HUMAN RESOURCES CHURNING COSTS: BRIDGING THEORETICAL INSIGHTS WITH EMPIRICAL REALITIES

Olga Alexandra Chinita Pirrolas[1]
Pedro Miguel Alves Ribeiro Correia[2]

Abstract: The purpose of this review article was to identify and analyse the main costs arising from churning, as well as to identify the main measures applied by organisations to mitigate them. In order to facilitate its realisation, the research question arose: what are the potential costs of human resource churning and what strategies have been applied to mitigate them? We opted for a combined methodology, integrating a theoretical approach with empirical data, in order to provide a comprehensive perspective on the costs and preventative measures of human resource churning. Based on the theoretical framework and the results obtained through a subsequently identified empirical study, the main constructs on which organisations should act to reduce the costs of human resource churning were selected and the main measures adopted by organisations to reduce the occurrence of churning and consequently reduce costs were identified. Addressing the subject of human resource churning has brought with it some limitations, given that it is a concept that is still little applied and developed by organisations in terms of human resources. The lack of literature on the subject, as well as empirical studies, was also a limitation. Conducting new interviews with new subjects would have been more valuable. The originality of this article is due to the fact that it integrates a theoretical approach combined with empirical data, in order to provide a comprehensive perspective on costs and the measures applied by organisations to reduce them, and to contribute to the enrichment of literature.

Keywords: Churning. Costs. Interviews. Human Resources Churning.

1 PhD student in Management, (specialising in Human Resource Management and Organisational Behaviour) at the Higher Institute of Economics and Management, University of Lisbon, Portugal. *E-mail*: olga.pirrolas@phd.iseg.ulisboa.pt

2 PhD in Social Sciences (specialising in Public Administration) from the Technical University of Lisbon, Portugal. Professor at the Faculty of Law of the University of Coimbra (FDUC), Portugal, and at the Universidade Europeia, Lisbon, Portugal. Consultant to the Directorate-General for Justice Policy, Portuguese Ministry of Justice. *E-mail*: pcorreia@fd.uc.pt

INTRODUCTION

The purpose of this theoretical review was to link the relevant literature on the consequences of human resource churning, in this case the costs of churning, because it is the main concern for organisations, the loss of investment, with the results obtained in an empirical study on the subject realised by Pirrolas and Correia (2023a), which we considered as a pilot study, whose methodology is presented later in the appropriate section, through which 20 interviews were carried out, some excerpts of which are transcribed and referenced (P1 to P20) in this review in order to strengthen and substantiate the theoretical veracity.

In this way, we can enrich our knowledge of organisational reality through real-life experiences and contribute to the enrichment of theory on the subject of human resource churning. In other words, our work contributed through a combined methodology aimed at integrating a theoretical approach with empirical data providing a comprehensive perspective on the costs and measures of human resource churning.

With the intention of reducing the human resources churning costs, the predictive analysis resides in the evolving implementation domain for human resources management purposes (Mishra; Lama; Pal, 2016). Since it is imperative to operationalise it in order to optimise employee performance and obtain the best return on investment, it is essential to make decisions based on information gathering, human resources metrics and churning prediction models in order to reduce the costs associated with replacing human resources who leave organisations voluntarily (Pirrolas; Correia, 2021).

In this sense, the human resources management's goal is to measure workers' performances and motivation, analyze the occurrence of churning and model the time workers remain within the organization (Mishra; Lama; Pal, 2016).

The choice to utilize predictive analysis, allows organizations to analyze the past, identify trends and key factors linked to voluntary terminations, as well as other risk sources of human resources losses, originating investment loss. This method involves organizational systems that allow the prediction of future outcomes and the understanding of the current reasons behind organizational exits (Pirrolas; Correia, 2022).

Given what was expressed above, human resources management gains power when it comes to decision-making options to optimize performance, review working conditions, and reformulate human resources policies (Fitz-enz; Mattrox, 2014).

On the other hand, the time spent on training a new worker is more pronounced depending on the complexity of the tasks to be performed Oliva and Bean (2008).

In taking human resources as the most valuable resource for organizations, to consider it as the “main organizational engine”, is ultimately what organizations should focus on in order to keep them within the organization, by either preventive measure, either by the implementation and constant improvement of human resources policies with the purpose of avoiding costs with the occurrence of churning (Pirrolas; Correia, 2023b).

In the presented study context, it’s crucial to highlight the importance of approaching the main costs originating in the occurrence of churning, the role of preventive measures for churning, as well as the strategies of mitigation put into practice by organizations.

