about their activity effectiveness. The analytical indicators differ from the majority of organizations' balanced scorecard scores by aligning a certain BSC score (after-sales service score included) and are added from the sub-indicators reflecting a certain organizational activity direction. The sub-indicators are considered as lower level indicators that are frequently variables of different measurement units. Each sub-indicator of the analytical indicator is provided with a weighed value depending on its efficiency, reliability and probability usefulness. The system based on the analytical indicators, under Brown (2007), enables one to evaluate the organization's activity effectiveness more completely compared to the system based on the separate individually measured indicators. The analytical indicators are measured by means of the 100-scores scale, 100 scores being the top characteristics. With-

in the course of analysis based on the analytical indicators calculation results found are causations of their level or effectiveness trend. Emphasized is the reason having caused difficulties or lower effectiveness. Found are factors of good effectiveness and improvements trends. The analysis outcome results in the plan of actions to be implemented for the effectiveness to be improved or retained at the level attained. Generally, it comprises specific tasks, list of individuals responsible for their fulfillment and deadlines. Obviously, such plans of actions are to be developed based on the appropriate analytical information. As a rule, it is the manager responsible for the indicator who is to develop the plan of actions.

The analysis is to evaluate what has been accomplished and what has not and to define the extent of the goals attainment (Rampersad, 2003). Depending on the extent of the goals reached and their compliance with the target ones either the balanced scorecard scores implementation process or the BSC itself can be corrected. The analysis is to facilitate the permanent BSC agreement with the changing environment creating a continued learning effect to ensure that the organization understands itself better. Rampersad (2003) considers the analysis undertaken at the level of the organization and certain employees to facilitate an overall process of learning.

Friedag and Schmidt (2002) noticed that the balanced scorecard analysis is to evaluate the scores with actual values deviating from the target ones. In the course of the analysis it is to be stated if the contingencies are present (or absent), if the employees cope with their commitments, if the plan is correct. It should be noted that the strategy implementation at the enterprise has to be discussed monthly.

Olve, Roy and Wetter (2000) state obviating the need for continued measurement or analysis of overall BSC scores as an ideal management control comes to a relatively unsophisticated procedure of evaluating or monitoring dynamics of the generalized index strategy implementation.

Having generalized the views of the researchers assuming application of balanced scorecard for an organization performance analysis mentioned above, the following items are highlighted:

- The aims of the analysis exercised by the balanced scorecard is to assess an organization's strategy implementation success and to match continuously the balanced scorecard with the changing environment;

- The analysis is to determine the actual BSC scores values variances from the target ones, to find out their causes and to specify the organization's divisions exhibiting larger variances;
- The optional objective of the analysis is to research the so called analytical (generalized) indicators of the organization's performance efficiency calculated by the weighted average of the particular BSC scores and evaluated by 100-scores scale;
- The results of the analysis comprises a plan of the events to raise the organization's performance efficiency or to sustain it at the level reached and a permanent effect of learning to ensure the organization's self-understanding.

The second group of researchers includes numerous scholars of the economic organization (company) performance analysis that emerged in the Soviet Union and further developed in a number of the post-socialist economies.

The school is represented by one of the founders, living today, (Sheremet, 2005, 2008) as well Barilenko (2016), Savitskaya (2013), Boronenkova and Melnik (2016) and Lyubushin (2006).

It should be noted, that the researchers mentioned do not expose any conceptual differences in their approaches. However, they neglect to analyze an organization's after-sale service as integrity of processes of after-sale goods and services; warranty and repair, their updating, poor quality goods replacement, billing and payment for the goods sold as well as credit sales paid. Generally it is grouped into services delivered analysis, exercised within an organization's marketing activity analysis and accounts receivable analysis executed within an organization's financial position. The services delivered analysis states the list of the services the organization provides, their cost and efficiency, their impact on the demand, the relationship between the services delivery activity revenues and sales income. The accounts receivable analysis implies a research of its volume, mix (long-term, short-term, normal and outstanding), structure, middle-term, and its comparison with the accounts payable.

Methodology of Research

The methodology of the research, the results being presented in the paper, is based on two concepts:

- The balanced scorecard concept;
- The applied strategic analysis concept.

The balanced scorecard concept (BSC) as an analytical instrument for strategic management was developed by American scientists Robert Kaplan and David Norton at the beginning of the 90s of the 20th century (1992). It evolved further in their works (Kaplan & Norton, 1996a, 1996b, 2001, 2003, 2004, 2005, 2006, 2008; Kaplan, Norton & Rugelsjoen, 2010), and those of other scientists studying economics (Brown, 2007; Friedag & Schmidt, 2002; Horvath & Partners, 2004; Maisel, 1992; Niven, 2014; Olve, Roy & Wetter, 2000; Rampersad, 2003), and was multiple-tested. Today BSC is considered to be one of the essential and sufficiently effective facilities for strategic organizational management.

It should be noted, that the main reason to develop BSC was a contradiction between contingencies aimed at setting up wider competitive opportunities and an immobile accounting (financial accounting) system.

