

# Role of Personnel Planning in Business Continuity Management

M. Königová, and J. Fejfar

**Abstract**—Business continuity management (BCM) identifies potential external and internal threats to an organization and their impacts to business operations. The goal of the article is to identify, based on the analysis of employee turnover in organizations in the Czech Republic, the role of personnel planning in BCM. The article is organized as follows. The first part of the article concentrates on the theoretical background of the topic. The second part of the article is dedicated to the evaluation of the outcomes of the survey conducted (questionnaire survey), focusing on the analysis of employee turnover in organizations in the Czech Republic. The final part of the article underlines the role of personnel planning in BCM, since poor planning of staff needs in an organization can represent a future threat for business continuity ensuring.

**Keywords**—Business continuity management, key employees, personnel planning, turnover.

## I. INTRODUCTION

BS 25999, the world's first British standard for business continuity management (BCM), specifies business continuity as a strategic and tactical capability of the organization to plan for and respond to incidents and business disruptions in order to continue business operations at an acceptable pre-defined level [13]. According to this standard, business continuity management is a holistic management process that identifies potential threats to an organization and the impacts to business operations those threats, if realized, might cause, and which provides a framework for building organizational resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value-creating activities [5].

Herbane, Elliott and Swartz [12] state that in an organizational context, business continuity management has evolved into a process that identifies an organization's exposure to internal and external threats and synthesizes hard and soft assets to provide effective prevention and recovery. Business continuity planning is a discipline that prepares an organization to maintain continuity of business during a disaster through an implementation of a business continuity plan [15]. Syed and Syed [15] add that business continuity plan is a document that contains procedures and guidelines to help recover and restore disrupted processes and resources to normal operational status within an acceptable time frame.

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According to Brodera and Tucker [6], business continuity planning is defined in many different ways, reflecting its author's particular slant, background, or experience with the process.

Business continuity management is closely connected with risk management and crisis management and use advantages of both disciplines. Blyth [3] emphasizes that risk management should be considered as supporting elements of business development and operational conduct, regardless of the industry sector or geographic region an organization might operate in. Every organization is exposed to risks [12], [15], [9], [3] and a crisis can be caused by any number of factors [7]. Against a background of increasing threats, business continuity management has emerged in many industries as a systematic process to counter the effects of crises and interruptions; although its potential to play a more strategic role is still largely under-explored [12]. Utilizing pre-established contingency plans practically in order to manage a crisis even most effectively [3].

According to Collier [7], there are a number of differences between risk management and its specific application to business continuity management. Risk management focuses on undertaking a thorough organization-wide identification and assessment of risk, and evaluating risk in relation to its likelihood and impact before identifying an appropriate risk response. Business continuity management is concerned only with events that cause a significant business disruption; it is not concerned with probability (which will usually be low) but with the impact of an event and the time required for an organization to return to normal business operations. Graham and Kaye [10] add that as risk management can lead to a better understanding of an organization and its business, so BCM can provide the strategic and operational framework to review the way an organization provides its products and services - while increasing their resilience to disruption, interruption or loss.

Business continuity management may be implemented by all organizations regardless of their size or purpose of business [12], [8]. A number of authors [15], [9], [10] have identified the most significant threats within the frame of BCM, e.g. terrorism, bomb threat, natural disasters, utility failures, IT system failures, equipment breakdowns, loss of key staff, that endanger the interests of all interest groups involved, the brand and an organization's reputation. Risk can also be introduced to an enterprise through changes - such as automation, down-sizing, process re-engineering or outsourcing of processes and services - each of which may also bring changes in the type of risk [9]. Graham and Kaye [10] emphasize that the majority of organizations do not systematically assess the risks associated with people and

therefore do not consider the controls that might be needed to manage these risks. It is essential that these silos are broken down and people viewed from the angles of their profile, the nature of risks, the risks to people and the risks arising from people.

Organizational resource protection is part of BCM [20]. The organizational resources also include people as a production factor without which organizations would not be able to operate. People are carriers of knowledge; therefore the protection of knowledge (as a production resource) and thus the protection of employees (as carriers of knowledge) should represent one of the organization's priorities [13].