In light of the above, when it comes to the costs originated from churning, Allen *et al.* (2010) mention that voluntary churning adds replacement costs associated to the recruitment and selection of new workers. However, there are also indirect costs associated with voluntary churning that impact the productivity of the remaining workers. Researchers mention a potential snowball effect, resulting in increased coordination costs, decreased trust, and reduced morale amongst workers (Krackhardt; Porter, 1986). In other words, the workers who remain in the organization end up taking on additional responsibilities, diverting their attention from their primary and main tasks, leading to delays or work accumulation (Nyberg; Ployhart, 2013).

On the other hand, the time spent on training a new worker is more pronounced depending on the complexity of the tasks to be performed Oliva and Bean (2008), which is probably the case in companies with workers with higher academic qualifications. Organizations incur replacement costs in recruiting, selecting, and training new workers (Hancock *et al*., 2013), which consumes time and diverts focus from the activities of the remaining workers within the organization. As a consequence of this potential overload, the remaining workers may become less productive while helping to integrate new workers into operational procedures and social relationships (Hausknecht *et al*., 2009).

Given the above, although new hires might mitigate workers’ demands, organizations that replace a more qualified worker will likely experience short-term challenges due to initial costs and integration, as well as the time required for that worker to achieve their own autonomy (Reilly *et al*., 2014).

In order to address what was previously mentioned, organizations should have the capacity to implement preventive measures to offset the costs originated from churning. Organizations that apply a preventive churning model are, in a way, promoting better working conditions, contributing to the decrease of the churning rate, thus reducing unexpected worker replacement costs. In light of the above, through the implementation and operationalization of predictive models for human resources churning, it is expected that organizations gain knowledge, understand, and get deeper into the reasons behind churning causes in order to implement retention strategies and measures aimed at offsetting or minimizing the costs resulting from replacements (Pirrolas; Correia, 2023c).

Retaining qualified workers in organizations remains the most important and challenging task for human resources managers. This is due to the fact that organizations need competent workers to exist and remain active (Kossivi *et al*., 2016). Consequently, one of the main issues faced by modern organizations is the ability to retain their top workers to achieve optimal organizational performance. Ma, Mayfield e Mayfield (2018) state that an organization without qualified workers will struggle to reach set goals and objectives, as inadequate retention strategies later result in churning occurrences.

Ekhsan (2019) mentions that organizations that experience voluntary worker churning face significant consequences, including high recruitment costs, training expenses, and disruptions in workflow. When churning occurs, there is always a considerable knowledge void, leading to an increased workload for the remaining team members. Filling vacant roles with replacements requires a time-consuming and costly recruitment process, as well as training new workers (Ohunakin; Adeniji; Oludayo, 2018). To avoid these costs, organizations should focus on and invest in appropriate and competent recruitment efforts (Singh, 2019).

Organizations that do not implement measures to assess and understand the satisfaction of their workers, as well as their needs and aspirations, are more likely to experience higher occurrences of churning, this is because dissatisfaction remains hidden, since, when a worker decides to leave the organization, they don't not mention the reasons, and often, when the organization attempts to negotiate their retention, it is already too late (Pirrolas; Correia, 2023d).

In view of the above, this review follows the following structure: the literature review is presented in the following section, where topics on the main consequences of human resource churning and strategic measures to mitigate churning were addressed. Following the methodology applied, the discussion is presented, emphasizing the results obtained regarding churning costs, preventive churning measures implemented by organizations and strategic retention measures. Having concluded this review with the point of conclusions, where theoretical and practical contributions and limitations are mentioned, as well as proposals for future studies are presented.

Given the increasing competitiveness in the labour market and the rise of competing organisations, employees are faced with the opportunity to change organisations and meet their professional and personal goals if their home organisation does not provide them with such opportunities (Pirrolas; Correia, 2021).

1 LITERATURE REVIEW

As for the literature review, international literature was used on human resource churning, human resource churning costs, predictive models of churning and human resource retention measures.

In order to identify the state of the art on this subject, a search was carried out in the following databases: Researchgate, Google Scholar, MDPI Journals Online, Scielo, Science Direct (Elsevier), Sage Journals Online, Academic Search and B-on.

The keywords: churning costs; human resources churning, predictive models and human resources retention policies were used simultaneously when filling in the subject criteria in the respective search engine fields.

1.1 MAIN CONSEQUENCES OF HUMAN RESOURCES CHURNING

Given the multiplicity of definitions attributed to the concept of churning, in this review we have taken as a premise the costs resulting from the replacement of workers who left the organisation voluntarily (Pirrolas; Correia, 2021). In this sense, operationalising churning analysis consists of a process of assessing the turnover rate, which makes it possible to predict possible voluntary departures (Naz *et al.,* 2022).