The balanced scorecard as a whole is understood as an aggregate of parameters featuring overall organizational performance in the present-day market economy. It reflects a balance to be brought about between short-term and long-term goals, financial and non-financial scores, basic and auxiliary parameters, as well as internal and external factors of the organization's economic activity.

The scores of the balanced scorecard are specially formed depending on the individual outlook and strategic goals of any particular organization. They represent a balance between external accounting data for the owners (shareholders), and customers, and internal characteristics of the most significant business processes, innovations, learning, and growth. That is the balance between the results of the organizational performance reached and future growth. The system comprises a complex of objective quantitatively evaluated data and subjective somewhat arbitrary parameters of future growth.

The main goal of the balanced scorecard is to transform a company strategy into specific tangible objectives, scores, and end up with events.

The BSC scores are selected so that the organization's managers and employees focus on the factors resulting in positive achievements of the organization's market competitiveness. The BSC should be accessible in terms of information for the employees at all levels. The 'front-line' employees are to be well aware of the financial consequences of their decisions and actions. Meanwhile, the top managers must be committed to the long-term financial success.

The balanced scorecard is founded on the cause and effect links, results attaining factors and their interrelation with financial scores.

The balanced scorecard encompasses four basic interrelated scores: finance, a customer, internal business processes, as well as learning and a personnel development score considered through the prism of key problems, strategic goals, scores and their target values and strategic events as well.

The BSC scores enable one to characterize comprehensively a performance of commercial, government, and non-for-profit organizations, the scores being relatively few (about 25 scores on average, as a rule).

The development of the strategic applied analysis concept was caused by the need to enhance strategic management effectiveness in unhealthy conditions of the present-day market economy to improve its information-analytical support; thereby stipulating an expediency of further evolution of theory, methodology and methods of the organization's overall strategic performance aspects to a level of financial analysis at least being a sufficiently effective research instrument of the financial aspects of the organization performance based on the financial scores.

ASA (Applied Strategic Analysis), as a strategic management function, assumes an overall research of the strategic organizational performance aspects based on the balanced scorecard (Krylov, 2010, 2013, 2014b).

Based on the balanced scorecard, ASA, for any particular organization, is unable to provide any standard methods. Thereby the ASA methods are special as well for any particular organization.

The goal of the applied strategic analysis implementation is to form analytical support for making strategic management decisions.

The essential ASA objectives are the following:

1. Comparative assessment of the BSC scores values assumes comparison of their actual and target figures, determination of the balanced scorecard real and target figures variance and qualitative evaluation of the variances.
2. Diagnostics of the BSC scores variances enables one to find the results attaining factors having impact on the general or outcome BSC scores and determine the variance value by means of the appropriate methods of the factoring analysis.
3. Balanced scorecard forecast of a purposeful nature implies a primordial determination and/or correction of the target BSC scores values (in case of objective circumstances) and either determination of the specific ways of their attainment or the development of the events aimed at the elimination of the variance emerged between outcome and target BSC scores values in the future.

All the objectives are interrelated as each consecutive objective follows from the previous one: the diagnostics is exercised by the results of the BSC scores comparative assessment while their forecast takes into account the diagnostics results.

Three interrelated and agreed applied strategic analysis aspects are emphasized:

- 1) A strategic aspect proper, within the aspect evaluated, diagnosed and forecast are final BSC scores values for the time period of the developed strategy in effect, *i.e.*, their strategic values;
- 2) A tactical aspect, within the aspect evaluated, diagnosed and forecast are interim BSC scores values by the end of the year, *i.e.*, their tactical values;
- 3) An operative aspect, within the aspect evaluated, diagnosed and forecast are interim BCS scores values by the end of each month, *i.e.*, their operative values.

The results of the analysis of the on-line BSC scores values impact on their tactical values and the results of the tactical value analysis influence the strategic ones.

The basic ASA technique comprises methods of absolute, relative and average values, comparison, grouping, graphical and table methods, correlation and regression analysis, factoring analysis, cluster analysis, as well as expert evaluation method.

The applied strategic analysis accomplished by deduction presumes, firstly, a research of the general BSC scores, then specific ones. The approach defines a general sequence of the ASA analysis exercise according to the following leads: financial indicators analysis, customer indicators analysis, internal business-processes indicators analysis, training and personnel development indicators analysis.

Comprising specific scores, each main lead of the applied strategic analysis: financial, customer, internal business processes and training and personnel development as well is presented through the prism of its basic objectives: comparative assessment, diagnostics and forecasting. Thus the applied strategic analysis commences with the comparative assessment of the financial scores and is completed with the forecasting of the training and personnel development score value.

The basic ASA leads, mentioned, can be transformed into specific ones such as applied strategic financial analysis, applied strategic customer analysis, applied strategic internal business-processes analysis, as well as applied strategic training and personnel development analysis. The applied strategic internal business-processes analysis is composed of the applied strategic after-sales service, applied strategic operational analysis and applied strategic innovative analysis.

