ONBOARDING IN SMALL SOFTWARE ENTERPRISES: PRACTICAL RECOMMENDATIONS FROM A QUALITATIVE CASE STUDY

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Onboarding is a cornerstone of effective workforce integration in the software industry, enabling rapid and seamless adaptation of employees to organisational workflows and culture. It is particularly critical for small software companies, where limited budgets, resource constraints, and unique organisational structures amplify onboarding challenges. This article investigates onboarding practices in a small software company, focusing on how new hires are effectively integrated into organisational culture and workflows. A qualitative case study approach was employed to uncover actionable insights and context-specific nuances. The findings highlight that cultural alignment, organisational learning, and hands-on knowledge-sharing are pivotal for effective new employee integration. However, challenges such as inconsistent documentation and a lack of standardised processes result in significant variability and inefficiencies. Despite identified shortcomings, the selected company demonstrates flexibility and adaptability in tailoring their approaches to individual needs. The results of this study may have wider implications for the software industry, particularly in creating inclusion strategies that address both human-centred and knowledge-management aspects. Findings from this research can guide small businesses toward more sustainable talent integration practices and contribute to industry-wide workforce development trends. Based on the research findings, recommendations for the practice are proposed.

Keywords: Onboarding; Small software companies; New employee integration; Qualitative case study; practice recommendations.

INTRODUCTION

The software industry is one of the most demanding and dynamic industries in contemporary business, providing valuable software solutions and services to other organisations trying to survive and be competitive in the market. To develop and deliver quality products and services, software companies need to ensure capable and mature processes based on the creative knowledge of workers (Chevers et al., 2017). These considerations highlight the importance of acquiring and retaining employees since the software industry is known for great labour turnover (Ang & Slaughter, 2004; Wiesche et al., 2024). One of the most effective strategies for attracting and retaining "knowledge workers" is designing and implementing an onboarding process with a robust competence development plan (Brodsjo, 2023; Pinco et al., 2024), which will increase the satisfaction of new employees and motivate them to continue their employment in the company (Kirchner & Stull, 2022). This can also be applied to informal employee training, which is present in small and medium-sized enterprises with

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different numbers of employees (Kotey & Folker, 2007). Additionally, employees in small and medium-sized enterprises (SMEs) participating in more training and development events are less likely to consider leaving their employer or engaging in neglectful behaviour (Pajo et al., 2010).

Onboarding has become a crucial function that helps align new employees with the organisation's culture, values, and operational goals (Frogeli et al., 2023). This structured process ensures a smoother and faster integration, leading to increased productivity and stronger commitment from new hires while reducing the risk of early turnover (Caldwell & Peters, 2018; Gardner et al., 2022). In knowledge-intensive fields like information technology (IT), effective onboarding is vital for shortening the adjustment period for new employees by providing essential resources and cultural understanding. These components are key to building team cohesion and operational effectiveness (Brodsjo et al., 2023), which can influence team dynamics, presenting both opportunities and challenges for achieving ambidexterity (Koch et al., 2024). However, small software enterprises often face practical limitations, such as limited budgets, lack of formal HR departments, and insufficient infrastructure, that disrupt the implementation of advanced onboarding strategies. Despite these limitations, knowledge management platforms can still be adopted, enabling small teams to document and share knowledge efficiently without large financial investments. The role of onboarding has been recognised not only in boosting productivity but also in reinforcing the psychological contract between employer and employee, which supports organisational alignment and long-term retention (Bowers et al., 2023; Caldwell & Peters, 2018).

Emerging trends in onboarding include integrating Knowledge Management (KM), customising the process based on specific roles, structured mentorship programmes, and centralised knowledge sharing. Each of these elements addresses specific challenges in modern workforce dynamics:

– KM Integration - KM systems have become foundational in onboarding, enabling structured access to organisational knowledge and promoting self-directed learning. Platforms such as Confluence and SharePoint empower new hires to independently explore resources, supporting continuous learning and knowledge sharing, especially in remote work contexts (Alavi & Leidner, 2001; Brodsjo et al., 2023),
– Role-specific customisation - By tailoring onboarding content to specific roles, organisations reduce information overload and improve relevance, focusing on job-specific tasks that boost early productivity and engagement (Brodsjo et al., 2023). This approach is particularly valuable in resource-limited settings like small software companies, where rapid knowledge acquisition is essential,
– Networking and mentorship - Structured mentorship programmes provide guidance and social support, promoting collaboration and fulfilling new employees' social and ethical expectations. This strategy strengthens team cohesion and engagement, embedding a collaborative culture that is essential for retention, especially within small teams (Brown & Duguid, 1991; Caldwell & Peters, 2018),
– Centralised knowledge-sharing platforms - KM platforms enable independent access to resources and best practices, reducing reliance on supervisors and fostering continuous, self-paced learning (Brodsjo et al., 2023; Massaro et al., 2015). Recent developments in onboarding reflect a shift toward towards extended programmes that emphasise continuous engagement beyond the initial orientation phase. Such programmes use regular feedback loops and developmental touchpoints to create an adaptive framework, helping new hires align with organisational values over time. This extended engagement has been shown to significantly enhance retention and job satisfaction, particularly in fast-evolving industries like IT, where alignment with organisational goals is crucial for both individual and collective success (Stein & Christiansen, 2010; Walker-Schmidt et al., 2022).