Given the increasing competitiveness in the labour market and the rise of competing organisations, employees are faced with the opportunity to change organisations and meet their professional and personal goals if their home organisation does not provide them with such opportunities (Pirrolas; Correia, 2021).

A worker who leaves an organisation to go to another competitor causes significant losses for the organisation, related to the difficulty of replacing highly experienced and knowledgeable workers, the entire recruitment process, the loss of productivity derived from the time that must be spent to accompany the new worker until he becomes autonomous, the overload that is exerted on the workers who remain in the organisation, as well as the possibility of demotivation and dissatisfaction (Saradhi; Palshikar, 2011).

Saradhi and Palshikar (2011) report that the reason for voluntary departures is related to employee dissatisfaction due to lack of career advancement opportunities, low pay, conflicts with managers or colleagues, lack of recognition, poor working conditions and poor working environment.

In this follow-up, also Harrison and Gordon (2014) report that churning human resources is a waste of money, time and productivity.

In addition to the direct costs mentioned above, churning also has indirect costs, which are related to low morale and motivation of workers, customer dissatisfaction, loss of customer network and other stakeholders involved, as well as the loss of knowledge and skills, thus generating high costs with new hires to cope with replacements, requiring more time and money (Wang *et al*., 2017).

Considering human resources, the most valuable asset of organisations, it is pertinent to take measures to minimise the churning rate, identifying its causes, analysing its factors and understanding the reasons for its occurrence (Naz *et al*., 2022). However, keeping the best workers in the organisation is a difficult and de-safifying task for human resource managers, given the increasing opportunities offered by competitors fighting each other for the best workers (Sethunga; Perera, 2018).

In order to address this problem, with the advent of new technologies, there has been a growing tendency on the part of organisations to analyse churn data, in order to obtain information or facts that allow us to perceive its occurrence in order to act with strategic measures to retain workers with the aim of reducing costs (Wang *et al*., 2017).

Mishra, Lama e Pal (2016) report that the cost of voluntary churning can be up to five times the annual salary of the employee who left, depending on the characteristics of the job and the difficulty the organisation has in replacing that employee.

In view of the above, operationalising churn analysis becomes vital to ensure the growth and constant evolution of the business, thus guaranteeing a return rate (Hancock *et al*., 2013).

1.2 STRATEGIC MITIGATION MEASURES FOR CHURNING

Retention of human resources is one of the major challenges for human resource management that entails costs (Chaudhary *et al*., 2022). Churning analysis is a strategic measure applied by organisations to minimise its occurrence.

Despite its relevance, churning analysis is most often mentioned in the marketing area to predict the occurrence of customer churning (Naveed *et al.*, 2021). Regarding the applicability in the area of human resources, it is still very limited, however it is a method that has been gaining relevance through research studies between 1920 and 2020 (Rook *et al*., 2020).

Although human resource churning is identical to customer churning, the costs involved in human resource churning are higher, with detrimental consequences for the organisation, such as impact on ongoing projects, customer dissatisfaction and inefficiency. It is difficult to replace workers with specialised skills (Santos *et al*., 2019).

In this sense, it is relevant for organisations to act by implementing corrective or preventive measures (Saradhi; Palshikar, 2011; Burgess; Lane; Stevens, 2001).

Given the growing competitiveness in the labour market and the constant changes in the ways of working, there is a need for organisations to adapt in order to meet both the needs of workers and to keep up to date with competition (Ulrich, 2001).

This method uses employee data, performance levels, as well as satisfaction levels, and these factors provide information on possible exits from the organisation (Dolatabadi; Keynia, 2017).

The most successful and outstanding companies are those that value the needs of their employees (Pirrolas; Correia, 2023b). It is in this framework that human resource management assumes a relevant role through the implementation of strategies, such as the updating or conceptualisation of organisational policies and practices, in order to promote the reduction of the churning rate and keep the organisation at the forefront of the competition, making it attractive and recognised in the labour market (Pirrolas; Correia, 2023b).

As strategic measures we present below some of the practices put in place by organisations in order to reduce human resources churning.

Churning analysis has been implemented and put into practice in the human resources area, allowing to analyse the occurrence of churning (Tennakoon; Herat, 2017), prediction as to the characteristics of these human resources (Masum *et al*., 2018), as well as making it possible to forecast absenteeism (Jain; Tomar; Jana, 2021; Kirimi; Moturi, 2016).

As mentioned earlier, churning analysis evaluates data or content using various tools and techniques that allow gaining deeper insight, making predictions or suggestions (Sesil, 2014). This method uses employee data, performance levels, as well as satisfaction levels, and these factors provide information on possible exits from the organisation (Dolatabadi; Keynia, 2017).