When describing the ASA contents as a complex category of economics in his previous works the author assumed the applied strategic innovative analysis (ASIA) to be a kind of ASA presuming overall complex research of the strategic aspects of the organization's innovative activity based on the innovative BSC's score (Krylov, 2014a); the applied strategic financial analysis (ASFA) implying overall complex research of the organization's financial position by the BSC's financial score (Krylov, 2015); as well as applied strategic customer analysis (ASCA) enabling to research overall strategic aspects of the organization's sales performance by its BSC's customer score (Krylov, 2016); the applied strategic operational analysis (ASOA) allowing comprehensive research of the strategic organization's operational aspects

by its BSC's operational score (Krylov, 2017). In the present paper the author considers the following kind of ASA – an applied strategic after-sales service analysis.

Results

Concept and Essence of the Applied Strategic After-Sales Service Analysis

The applied strategic after-sales service analysis (ASASSA), a kind of applied strategic analysis, assumes a complex, comprehensive research of the strategic organization operational activity aspects in the field of the after-sales service of the goods manufactured based on the after-sales service score of its balanced scorecard. It can also be taken as a facilitating function of the strategic after-sales service management.

The ASASSA subject refers to the BSC's after-sales service score indicators and the factors specifying them while the object is the strategic organization after-sales service activity aspects.

The goal of the applied strategic after-sales service analysis is to form an analytical support of making strategic decisions in the field of the after-sales service management of the goods manufactured.

To attain the ASASSA goal its most important objectives (analogous to the BSC ones) are to be reached, such as comparative assessment, diagnostics variances, and forecast of the balanced scorecard after-sales service score.

All the objectives of the applied strategic after-sales service analysis are closely interrelated since each subsequent objective follows from the previous one: the diagnostics of the after-sales service BSC score indicators variances is exercised by the results of their comparative assessment and the indicators forecast are derived from their diagnostics variances results.

Comparative assessment of the balanced scorecard after-sales service score implies a comparison of their real and target figures, finding absolute and comparative (in %) variances, their qualitative evaluation that depends largely on their value (Table 1).

Table 1. *Exemplary Qualitative Evaluation of the Variance Characteristics of the BSC's After-Sales Service Score Real and Target Figures*

Real figure variances values of the BSC's after-sales service score from the target ones	Qualitative evaluation of the BSC's after-sales service score real figure from their target ones
%	
Up to 1	Fairly small
From 1 to 5	Essential
From 5 to 10	Significant
From 10 to 20	Large
20 and higher	Very large

The diagnostics of the balanced scorecard after-sales service score indicators variance is based on the cause and effect links combining the BSC scores, the after-sales service score included, into the balanced complex of the outcome (general) indicators and their specifying factors (results attaining factors).

In the course of diagnosing the balanced scorecard after-sales service score indicators variances found are results attaining factors, which impact mostly the general or outcome indicators of the BSC after-sales service score, and determined is its value by the relevant factoring analysis. The conclusions are drawn by the results obtained.

It should be noted that the outcome indicators of the more specific BSC elements (innovative score, operational and personnel training and development scores) could be considered as the elements determining the factoring indicators variances of the more general after-sales service score. So, a factoring model of the BSC after-sales service score indicators, a flowchart in the generalized form presented in Figure 1, comprises the outcome BSC after-sales service score indicators as final (the most general) ones and five levels of the defining factors:

- 1st level factors: the BSC after-sales service score indicator;
- 2nd level factors: some outcome indicators of the BSC operational, personnel development and training scores;
- 3rd level factors: some indicators of the BSC operational score;

- 4th level factors: some outcome indicators of the BSC innovative, personnel training and development scores;
- 5th level factors: some indicators of the BSC innovative, personnel training and development scores.

Within the course of the operative aspect applied strategic after-sales service analysis evaluated, diagnosed and forecast are interim BSC after-sales service score indicators by the end of each month, *i.e.*, their operative values.

It should be noted, that all the ASASSA aspects mentioned are interrelated and agreed: the results of the operative BSC after-sales service score indicators values analysis makes an impact on their tactical values and the results of the tactical values analysis – on the strategic ones.

The applied strategic after-sales service analysis methodology instruments comprise an aggregate of techniques (ways, methods) to facilitate handling the essential problems of the analysis exercised and, respectively, its goal reached. The basic techniques of the ASASSA include methods of absolute, relative and average values, comparison, grouping, graphic and table methods, correlation-regression analysis, factoring analysis, cluster analysis, and expert evaluation methods.

Information Base of the Applied Strategic After-Sales Service Analysis

The information base of the applied strategic after-sales service analysis is the BSC after-sales service score formed in three steps:

1. Definition of the strategic after-sales service goals

The after-sales service managers start the formation of the BSC after-sales service score indicators from the definition of the strategic goal and after-sales service. It is based on the key problem translated from the organizational strategy adopted and implies the following: which goals, in terms of the after-sales service, should be set in order to reach the goals of customer and financial targets respectively?

Obviously, should a company set a long-term goal of reaching outstanding financial results it is to organize after-sales service process of the manufactured goods and services to be appreciated by its customers.