Although it has been reported that small software companies dominate the software industry (Richardson & von Wangenheim, 2007; Urrea-Contreras et al., 2024) and contribute 80 per cent of software products in the market (Tuape et al., 2022), it is evident that they face many challenges in the development process and organisational issues (O'Connor & Basri, 2014). Findings from the systematic literature review conducted by Tuape and Ayalew (2019) to identify factors affecting software development in small software companies suggest that human-related factors (including organisational issues, business environment, and

governance) are more important than technical factors. The overall business performance of small software companies depends on organisational climate and KM practice (Huang & Li, 2021), as well as on the high-level soft skills of software entrepreneurs (Sudirman et al., 2020). In addition, the literature review on how small software companies implement and manage processes indicates that they face several challenges and limitations that prevent them from developing and implementing the best process practices (Tripathi et al., 2016).

The significance of onboarding is particularly pronounced in small software companies, where the contribution of each employee is vital due to limited resources and smaller team sizes. Effective onboarding in such environments is essential for rapid adaptation, minimising disruptions, and ensuring productivity from the earliest stages (Santos et al., 2024). Without a structured onboarding process, small teams face a high risk of turnover, which can significantly disrupt project continuity, team cohesion, and overall organisational stability (Brodsjo et al., 2023; Gardner et al., 2022). Furthermore, structured onboarding in small companies fosters trust and fulfils the psychological contract that underpins the employee-employer relationship, thus supporting long-term organisational commitment (Harpelund, 2019; Jeske & Olson, 2022).

Based on the above considerations, it is evident that there is a need for more research on onboarding practices in small software companies. This leads to the objective of this article: to deeply inquire about onboarding practices in a selected small software company. To achieve the stated objective, a qualitative case study methodology (Yin, 2018) was adopted, which enables the study of onboarding practices in the real, natural context of the selected company (Priya, 2021).

The rest of the article is structured as follows. The second section presents related work on onboarding practices in small software companies. The third section outlines used methods, while the fourth presents the case study with a discussion of findings. Validity is discussed in the fifth section. Implications for industry practitioners and academic researchers are outlined in the sixth section. Onboarding practice recommendations for small software companies are in the seventh section. Concluding remarks and further research directions are in the last section.

In order to contextualise the current study within existing academic knowledge, the following section reviews recent research on onboarding practices in software development, with a priority on small companies.

RELATED WORK

Ju et al. (2021) performed a qualitative study to examine onboarding tasks and strategies in software development teams. In this paper, the authors interviewed 32 developers who were joining a new team and 15 engineering managers who onboarded new developers into their team. Exploratory findings from interviews were tested with surveys. Authors coded interviews following the coding process from constructivist grounded theory (Charmaz, 2014; Stol et al., 2016). From the data analysis, three representative themes were identified: learning, confidence building, and socialisation. Additionally, three onboarding strategies emerged from interviews: (1) Simple-Complex – managers gradually increase the tasks' complexity (2) Priority-First – managers follow the order priority before assigning tasks to developers (3) Exploration-Based – managers assign tasks that are under-defined and uncertain to developers.

Buchan et al. (2019) conducted an empirical study investigating how agile teams' onboarding techniques and goals are aligned. The first part of the study is based on interviews with eleven participants and led to the identification of 24 onboarding techniques. The most important categories of onboarding techniques are working with people, working with artefacts, and undertaking an activity. The second part of the study is based on synthesising the evidence from the literature to identify onboarding goals. Eleven identified onboarding goals were classified into the following themes: culturalrelat context, job responsibility, standard of work, development process, and project knowledge. The Repertory Grid Technique (RGT) was used to map the contribution of all identified techniques to onboarding goals. Based on the mapping by using RGT, the most important organisational effort categories supporting onboarding were identified: socialisation opportunities, access to high-quality knowledge artefacts, access to formal training,

proactive feedback and knowledge sharing, and psychological safety to experiment and learn.

Enberg et al. (2024) performed a case study in which the authors examined the onboarding process through a survey with 39 participants and 18 interviews to gather details from the onboarding process. To validate the findings, workshops, and presentations were organised in the case company. From surveys and interviews, authors identified 13 types of challenges. Analysis revealed a clear difference between the survey and the interview challenges. A survey emphasised the low quality and the lack of onboarding materials and documentation, while the interview brought up a lack of transparency in onboarding practices and not collecting feedback on the onboarding experience. Additionally, based on interview answers, 15 types of good practices were identified, and 8 ideas as well. In the workshop, participants selected five challenges to solve the onboarding process and they were offered a solution for each challenge, such as a mentor lacking instructions, materials or documentation outdated, materials or documentation missing, lack of knowledge in some specific domain areas, and feeling of not belonging to the team. Based on the results, authors present practical implications for onboarding in agile software development organisations: (1) Mentoring is the key; (2) Give agile teams the main onboarding responsibility and make the responsibility clear, (3) Give agile teams the autonomy to decide the onboarding practices for them; (4) Support and encourage the teams to share good practices; and (5) Create a common place for onboarding documentation and checklists. Keep them up to date.