In addition to the above analysis method, other methods are applied by organisations in order to minimise churning, such as exit interviews, performance appraisals, satisfaction surveys, job performance, achievement of objectives, behavioural observation, etc. (Kaye; Jordan-Evans, 2001).

2 RESEARCH DESIGN AND METHODS

This review followed a theoretical methodology, for which the literature was interconnected with the results obtained from an empirical study carried out by Pirrolas and Correia (2023a) on the subject under study.

This method was chosen because it was the most appropriate to corroborate the literature with the results of the study previously identified, with the aim of identifying the main costs arising from churning, as well as identifying the main measures applied by organisations in order to mitigate them.

A combined methodology was chosen to contribute by integrating a theoretical approach with empirical data, providing a more comprehensive perspective on the costs and measures of human resource churning.

In order to contextualize the aforementioned empirical study in this review, it is important to describe its exact methodology, sample and specific results.

In view of the above, we present a description of the methodology applied in the empirical study that supported this review.

As for the methodological procedures of the empirical study carried out by Pirrolas and Correia (2023a), they consisted of three stages: the first, using a literature review, enabled the authors to define theories and concepts on the subject of human resources churning, allowing them to divide the dimensions into categories and subcategories, which led to the drafting of an interview script; in the second stage, research data was collected by interviewing 20 human resources directors in Portugal and the third stage consisted of analysing the data obtained.

In this study, the results showed that an organisation's biggest investment is focused on training human resources. With regard to human resource retention strategies, they found that the variable with the greatest impact is related to benefits.

3 RESULTS

This review, which is theoretical in nature, sought to identify and analyse the main costs of churning by reviewing the literature on the subject and interlinking it with the results obtained from an empirical study considered relevant for the theoretical enrichment of this article of Pirrolas and Correia (2023a), as well as identifying the main measures applied by organisations to mitigate them.

After reviewing the literature and analysing the aforementioned empirical study of Pirrolas and Correia (2023a), the main constructs were selected: churning costs, preventive measures and strategic retention measures, and the main variables that make up each construct were also selected, i.e. those that appeared most frequently in the literature and those most mentioned by the participants in the aforementioned empirical study were considered the main ones.

In this section, in addition to describing the main factors that make up the aforementioned constructs and the theoretical basis presented above, we present some transcripts of the interviews carried out in the aforementioned empirical study, also with the aim of deepening their grounding and veracity. These were referred to by the various participants, between Participant 1 (P1) and Participant 20 (P20), this being the number of participants in the aforementioned study on which we based ourselves.

This type of reasoning was chosen in order to strengthen the theoretical basis presented above.

The operational definitions of the main constructs are presented below:

3.1 CHURNING COSTS

About churning costs, the occurrence of voluntary departures of employees from an organisation generates large costs. These costs are related to the departure of these workers, with the loss of knowledge, skills and experience acquired in the organisation of origin, which invested in their training, costs associated with replacements, involving costs with new recruitment processes, training, medical examinations, in addition to the work overload for workers who remain in the organisation, failure to meet objectives, jeopardising ongoing projects, increased overtime, causing demotivation and dissatisfaction (Saradhi; Palshikar, 2011; Hudson, 2015).

In this point, the main factors are described where the highest investment loss was observed during the occurrence of churning, namely, costs related to recruitment, training, administrative costs, replacement time, substitution costs, overtime and extra hours, and pending projects.

In order to identify the main costs arising from churning, some interviews were transcribed to support the selection of variables that make up said construct, particularly considering substitution costs: "...the replacement ends up not immediate...this sector is very difficult, we can't find an immediate replacement..." (P1).

Regarding the replacement time, integration and support for the new worker: "...for an operator... to reach that ideal production level, it takes time... there's an integration time period, there's the first 15 days that needs to be supported, until they gain some independence...reaching the ideal productivity will take a few more months...I'd say 6 months for an operator to reach ideal productivity..." (P19).

3.2 PREVENTIVE CHURNING MEASURES IMPLEMENTED BY ORGANIZATIONS

Regarding preventive measures, organisations should seek to understand the reasons for churning and act through preventive measures (Ekawati, 2019). Through the implementation of preventive measures of churning, such as the application of satisfaction surveys, performance evaluation and exit interviews, these allow organisations to gain knowledge of the points that need improvement, in order to act in order to minimise the occurrence of churning, contributing to the reduction of costs (Saradhi; Palshikar, 2011).