It should be noted, that a process of the balanced scorecard after-sales service score development clarifies the strategic after-sales service goals and defines the critical parameters of their attainment. Meanwhile, the strategic aims included in the BSC after-sales service score are special and separate for each organization within the specific conditions

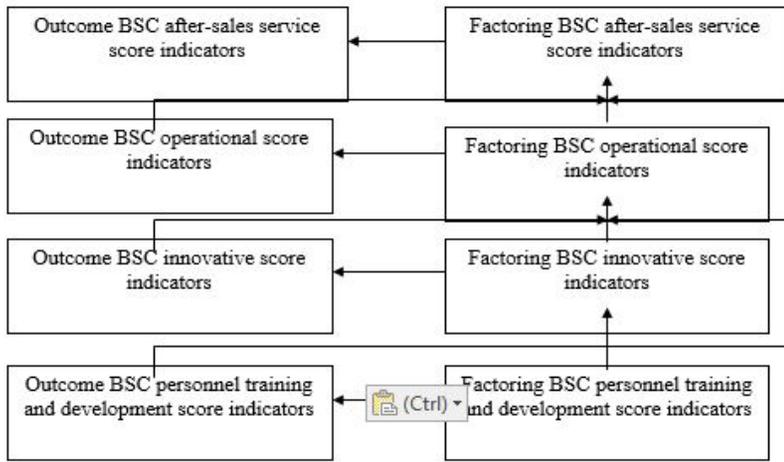


Figure 1. Flowchart of the factoring model of the BSC after-sales service score indicators in terms of its specific scores

The forecast of the BSC after-sales service score indicators values is of the purposeful nature and implies either primordial establishment or adjustment of the target BSC after-sales service score indicators values (in case of the objective conditions) and determination of the specific methods of their attainment; or the development of the events aimed at the elimination of the variances between the outcome and target values of the BSC after-sales service score indicators in the future. In addition, the forecast commences with the general (outcome) indicators, the factoring ones being derived from them.

The aspects of the ASASSA as a kind of ASA refer to a strategic aspect proper, as well as tactical aspect and operative aspect.

Within the scope of the strategic aspect of the applied strategic after-sales service analysis evaluated, diagnosed and forecast are final BSC after-sales service score indicators for the time-period of the developed strategy functioning, *i.e.*, their strategic values.

Within the frame of the tactical aspect of the applied strategic after-sales service analysis evaluated, diagnosed and forecast are interim BSC after-sales service score indicators by each year end, *i.e.*, their tactical values.

of time and location and cannot be replaced. They translate the after-sales service score of the overall strategy, *i.e.*, after-sales service strategy, into a set of specific target definitions referred to the balanced scorecard after-sales service score.

In addition, the strategic after-sales service goals and their indicators measurements, on the one hand, specify those of the customer and financial scores, on the other, they are a basis of the definition of the goals and measuring indicators of such BSC scores as operational, innovative, and personnel training and development scores.

When defining the strategic after-sales service goals it is worthwhile to reach substantial and sustained competitive advantages owing to the due after-sales service excellence and reduced cost.

In spite of the strategic after-sales service goals being special and separate for each organization within the specific conditions of time and location we consider, *e. g.*, a number of strategic after-sales service goals universal in many respects for any type of organization:

- ensuring faster poor quality goods replacement (in case of the delivery);
- providing faster warranty and repair excellence;
- implementing due delivered goods updating (*e.g.*, machinery and equipment);
- ensuring fastest billing, payment for the goods sold and arbitration.

Completing an overview of the strategic goals of the organization manufactured goods after-sales service we need to emphasize that the after-sales service is considered to be the third of the business processes and the attainment of its strategic goals facilitates further strategic customer and financial goals to be reached.

2. Construction of the strategic after-sales service map

The strategic goals of the after-sales service are not irrelevant and isolated from each other, as it has been mentioned above; they are interrelated having a strong interactive impact. To define and record the cause and effect links between the separate strategic after-sales service goals is one of the basic tasks of the BSC after-sales service score. The cause and ef-

fect links defined reflect a strong relevance between the separate strategic after-sales service goals. In the course of the process an intuitive after-sales service managers' insight on the cause and effect links between the separate strategic goals of the after-sales service is transformed into the actual ones that are reflected (documented) in the strategic map of the after-sales service.

The strategic after-sales service map is presented as a flowchart document reflecting the cause and effect links between the separate strategic goals of the organization's after-sales service. It is viewed as the flowchart, where the strategic goals of the after-sales service are presented as separate blocks and the cause and effect links between them as arrows. The strategic after-sales service map is one of the components of the strategic internal processes map and that of the overall strategic map.

As an example provided is a strategic after-sales service map reflecting an interrelation of its predefined strategic goals being largely universal for all types of the organizations (Figure 2).

The usefulness of the strategic after-sales service maps construction to form the BSC after-sales service score is essential as they:

- reflect the interrelation and dependence between the separate strategic goals of the organization's after-sales service;
- explain the reciprocal effects emerging from the strategic after-sales service goals attained;
- form the executives' awareness of the interaction and importance of the separate strategic after-sales service goals;
- facilitate a unified understanding of the organization's after-sales service strategy;
- explain the value of the managerial after-sales service indicators;
- enhance deeper understanding and better links of the strategic goals of the after-sales service;
- assist in building cooperation between the heads of various organizational divisions implementing after-sales service;
- create a model explaining the ways to reach success in the organization after-sales service

3. Selection of the after-sales service indicators

The construction of the strategic operational process map having been completed enables one to select indicators of the BSC after-sales service score. The after-sales service indicators are needed to express precisely and unambiguously the content of its strategic goals and the level of their attainment. Measuring strategic goals of the after-sales service facilitates the development of the object managed in the selected operational direction. To ensure the unified understanding of the predefined strategic after-sales service goals to be reached each of them is to comprise as many as two (rarely – three and/or four exclusively) indicators.