Key employees play an irreplaceable role in the process of BCM application. A key employee can be evaluated from two points of view – from the point of view of a work position and from the point of view of an individual's competence. A key position is the one that incorporates the most important activities that are necessary to ensure key processes in an organization. A key individual is the one that has such competences, i.e. knowledge, skills and abilities, that are essential to achieve the required level of performance (knowledge continuity management speaks about critical knowledge) [14].

Since the loss of key employees represents one of the significant threats that jeopardize organizations, the article focuses on the role of personnel planning in BCM. The goal of the article is to identify, based on the analysis of employee turnover in organizations in the Czech Republic, the role of personnel planning in BCM. The article is organized as follows. The first part of the article concentrates on the theoretical background of the topic. The second part of the article is dedicated to the evaluation of the outcomes of the survey conducted (questionnaire survey), focusing on the analysis of employee turnover in organizations in the Czech Republic. The final part of the article underlines the role of personnel planning in BCM, since poor planning of staff needs in an organization can represent a future threat for business continuity ensuring.

## II. MATERIAL AND METHODS

In the period from 10/2011 to 06/2012 a quantitative survey was conducted, by means of a questionnaire survey, focusing on the evaluation of the level of human resource management in organizations in the Czech Republic. One part of the survey was focused on the employee turnover and related aspects. 109 organizations from both the private and state sectors took part in the questionnaire survey. 48.6% of the organizations surveyed have less than 50 employees, 29.4% of these organizations have 50 to 249 employees and 22% of these organizations employ more than 250 people. To enhance the quality of the questionnaire survey and to determine the real level of human resource management in organizations, it was required for the questionnaire to be completed by a specialist from the personnel department or the owner of the given organization. The data have been processed by means of absolute and relative frequencies using the Microsoft Excel 2007 program and the IBM SPSS Statistics 20. Testing has

been done by Pearson Chi-Square test ( $X^2$  test) in contingency tables.

## III. RESULTS

### *A. Employee Turnover in Organizations in the Czech Republic*

The loss of key employees means a threat for organizations, therefore it is necessary to monitor and evaluate the labor mobility of employees in order to implement an adequate personnel policy that has to reflect an organization's comprehensive strategy. A survey conducted has shown that 20% of addressed organizations does not monitor employee turnover. In the 80% of organizations that do monitor the turnover of their employees the turnover rate ranges from 0 to 47%. In 86% of these organizations the turnover rate is less than 15%, in 11.6% of organizations the rate ranges from 16 to 30% and in 2.3% of organizations from 31 to 47%. The HR Controlling 2007 study by PricewaterhouseCoopers states that the median value of the total turnover in the Czech Republic is 14.8%, however, in some companies it reaches as much as 25 % and more, which is a significantly higher rate than the recommended one (5-10%) [18]. According to the PricewaterhouseCoopers HR Controlling 2012 study, the voluntary turnover rate in the Czech Republic in 2012 was around 6%. Organizations have difficulties recruiting quality employees as people search for certainty [17].

In connection with the turnover rate analysis in organizations, we have determined the reasons for non-monitoring of the turnover rate in the 20% of organizations examined, based on which hypotheses no. 1 and 2 were identified and tested (see Table I). Using extracted data, dependency was tested by applying Pearson's Chi-Square Test. The SPSS program employed uses the so-called p-value as an output in dependency testing. P-value in hypothesis testing equals the minimum significance level at which the null hypothesis can be rejected. Should the calculated p-value be lower than the set significance level of 0.05, it is possible to say that the null hypothesis, i.e. the hypothesis on the independence of qualitative characteristics, is rejected at the 5% level of significance. As the both p-values calculated by means of the  $X^2$  test are higher than the selected level of significance  $\alpha = 0.05$ , null both hypotheses cannot be rejected. The results of the test have confirmed that turnover rate monitoring in organizations is not dependent on the size of the organization or the existence of a personnel department.