By analyzing the main measures implemented by the participating organizations, it was possible to verify that the primary measures are related to conducting satisfaction surveys, organizational climate surveys, investing in the development of their human resources, conducting performance evaluations with the intent to understand which the strengths and what areas are to act in order to improve the less favorable aspect, and betting on providing workers' benefits.

To identify the main preventive measures applied by the organizations, some interviews were transcribed to support the selection of variables that make up said construct, considering satisfaction surveys, and organizational climate surveys: "...those satisfaction surveys, the organizational climate surveys... allow us to understand the level of dissatisfaction amongst people if there's a likelihood of exiting the organization, if well-developed, it's a fantastic tool to measure the pulse and the possibility of staying or leaving over time..." (P1).

Regarding performance evaluations"...performance evaluations should even be informal so that people feel involved and integrated..." (P5)

When it comes to valuing human resources: "We have a mechanism, that is a monthly bonus... this monthly bonus depends a lot on achieving objectives... sector objectives and depending on personal competencies... we also have annual salary reviews..." (P12). "...the recognition for the work performed, through an incentive bonus, is a monthly bonus, it's remunerative and it's given monthly..." (P12).

As for strategic retention measures, it is necessary to identify and understand which factors influence organisational behaviour to act by making the organisation attractive, in order to promote employee satisfaction and involvement in the organisation (Correia; Bilhim, 2014).

3.3 STRATEGIC RETENTION MEASURES

As for strategic retention measures, it is necessary to identify and understand which factors influence organisational behaviour to act by making the organisation attractive, in order to promote employee satisfaction and involvement in the organisation (Correia; Bilhim, 2014). The higher the level of satisfaction and involvement of employees in relation to the organisation and their work, the more likely they are to remain in the organisation (Degbey *et al.,* 2021). Thus, organisations should act with measures to retain human resources, measures related to promoting better communication and transparency, to improve the relationship with workers and between workers, through valuing and recognising their work, assigning tasks of greater responsibility, triggering their motivation, providing opportunities to lead projects, praising, promoting training and development opportunities (Marche, 2018).

In this sense, it is referred that the composition of each construct, being the churning costs construct, constituted by the variables: recruitment; training; administrative costs; replacement time; replacements, overtime and pending projects, the preventive measures construct is constituted by the variables: satisfaction surveys; organisational climate surveys; appreciation, performance appraisal and benefits, and the retention strategy measures construct is made up of the variables: internal flexibility; new experiences; career plan; training plan; involvement; recognition; working environment; salary package; stability; organisational policies, communication and working conditions.

In order to identify some strategic retention measures, some interviews were transcribed to support the selection of variables that make up said construct, concerning motivation: "...there is some know-how that leaves this company, and maybe we could do something... but more important than trying to retain the person... is to keep the person motivated during the time they are here..." (P13).

Regarding working conditions, career progression, and flexibility: "...the working conditions are good, the team's relationship is also good... there are career advancement opportunities... people easily change roles horizontally... we've had several people who moved from the finance area to the purchasing area... we had someone who started as a logistics specialist and ended up as the responsible person for all the stores in the country... as a rule, job roles changes happen after 3 years... sometimes it's much less time, it's enough for the person to demonstrate that they have the capability, and there is a prospect of entering another area, as long as it's observed that there are added values in that person for that area" (P13).

Regarding recognition: "...we have an internal program, really for recognition... that it can be given by the manager... it can be given by a colleague, or it can be given by someone from another organization within X, we have several organizations within the company... and someone from another organization who has worked with that person can give recognition here" (P16).

CONCLUSION

In terms of conclusions, this theoretical review, through the content analysis carried out on the interviews conducted, allowed us to meet the defined objectives: to identify the main costs resulting from the occurrence of churning, as well as to identify the main measures applied by organizations to reduce it. Additionally, it addressed the research question "what are the potential costs of human resources churning and what human resource management strategies are applied to mitigate them?"

This theoretical review, through interviews, allowed to address and deepen the knowledge about one of the problems that organisations are increasingly confronted with, the reduction of costs derived from the occurrence of human resources churning. Through the results obtained, it was possible to describe the main constructs on which organisations should act, as well as to uncover the main variables that compose them in order to analyse the relevance of operationalising preventive measures of churning.

In this sense, the composition of each construct, the churning costs construct, is made up of the following variables: recruitment; training; administrative costs; replacement time; replacements, overtime and pending projects; the preventive measures construct is made up of the following variables: satisfaction surveys; organisational climate surveys; appraisal, performance evaluation and benefits, and the retention strategy measures construct is made up of the variables: internal flexibility; new experiences; career plan; training plan; involvement; recognition; working environment; salary package; stability; organisational policies, communication and working conditions.