The consideration of a larger number of preliminary after-sales service indicators enables one to understand, at an early stage, which indicators the BSC after-sales service score have to encompass. To employ certain after-sales service indicators within an operations management system their description (in terms of definition, formulae and parameters) is to be available. The existing after-sales service indicators would have to be assessed in terms of their usefulness (e.g., data sources, indicators measurement frequency, target values availability) As for unavailable after-sales service indicators, an accounting procedure of their values is to be worked out in advance.

Consider, as an example, certain general after-sales service indicators measuring the strategic goals mentioned above (ensuring faster poor quality goods replacement; providing faster warranty and repair excellence; implementing due delivered goods improvement; ensuring fastest billing, payment for the goods sold and arbitration) and bring them together into Table 2.

Table 2. Certain General Indicators of the BSC After-Sales Service Score

Strategic after-sales service goal	Measuring indicators
Ensuring faster poor quality goods replacement (in case of the delivery)	Time-period of the poor quality goods replacement.
Providing faster warranty and repair excellence	Life cycle. A share of the first call claims to the number of the repeat calls.
Implementing due delivered goods updating	Time-period of the earlier delivered goods improvements. Cost of the earlier delivered goods improvements.
Ensuring fastest billing, payment for the goods sold and arbitration	Speed of billing. Time-period of the accounts receivables payment.

4. Definition of target after-sales service indicator values

As soon as the selection of the BSC after-sales service indicators has been completed their target values are to be defined. It should be noted that when the target value of every after-sales service indicator is stated one and another of its strategic goals are considered to be completely described. The target values of the after-sales service indicators must be rigorous but totally achievable.

The target values of the after-sales service indicators in terms of methods are determined by means of the preliminary development further disputed and agreed at meetings and combined with building the business-plan model.

Nevertheless, the following principle has to be followed: a balance of the strategic after-sales service goals is to be reflected by the balance of the target values describing them.

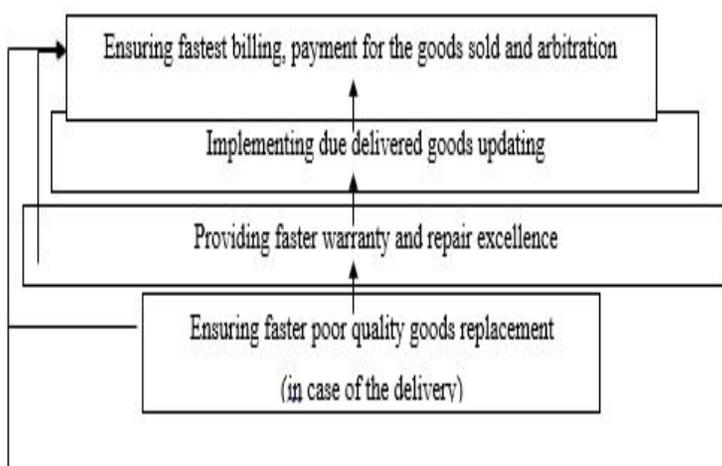


Figure 2. An example of the strategic after-sales service map

5. Development of strategic after-sales service events

Having completed the BCS after-sales service score the relevant strategic after-sales service events may be developed. The strategic after-sales service events are assumed as the events relevant to the strategic after-sales service goals determined for the balanced scorecard after-sales service score. The strategic after-sales service events allow one to specify the strategic after-sales service goals and link the after-sales service strategy with the after-sales service managers' objectives. Thereby the key idea of the BSC after-sales service score is realized, *i.e.*, the translation of the after-sales service strategy into the specific after-sales service management actions since the BSC after-sales service score commences its performance as soon as the strategic after-sales service events are implemented.

As regards the strategic after-sales service events such events may mean bringing new technologies to the warranty and repair; improving the delivered goods, updating process or other events irrelevant to the after-sales service activity demanding substantial resources.

Thus the strategic after-sales service events result in the basis for the resources allocation within the after-sales service strategy accomplishment. In other words, a definition of the strategic after-sales service events implies a comparison of the anticipated strategic operational goals with the available resources and technical feasibilities. Thereby the organization is being tested for the strategic after-sales service goals feasibility. The work may entail a revision of the strategic after-sales service goals defined before the development of the strategic after-sales service events.

As a rule, organizations may not have sufficient resources and capacities to implement all the strategic after-sales service events considered, resulting in setting up priorities. In this case a compliance of the after-sales service events with the strategic system of the after-sales service goals allows them to assess their contribution in the implementation of the after-sales service strategy developed. The work facilitates reaching a consensus concerning the sequence of the strategic after-sales service events exercise in terms of the resources and capacities available, *i.e.* which are to be firstly accomplished and which ones should be postponed.