TABLE I  
THE RESULTS OF THE QUALITATIVE CHARACTERISTICS TEST FOR  
HYPOTHESES NO. 1, 2

Number of hypothesis	Null hypothesis (H <sub>0</sub> )	P-value	Rejection of H <sub>0</sub>
1	Turnover rate monitoring in organizations is not dependent on the size of the organization.	0.739	No
2	Turnover rate monitoring in organizations is not dependent on the existence of a personnel department in the organization.	0.804	No

The total number of (full-time) employees in the course of the last three years (i.e. in the period from 2009/2010 to 2011/2012) has fallen in 46.3% of organizations, while in 26.9% of organizations it has remained unchanged and in 26.9% of organizations it has increased. Downsizing organizations used the following means to decrease the number of employees: termination of employment contracts based on agreement (36 organizations, i.e. 72%), non-renewal of employment contracts (26 organizations, i.e. 52%), employee retirement (19 organizations, i.e. 38%), termination of the employment contract based on notice (17 organizations, i.e. 34%) and termination of the employment contract during the probationary period (1 organization, i.e. 2%). The ways of employee number reduction are shown in Fig. 1.

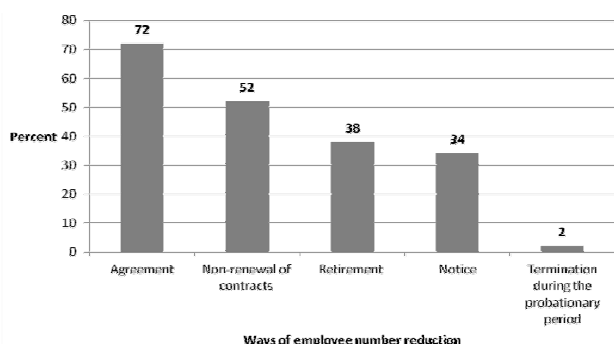


Fig. 1 Ways of employee number reduction

Despite the fact that 46.3% of organizations have had to face the decrease in the number of employees, 89.9% of organizations (out of the overall number of respondent organizations) do not ensure support for and assistance to dismissed employees to help them find a new job, so-called outplacement.

Only 10.1% of organizations provide leaving employees with various forms of consultancy, the aim of which is to mitigate the negative consequences of downsizing in an organization. Only 16% of organizations dealing with downsizing pay attention to outplacement despite the fact that by ensuring outplacement, organizations show respect for their employees, keep the image of a reliable employer, positively

impact the social climate and reduce the negative consequences of dismissal. The method of employment termination is a reflection of the overall level of personnel policy and the level of organizational culture and ethics. The negative consequences of downsizing do not affect only dismissed employees, but also current employees and may distort the public image of the organization.

*B. Career Management and Work with Talent in the Czech Republic*

Successful development of organizations is impossible without management of employees' careers. It is in the interest of every organization to harmonize employees' needs and expectations with the needs and interests of the organization. Concerted action is required to retain talented employees, but there are limits to what any organization can do [1]. In the area of career management and work with talent, 58.7% of organizations do not execute any activities connected with talent management. Only 15.6% of organizations have a talent management strategy while 25.7% of organizations manage talent based on their intuition. 28% of downsizing organizations conduct activities related to talent management, 24% of them manage talent intuitively and 48% do not implement any activities of this kind. According to the organizations, the most common reasons for the above situation include: financial demands (62.5%), non-importance of the issue (31.5%), insufficient personnel provision (1.5%), exigent preparation of the application (1.5%), etc. (3%) (see Fig. 2). According to Armstrong [1], there is no a job for life, therefore it is necessary to encourage the greatest contribution from existing talent and to value them accordingly.