According to the information obtained from the organisations involved in this research, it was possible to broaden the reality experienced by them, noting that given the social and economic structure in which the organisations are inserted, the occurrence of human resources churning is a notorious problem, given the loss of investment, time and effort, due to the constant need to replace workers who left voluntarily. Besides the fact that replacing a trained and experienced worker is not an easy task for human resources managers.

It is necessary to keep constantly up to date with the competition, both in terms of remuneration and benefits, as there is increasingly a great competitiveness between organisations in the same sector in attracting qualified, competent and experienced workers. A worker who is not satisfied with his working conditions, when enticed by another organisation that offers better conditions, decides to change organisation, generating a loss of investment for the original organisation and an added value for the competing organisation.

To address this issue, predicting the occurrence of churning and understanding its causes allows strategic measures to be taken to minimise the churning of human resources and thus reduce costs.

While it is every worker's right to decide to stay or switch organizations, with the expectation of finding better work conditions or simply pursuing their own personal and professional goals, there arises a need for organizations to act through the implementation or improvement of retention measures, as well as preventive strategies for future exits, with the intention to retain the best workers in the organization and avoid unnecessary costs associated with replacements.

By investing in the improvement of working conditions, organizations make themselves more attractive both for attracting qualified human resources and for increasing their visibility in the job market. Increasing workers' satisfaction in their activities and workplace leads to greater commitment to staying in the organization, reducing the need to seek employment in other organizations. As a result, there is a decrease in costs related to human resources churning.

Investing in the implementation and/or development of human resources retention policies and practices, will contribute to reducing the occurrence of churning and, consequently, decrease costs related to replacements.

Given the scarcity of literature on this subject, this study has made it possible to expand and enrich the literature in theoretical terms, corroborating the results obtained through an empirical study mentioned above, making it possible to publicise the concept of churning, as well as its dissemination, leaving open the opportunity to raise the pertinence of addressing this issue and to develop both theoretical studies that will contribute to increasing the literature, and empirical studies that will contribute to increasing real information about the reality experienced within organisations, with regard to the costs associated with the churning of human resources.

In practical terms, it allowed the researchers to gain a real insight into the main aspects on which organisations should act in order to minimise costs, as well as a real insight into the organisational context, how organisations make forecasts and how they act in order to keep workers in the organisation, with the aim of reducing the loss of investment with new hires resulting from replacements.

Despite the enrichment gained from this theoretical study, based on the literature on the subject, it is suggested that future studies replicate the approach described in this work in order to deepen and strengthen the conclusions presented. Another proposal, following on from the limitations presented above, would be that it would be more valuable to carry out new interviews with new subjects. Finally, an analysis using other methodologies is proposed, namely the use of quantitative methodologies using a questionnaire as a data collection method and through statistical analysis to analyse the impact between variables, in order to arrive at a causal model that allows structural equations to be applied and verify the main factors on which organisations should act to minimise the costs of human resource churning. It is hoped that these new results will be extremely relevant if considered in other contexts.

REFERENCES

ALLEN, D. G.; BRYANT, P. C.; VARDAMAN, J. M. Retaining talent: Replacing misconceptions with evidence-based strategies. **Academy of Management Perspectives**, [s.l.], v. 24, n. 2, p. 48-64, 2010.

BURGESS, S.; LANE, J.; STEVENS, D. Churning dynamics: an analysis of hires and separations at the employer level. **Labour Economics**, [s.l.], v. 8, n. 1, p. 1-14, 2001.

CHAUDHARY, M.; GAUR, L.; JHANJHI, N. Z.; MASUD, M.; ALJAHDALI, S. Envisaging Employee Churn Using MCDM and Machine Learning. I**ntelligent Automation & Soft Computing**, [s.l.], v. 33, n. 2, 2022. http://doi.org/10.32604/iasc.2022.023417

CORREIA, P.; BILHIM, J. A antiguidade na organização e a satisfação laboral dos colaboradores do Ministério da Justiça em Portugal: evidências de uma relação em forma de L e não em forma de U. **Revista de Economia e Administração**, [s.l.], v. 13, n. 2, p. 159-177, 2014.

DEGBEY, W. Y.; RODGERS, P.; KROMAH, M. D.; WEBER, Y. The impact of psychological ownership on employee retention in mergers and acquisitions. **Human Resource Management Review**, [s.l.], v. 31, n. 3, 100745, 2021.

DOLATABADI, S. H.; KEYNIA, F. Designing of customer and employee churn prediction model based on data mining method and neural predictor. In: 2017 2ND INTERNATIONAL CONFERENCE ON COMPUTER AND COMMUNICATION SYSTEMS (ICCCS),2017, Krakow. **Anais...** Krakow, Poland: IEEE, p. 74-77, 2017.