It should be noted, that the strategic after-sales service budgets are drawn up based on the developed strategic after-sales service events. Thereby the strategic after-sales service planning is linked with the operational planning (first and foremost with budgeting).

The developed BSC after-sales service score is presented by a table comprising the key issue of the BSC after-sales service score, strategic goals of the after-sales service process, their indicators, their target values and strategic after-sales service events (Table 3).

Table 3. BSC After-Sales Service Score of Organization Development

Key issue of the BSC after-sales service score	Strategic goals of the after-sales service score	After-sales service score indicator	Target values	Strategic after-sales service event
What goals concerning after-sales service are to be set to attain the following customer and financial goals, respectively?				

Components and Sequence of the Applied Strategic After-Sales Service Analysis Execution

The applied strategic after-sales service analysis as a kind of applied strategic analysis is carried out in compliance with the principle of deduction encompassing research, firstly, general indicators of the balanced scorecard operational element then specific ones.

The basic components of the ASASSA are the following:

1. Analysis of speed of billing, payment for the goods sold and arbitrations settlement;
2. Analysis of due delivered goods updating;
3. Analysis of speed of warranty and repair excellence;
4. Analysis of speed of poor quality goods replacement (in case of the delivery).

The overall sequence of the applied strategic after-sales service analysis is built on the principle of the analysis mentioned above and its basic elements are specified as a flowchart (Figure 3).

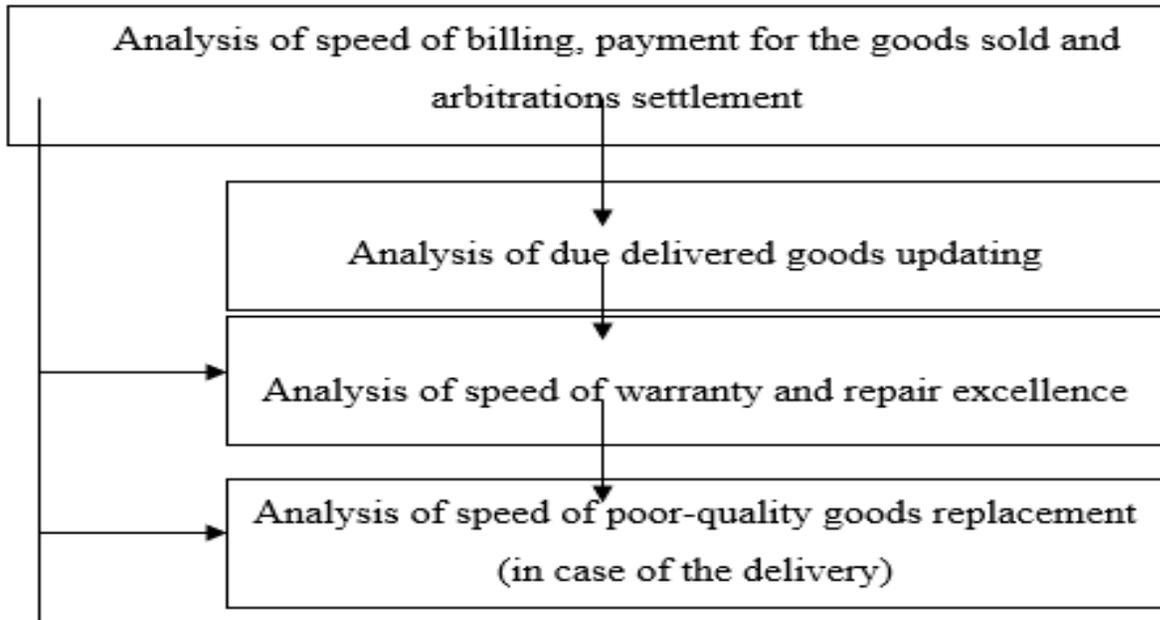


Figure 3. Sequence of the applied strategic after-sales service analysis execution

According to Figure 3 the sequence of the applied strategic after-sales service analysis execution procedure is rigorous and commences with the analysis of the speed of billing, payment for the goods sold and arbitrations settlement. Then it is followed by the analysis of the due delivered goods updating. It is furthered by the analysis of the speed of the warranty and repair excellence. The procedure is finalized with the analysis of the speed of poor quality goods replacement (in case of the delivery).

A detailed process of the applied strategic after-sales service analysis execution can be presented through the prism of its main objectives, *i.e.*, comparative assessment, diagnostics of the variance and forecast of the BSC after-sales service score (Figure 4).