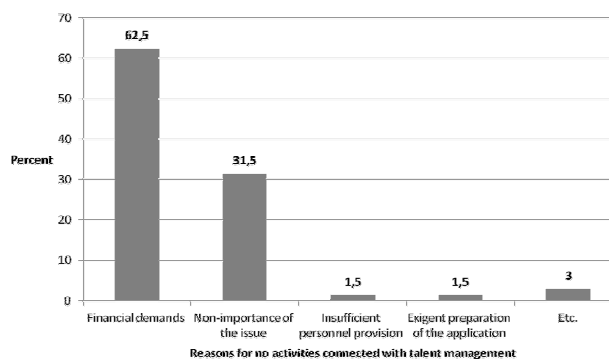


Fig. 2 Reasons for no activities connected with talent management

*C. Sharing of Knowledge in Organizations in the Czech Republic*

The survey conducted has confirmed that knowledge is not sufficiently shared in organizations in the Czech Republic. Despite the fact that 46.3% of respondent organizations struggle with the decrease in staff number, employees' knowledge is fully shared only in 15.6% of organizations, i.e. knowledge continuity is not ensured. Consequently organizations are threatened by the loss of critical knowledge since no transfer of knowledge from current employees to their successors is ensured [2]. In 45.9% of organizations

knowledge is partially shared and in 38.5% of organizations employees share only the knowledge necessary for job performance. One of the possible reasons for the above situation may be that employees are not compensated for knowledge sharing (56%), i.e. employees are not stimulated by management to share knowledge although their knowledge is currently considered to be a strategic source for achieving a competitive advantage. Simultaneously, these employees lack internal motivation to share knowledge.

These results also confirm the outcomes of Urbancová and Urbanec's [19] survey according to which only 43% of respondents share their knowledge to a limited extent. Latter do not wish to transfer a major part of their knowledge as they consider it their competitive advantage against others and they do not want to lose their job and be substituted by somebody who is better than they are [19].

According to Urbancová and Linhartová [18], in relation to ensuring knowledge continuity there is a positive impact of the factors at the individual level (internal motivation, previous experience with knowledge sharing and trust) and at the organizational level (climate in the organization, stimulation (remuneration system), communication process, willingness to invest in employee education). Knowledge continuity ensuring as a part of business continuity management eliminates the threat of loss of knowledge during employee turnover and other personnel changes [18].

#### IV. DISCUSSION

Staff planning is an organizational process of estimating and implementing measures in the area of inflow and outflow of labor force in organizations and their movement within organizations. Its target is to ensure that both in the near and more distant perspective the fulfillment of organizational goals is ensured by a corresponding amount and structure of labor force, by optimal utilization of employees' skills and by harmonizing organizational goals with the individual goals of its employees in the process of their development.

Organizations satisfy their need for labor force from both internal and external resources. With respect to the length of period for which the need of labor force is planned in market economy conditions, internal resources play a key role when considering the future needs of labor force. External resources are only used when an organization is unable to cover its labor force needs from internal resources.

The basis for future estimations of labor force resources is the perfect knowledge of the current number and structure of labor force in the organization as well as outside the organization (in particular in the local labor market), as well the knowledge of the rules of movement and variability of both groups of labor resources during a relatively long retrospection. It is necessary to measure employee turnover and to calculate its costs in order to forecast future losses for planning purposes and to identify the reasons that employees leave the organization [1]. The cost of employee turnover can be considerable. The CIPD 2008 survey established that the average cost per employee was £5,800, rising to £20,000 for senior managers or directors [1].

To estimate future internal labor resources, it is possible to use Markov chains. It is a stochastic model according to which the laws of employee movement within and out of the organization may be estimated. It is suitable in all conditions where job positions form a certain hierarchy which employees follow in the course of their working career.

According to Armstrong [1], the method of analysis of employees' leavings and the related survival rate are particularly useful for human resources planners. The survival rate is the proportion of employees who are engaged within a certain period who remain with the organization after so many months or years of service [1].

The background materials for this analysis permit us to determine also the mortality rate that is based on a reversed principle. This indicator shows the number of employees that left the organization at a certain stage (year) of their career in the organization. Table II describes the principle of mortality rate calculation based on the analysis of the survival rate.