EKAWATI, A. D. Predictive analytics in employee churn: A systematic literature review**. Journal of Management Information and Decision Sciences**, [s.l.], v. 22, n. 4, p. 387-397, 2019.

EKHSAN, M. The influence job satisfaction and organizational commitment on employee turnover intention. **Journal of Business, Management, & Accounting**, [s.l.], v. 1 n. 1, 2019.

FITZ-ENZ, J.; MATTOX, J. I. I. **Predictive analytics for human resources**. [s.l.]: John Wiley & Sons, 2014.

HANCOCK, J. I.; ALLEN, D. G.; BOSCO, F. A.; MCDANIEL, K. R.; PIERCE, C. A. Meta-analytic review of employee turnover as a predictor of firm performance. **Journal of Management**, [s.l.], v. 39, n. 3, p. 573-603, 2013.

HARRISON, S.; GORDON, P. A. Misconceptions of employee turnover: Evidence-based information for the retail grocery industry. **Journal of Business & Economics Research (Online)**, [s.l.], v.12, n. 2, p. 145, 2014.

HAUSKNECHT, J. P.; TREVOR, C. O.; HOWARD, M. J. Unit-level voluntary turnover rates and customer service quality: implications of group cohesiveness, newcomer concentration, and size. **Journal of Applied Psychology**, [s.l.], v. 94, n. 4, 1068, 2009.

HUDSON, C. G. Churning in the Human Services: Nefarious Practice or Policy of'Creative Destruction'?. **New England Journal of Public Policy**, [s.l.], v. 27, n. 1, p. 6, 2015.

JAIN, N.; TOMAR, A.; JANA, P. K. A novel scheme for employee churn problem using multi-attribute decision making approach and machine learning. **Journal of Intelligent Information Systems**, [s.l.], v. 56, p. 279-302, 2021.

KAYE, B.; JORDAN-EVANS, S. Retaining key employees. **Public management**, [s.l.], v. 83, n. 1, p. 6-11, 2001.

KIRIMI, J. M.; MOTURI, C. A. Application of data mining classification in employee performance prediction. **International Journal of Computer Applications**, [s.l.], v. 146, n. 7, p. 28-35, 2016.

KOSSIVI, B.; XU, M.; KALGORA, B. Study on determining factors of employee retention. **Open Journal Of Social Sciences**, [s.l.], v. 4, n. 5, p. 261-268, 2016.

KRACKHARDT, D.; PORTER, L. W. The snowball effect: Turnover embedded in communication networks. **Journal of applied psychology**, [s.l.], v. 71, n. 1, p. 50, 1986.

MA, Q. K.; MAYFIELD, M.; MAYFIELD, J. Keep them on-board! How organizations can develop employee embeddedness to increase employee retention. **Development and Learning in Organizations: An International Journal**, [s.l.], v. 32, n. 4, p. 5-9, 2018.

MARCHE, B. Four ways to increase retention & reduce churn. **Corridor Business Journal**, [s.l.], v.15, p. 15-21, 2018.

MASUM, A. K. M.; BEH, L. S.; AZAD, M. A. K.; HOQUE, K. Intelligent human resource information system (i-HRIS): A holistic decision support framework for HR excellence. **Int. Arab J. Inf. Technol**., [s.l.], v. 15, n. 1, p. 121-130, 2018.

MISHRA, S. N.; LAMA, D. R.; PAL, Y. Human Resource Predictive Analytics (HRPA) for HR management in organizations. **International Journal of Scientific & Technology Research**, [s.l.], v. 5, n. 5, p. 33-35, 2016.

NAVEED, Q. N. *et al*. Evaluating and ranking mobile learning factors using a multi-criterion decision-making (MCDM) approach. **Intelligent automation & soft computing**, [s.l.], v. 29, n. 1, p. 111-129, 2021.

NAZ, K.; SIDDIQUI, I. F.; KOO, J.; KHAN, M. A.; QURESHI, N. M. F. Predictive modeling of employee churn analysis for IoT-enabled software industry. **Applied Sciences**, [s.l.], v.12, n. 20, 10495, 2022. https://doi.org/10.3390/app122010495

NYBERG, A. J.; PLOYHART, R. E. Context-emergent turnover (CET) theory: A theory of collective turnover. **Academy of Management Review**, [s.l.], v. 38, n. 1, p. 109-131, 2013.