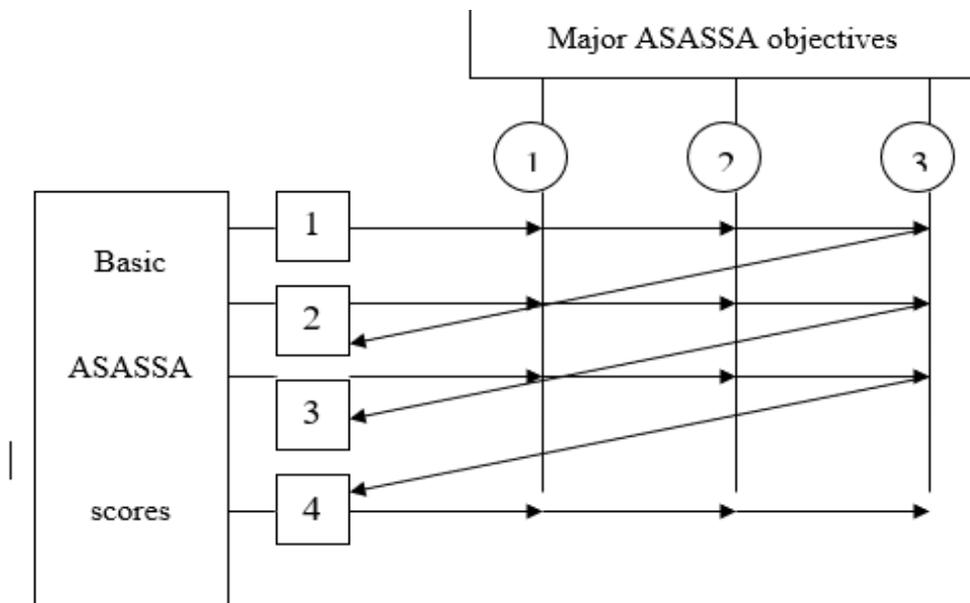


Figure 4. Flowchart of the applied strategic after-sales service analysis execution

Figure 4 shows that considering the after-sales service score indicators to be grouped into the outcome and factoring ones the applied strategic after-sales service analysis starts from the comparative assessment of the outcome indicators characterizing the speed of billing, payment for the goods sold and arbitrations settlement and is completed with the forecast of the factoring indicators of the speed of poor quality goods replacement (in case of the delivery).

In addition, assuming the “intersection points” of the analyzed BSC after-sales service score indicators and the major objectives of the applied strategic after-sales service analysis, defined as some kind of the ASASSA scores, we are able to build a matrix (Table 4).

Table 4. *Matrix of the ASASSA Scores*

Basic ASASSA scores (i)	Major ASASSA objectives (j)		
	Comparative assessment of the BSC after-sales service score indicator values (1)	Diagnostics of the BSC after-sales service score indicator values variances (2)	Forecast of the BSC after-sales service score indicator values (3)
Analysis of speed of billing, payment for the goods sold and arbitrations settlement (1)	Comparative assessment of the values of the speed of billing, payment for the goods sold and arbitrations settlement indicator	Diagnostics of the speed of billing, payment for the goods sold and arbitrations settlement indicator values variances	Forecast of the speed of billing, payment for the goods sold and arbitrations settlement indicator values
Analysis of due delivered goods updating (2)	Comparative assessment of the values of the due delivered goods updating indicator	Diagnostics of the due delivered goods updating indicator values variances	Forecast of the due delivered goods updating indicator values
Analysis of speed of warranty and repair excellence (3)	Comparative assessment of the values of the speed of warranty and repair excellence indicator	Diagnostics of the speed of warranty and repair excellence indicator values variances	Forecast of the speed of warranty and repair excellence indicator values
Analysis of speed of poor quality goods replacement (if delivered) (4)	Comparative assessment of the values of the speed of poor quality goods replacement (if delivered) indicator	Diagnostics of the speed of poor quality goods replacement (if delivered) indicator values variances	Forecast of the speed of poor quality goods replacement (if delivered) indicator values

Denoting elements of the matrix as pc_{ij} ($i = 1, 2, 3, 4$; $j = 1, 2, 3$), allows one to describe mathematically the ASASSA contents by means of the formulae:

$$PC = \sum_{i=1}^4 \sum_{j=1}^3 pc_{ij} \quad (1)$$

where PC is an amount of the ASASSA scores;

i is an index of the ASASSA scores: 1 is the analysis of the speed of billing, payment for the goods sold and arbitrations settlement; 2 is the analysis of the due delivered goods updating; 3 is the analysis of the speed of warranty and repair excellence; 4 is the analysis of the speed of poor quality goods replacement (if delivered)

j is an index of the major ASASSA objectives;: 1 is the comparative assessment of the BSC after-sales service score indicator values; 2 is diagnostics of the BSC after-sales service score indicator values variances; 3 is the forecast of the BSC after-sales service score indicator values.

The matrix (Table 4) and the formulae (1) are considered as the matrix and mathematical model of ASASSA, respectively, visualizing their composition and economic contents.

The examples of the outcome and factoring indicators analyzed per every complex score of the strategic after-sales service analysis are presented in Table 5.