TABLE II  
THE PRINCIPLE OF MORTALITY RATE CALCULATION BASED ON THE ANALYSIS OF THE SURVIVAL RATE

Entry cohort	Original number	Number surviving to end of year after engagement				
		Year 1	Year 2	Year 3	Year 4	Year 5
A	80	68	60	50	45	36
B	61	52	48	39	35	31
C	100	82	75	66	52	47
Total	241	202	183	155	132	114
Average survival rate (%)	100	83,82	75,93	64,32	54,77	47,3
Number of leavings		39	19	28	23	18
Average mortality rate (%)		16,18	7,88	11,62	9,54	7,47

Adjusted according to Armstrong [1]

Table II shows three initial cohorts and their development over the course of 5 years. Each of the cohorts displays certain decreases. The average survival rate is calculated in relation to the original overall size of all three cohorts. The number of leavings in the given year shows the decreases compared to previous years. The average mortality rate is calculated as the quotient of these leavings and the former size of the overall group of employees.

Table II demonstrates that at the end of the monitored period there are 114 employees (47.3%) out of the initial cohorts in the organization. All these employees will leave the organization in the future due to retirement or employment contract termination. It was essential to include this data into the statistics as well. The above-shown table would be extended to include the relevant number of years accompanied with related data.

In Markov renewal processes, the average mortality rate corresponds to the probability of unit failure in the  $i^{\text{th}}$  period

(a<sub>i</sub>). The average survival rate then corresponds to the probability of survival until the end of the  $i^{\text{th}}$  period ( $\tau_i$ ).

When using this process for the purposes of BCM or human resource planning, it is suitable to divide it into several parts that would reflect, for example, work positions (workers, specialists, administrative staff, and managers). Similarly it can be divided according to the importance of employees in terms of BCM (key employees).

Transitions within individual groups are statistically detectable. This data serves as the basis for the development of a transition matrix of a Markov chain ( $\mathbf{P}$ ). The estimates of proportional representation in individual cohorts in the future that are dependent on the current state and the transition matrix may be viewed as ergodic probabilities of the relevant Markov chain. Ergodic probabilities are basically absolute transition probabilities that stop changing from the  $n^{\text{th}}$  step (see [16], [4]).

Markov renewal processes permit the calculation of, for example, the average number of employees left, the average length of their employment or the estimated structure of employees according to years of work in the organization. This information is very important in terms of personnel planning.

Personnel planning may be also based on the application of absorbing Markov chains. An absorbing chain works with absorbing and transitive states. The matrix of conditional transition probabilities ( $\mathbf{P}$ ) is divided into 4 quadrants (1).

$$P = \begin{bmatrix} Q & R \\ 0 & I \end{bmatrix} \quad (1)$$

The I<sup>st</sup> quadrant –  $\mathbf{Q}$  matrix – shows probabilities of transition between transitive states.  $\mathbf{R}$  matrix forms the II<sup>nd</sup> quadrant and contains the probabilities of transitions between transitive and absorbing states. The III<sup>rd</sup> quadrant consists of zero matrix ( $\mathbf{0}$ ). The IV<sup>th</sup> quadrant comprises  $\mathbf{E}$  unit matrix [11].

Transitive states correspond to individual groups of employees (e. g. according to their work position). Absorbing states may reflect various ways of employment contract termination. Based on calculations using the fundamental matrix, it is possible to determine the average length of employees' remaining in the current job position, the average length of remaining with the organization, etc. Another important finding is the expected structure of the ways of leaving of employees in individual employee groups.

## V. CONCLUSION

The turnover of key employees can have a disproportionate impact on the business. The people organizations wish to retain are often the ones most likely to leave [1]. On the basis of the evaluation of the results of the survey focusing on the turnover of employees in organizations in the Czech Republic, it is possible to state that despite the fact that the leaving of key employees represents one of the threats identified in BCM, 20% of organizations do not monitor their employee turnover. 86% of organizations demonstrate a turnover rate up

to 15%, 11.6% of organizations have a turnover rate ranging from 16 to 30% and 2.3% of organizations from 31 to 47%. Although 46.3% of organizations have to deal with the decrease in the number of staff, 58.7% of organizations do not execute any activities connected with talent management and employees fully share their knowledge in only 15.6% of organizations, i.e. knowledge continuity is not ensured. Based on the above said, organizations are recommended to focus on personnel planning, since insufficient planning of the quantity and structure of labor force in an organization may endanger future business continuity ensuring.

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