OHUNAKIN, F.; ADENIJI, A.; OLUDAYO, O. Perception of frontline employees towards career growth opportunities: Implications on turnover intention. **Business: Theory and Practice**, [s.l.], v. 19, p. 278-287, 2018.

OLIVA, R.; BEAN, M. Developing operational understanding of service quality through a simulation environment. **International Journal of Service Industry Management**, [s.l.], v. 19, n. 2, p. 160-175, 2008.

PIRROLAS, O.; CORREIA, P. The theoretical-conceptual model of churning in human resources: the importance of its operationalization. **Sustainability**, [s.l.], v. 13, n. 9, p. 4770, 2021. https://doi.org/10.3390/su13094770

PIRROLAS, O. A. C.; CORREIA, P. M. A. R. Literature review on human resource churning—theoretical framework, costs and proposed solutions. **Social Sciences**, [s.l.], v. 11, n. 10, 489, 2022. https://doi.org/10.3390/socsci11100489

PIRROLAS, O.; CORREIA, P. Churning of human resources: A proposal for a theoretical-methodological model. RAM. **Revista de Administração Mackenzie**, São Paulo, v. 24, n. 5, p. 1-28, 2023a. https://doi.org/10.1590/1678-6971/eRAMG230256.en

PIRROLAS, O.; CORREIA, P. Human Resources Churning Management and its Articulation with Organisational Policies. **Simbiótica Revista Eletrônica**, Vitória, v. 10, n. 1, p. 1-14, 2023b https://doi.org/10.47456/simbitica.v10i1.38620

PIRROLAS, O.; CORREIA, P. Dimensionality of the Causes of Churning: A Multivariate Statistical Analysis. **Merits**, [s.l.],v. 3, p. 21–36, 2023c. https://doi.org/10.3390/merits3010002

PIRROLAS, O.; CORREIA, P. Human resources churning. **Encyclopedia**, [s.l.], v. 3, n. 2, p. 582-589, 2023d. https://doi.org/10.3390/encyclopedia3020041

REILLY, G.; NYBERG, A. J.; MALTARICH, M.; WELLER, I. Human capital flows: Using context-emergent turnover (CET) theory to explore the process by which turnover, hiring, and job demands affect patient satisfaction. **Academy of Management Journal**, [s.l.], v. 57, n. 3, p. 766-790, 2014.

ROOK, L., SABIC, A.; ZANKER, M. Engagement in proactive recommendations: The role of recommendation accuracy, information privacy concerns and personality traits. **Journal of Intelligent Information Systems**, [s.l.], v. 54, n. 1, p. 79-100, 2020.

SANTOS, M. Y.; COSTA, C.; GALVÃO, J.; ANDRADE, C.; PASTOR, O.; MARCÉN, A. C. Enhancing big data warehousing for efficient, integrated and advanced analytics: visionary paper. In: INTERNATIONAL CONFERENCE ON ADVANCED INFORMATION SYSTEMS ENGINEERING, 2019, Rome. **Anais...** Rome: Springer International Publishing, 2019. p. 215-226.

SARADHI, V. V.; PALSHIKAR, G. K. Employee churn prediction. **Expert Systems with Applications**, [s.l.], v. 38, n. 3, p. 1999-2006, 2011. https://doi.org/10.1016/j.eswa.2010.07.134

SESIL, J. C. Value Creation and Advanced Analytics. In: SESIL, J. C. **Applying Advanced Analytics to HR Management Decisions**. [s.l.]: Pearson, 2014. p. 72–73

SETHUNGA, S.; PERERA, I. Impact of performance rewards on employee turnover in Sri Lankan IT industry. In: 2018 MORATUWA ENGINEERING RESEARCH CONFERENCE (MERCON), 2018, Moratuwa. **Anais...** Moratuwa: IEEE, 2018 p. 114-119.

SINGH, D. A literature review on employee retention with focus on recent trends. International **Journal of Scientific Research in Science and Technology**, [s.l.], v. 6, n. 1, p. 425-431, 2019.

TENNAKOON, W.; HERAT, U. L. Perceived supervisor support and employee turnover intention: the moderating effect of employment tenure. **Wayamba Journal of Management**, [s.l.], v. 8, n. 1, 2017.

ULRICH, D. **Os campeões de recursos humanos**: inovando para obter os melhores resultados. 5. ed. São Paulo: Futura, 2001.

WANG, E.; ALP, N.; SHI, J.; WANG, C.; ZHANG, X.; CHEN, H. Multi-criteria building energy performance benchmarking through variable clustering based compromise TOPSIS with objective entropy weighting. **Energy**, [s.l.], v. 125, p. 197-210, 2017. http://dx.doi.org/10.1016/j.energy.2017.02.131