Table 5. *Examples of Analyzed Outcome and Factoring Indicators per Each ASASSA Score*

Basic ASASSA score	Indicators analyzed	
	Outcome	Factoring
1. Analysis of speed of billing, payment for the goods sold and arbitrations settlement	Average speed of billing. Average time-period of payment for the goods sold. Average time-period of arbitrations settlement	Speed of billing to certain customers Time-period of payment for the goods sold by certain customers. Time-period of arbitrations settlement with certain customers
2. Analysis of due delivered goods updating	Average time-period of delivered goods updating	Time-period of goods updating delivered to certain customers. Cost for delivered goods updating
3. Analysis of speed of warranty and repair excellence	Absolute and comparative of time cycle changes A share of repeat claims for repair and warranty within overall claims. A share of repeat claims for warranty satisfied at the first notice within overall claims	Time-period of time cycle Overall claims for repair and warranty. A number of repeat claims for repair and warranty A number of repeat claims for warranty satisfied at the first notice.
4. Analysis of speed of poor quality goods replacement (in case of the delivery)	Average time-period of poor quality goods replacement	Time-period of poor quality goods replacement

Discussion

The author believes the results of the research, undertaken to develop the applied strategic analysis concept as the research instrument of the strategic organization after-sales service activity aspects, based on the balanced scorecard after-sales service score, to carry no analogy and to be considered as new and unique.

Let us compare the results of the author's research obtained with those of the well-known scientists and specialists in the field discussed above in the section "Previous Research (Present-day state of the problem)". Some of them consider the BSC analysis application as a whole neglecting its after-sales service score, while others focus on the after-sales service analysis obviating the need for the BSC utilization.

Generally speaking, a careful study of the relevant references of the authors assuming the balanced scorecard application for an organization performance analysis has revealed an absence of a clear well-defined BSC analysis exercise concept, as a whole, as that of its separate elements, an after-sales service one, as well. Presented are some general

desires concerning the contents and sequence of the analysis execution.

Meanwhile, the author of this paper proposes the specific well-built conceptual approach to the execution of the applied strategic after-sales service analysis as a kind of the applied strategic analysis developed (Krylov, 2010, 2013, 2014b) thereby raising the strategic organization after-sales service management. This paper clarifies his methodical aspects of the applied strategic after-sales service analysis (specified are its objectives, formed are recommendations to evaluate significant variances of the outcome BSC after-sales service indicator value from the target ones, presented is a graphic model of the factoring analysis of the variances arisen, described are scores, and built is the ASASSA flow-chart), and provides examples of the outcome and factoring indicators of the BSC after-sales service score analyzed.

The author considers the building of the so called analytical indicators by the BSC scores to be inex-

pedient as a technique of their computations as the weighted average is of the subjective nature and deteriorates the analysis results accuracy rather than improves it.

Generally speaking, the author's vision and solution of the problem treated in the paper is of the more complete, detailed, well-thought and visualized character compared with those of the other researchers' mentioned above.

The discussed above after-sales service analysis, neglecting balanced scorecard application, is exercised by a somewhat complex instrument to research an aggregate of the after-sales service warranty and repair of the goods and services delivered, their updating, poor quality goods replacement, billing and payment for the goods sold and credit sales as well, is hardly analysis at all. Meanwhile, there are two practically irrelevant and run separately fragments (analysis of services, executed within the organization marketing activity analysis, and analysis of the accounts receivable, run within the organization financial position analysis) with small corrections for the analyzed company's performance industry features, its strategic goals being evaded. Thereby the analysis of the kind is considered as low-informational to ensure the strategic after-sales service management effectiveness.

Conclusions

On stating the concept of the applied strategic after-sales service analysis (ASASSA) the following conclusions are drawn:

- The applied strategic after-sales service analysis as a kind of the applied strategic analysis is a new and sufficiently effective instrument to research the strategic aspects of the organization's after-sales service activity forming the analytical support for the strategic after-sales service management;
- The ASASSA methodology is constituted by the concepts of the balanced scorecard and the applied strategic analysis;
- The applied strategic after-sales service analysis presumes the comparative assessment, variances diagnostics and forecast of the BSC after-sales service score indicators of the organization within its strategic goals;

- The ASASSA comprises the analysis of the speed of billing, payment for the goods sold and arbitrations settlement; analysis of the due delivered goods updating; analysis of the speed of warranty and repair excellence; and analysis of the speed of poor quality goods replacement (in case of the delivery).
- The applied strategic after-sales service analysis commences with the comparative assessment of the outcome indicators, characterizing the speed of billing, the payment for the goods sold and arbitrations settlement and is completed by the factoring indicators forecast of the poor quality goods replacement (in case of the delivery).
- The results of the ASASSA may be applied for the development and implementation decisions of the long-term, medium-term and short-term character in the field of organizational after-sales service activity.

Implications for Future Research

The conceptual base of the applied strategic after-sales service analysis, as a new instrument to research comprehensively the strategic aspects of the organization after-sales service activity through the balanced scorecard after-sales service score, discussed above, define some general contours of the ASASSA as new research and performance leads, providing a theoretical basis for its further development in terms of its practical application aspect.

The implications of the future applied strategic after-sales service analysis are as follows:

- Detailed and specific ASASSA methodology development in terms of the indicators of separate stages and strategic after-sales service activity goals;
- A development of the ASASSA techniques for individual companies in different industries;
- The ASASSA extension onto the continuing operational activity indicators being a derivative of the BSC after-sales service score indicator;
- A development of economic-mathematical models and computer programs enabling one to apply the ASASSA for the after-sales service activity management.

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