Stojanov et al. (2023) presented a qualitative study on onboarding practices within a small local software company. In the paper, reflexive thematic analysis was used to analyse the data. Study findings are developed and represented as a thematic framework. The main theme of the study is the Onboarding process accompanied by some other related themes, such as Objectives, People, Prerequisites, Work position, Knowledge management, Tools and methods, Outputs, and Shortcomings. The presented thematic framework organises knowledge about onboarding practice in the company and can serve as the basis for the identification of potential improvements in the onboarding practice.

Gregory et al. (2020) examined a single case study of the co-located agile project team in a large IT department that regularly onboard inexperienced newcomers. For structuring a study, the authors used Bauer's onboarding framework, which includes the recruiting process, orientation, support tools and processes, coaching and support, training, and feedback tools (Bauer & Erdogan, 2011; Bauer, 2010). Data were gathered through interviews. Interviews were transcribed and analysed using the tool NVIVO. Transcripts were initially coded from the guide of Saldana (2016) for themes that are related to the onboarding approach, practice, and challenges. The authors' findings reveal that onboarding combines both traditional and agile-related techniques. Agile techniques include self-study of agile principles, information radiators, pair programming, immersion for experiential learning, code reviews, testing, retrospectives, sprint reviews, sprint refinement sessions, and flexible task allocation.

Moe et al. (2020) investigated strategies for how a bank onboarded software developers in a global project. Two teams were named for this investigation, Team Alpha consisted of a team lead, delivery manager, 3 product specialists, 3 testers, and 10 developers, and Team Delta consisted of a team lead and 8 developers. Qualitative data was collected from interviews, observations, Slack conversations, documents, and quantitative data from Slack activities. For analysing interviews and observations, authors have used the NVIVO tool for easier categorisation and comparison of data. Authors coded material using open coding or "post-form" coding, looking for material that is related to the elements in Bauer's onboarding model (Bauer & Erdogan, 2011; Bauer, 2010). After analysing, the authors concluded several things. During the recruitment process, one of the important criteria was to find people who match the bank's culture. An important measure to build a strong network was for newcomers to have a three-week visit. The authors' findings suggest that Bauer's general model of onboarding applies to globally distributed teams. The biggest challenge involved issues with communication tools. Technical equipment was used in virtual meetings resulting in losing working time and poor communication flow between members since they were from Norway and Portugal. This highlights the crucial role of the psychological contract in attracting and retaining employees, emphasising the need for clear and consistent communication of employer promises (Kickul, 2001).

Pham et al. (2017) conducted qualitative research by surveying 170 and interviewing 22 practitioners about their experiences with recent graduates, focusing only on software testing skills. The authors used a Grounded Theory methodology (Glaser & Strauss, 1967) and explored what practitioners think of the testing skills of young newcomers. After analysing practitioners' experience, the authors' core findings were validated in a final questionnaire with 698 practitioners. According to collected data, many practitioners are dissatisfied with the testing skills of newcomers. Smaller companies struggle with onboarding newcomers without testing skills, while larger companies are able to embrace it. Additionally, problems that practitioners have with newcomers range from gaps in knowledge to negative attitudes toward automatic testing. Newcomers have a hard time applying theoretical knowledge to practice. Practitioners reported that their companies have decided to teach newcomers to do testing from scratch.

Yates et al. (2020) explored the onboarding process for software developers. The authors used a Grounded Theory (Glaser & Strauss, 1967) to focus on transferring different types of information from software developers who are skilled in software development in general (experts) to software developers who lack specific knowledge of the code they will work on (newcomers). Findings were presented in four different perspectives: (1) The Structural view – this refers to "What is there", focusing on the description and characterisation components of the system; (2) The Algorithmic view – this refers to "How it works", focusing on the description of the inner working of the code towards achieving functionality; (3) The Rationale view – this refers to "Why is it there", description of the system requirements and design principles that led to the current design; and (4) The Temporal view – this refers to "What is changing, what has changed, and what will be changed" in the system and what impacts has it on code.

The presented review of published studies indicates that onboarding is a challenging issue in the IT industry, especially for small software companies. In addition, there is a lack of studies reporting on onboarding practices in small software companies, which suggests that there is a strong need to inquire about different aspects of practice in different settings. Our work intends to fill the literature gap and contribute to the overall understanding and improvements of onboarding practices in small software companies. In order to gain a deeper understanding of onboarding processes in small software enterprises, we adopted a qualitative methodology, as described in the following section.

METHODS

Researching onboarding practices, as a complex socio-technical phenomenon in software companies, needs a thorough methodology to enable emerging findings that accurately and comprehensively reflect the true state of practice. Since the objective is to understand the practices of a small local software company, the obvious option is to use a qualitative case study methodology (Yin, 2018). Case study research requires defining a unit or the case of analysis (Alam, 2021). For the selected company, the case to be researched, or a phenomenon of interest, is onboarding practice. Qualitative case study research assumes a detailed empirical investigation of a specific subject, which can be a single person, community, team, or organisation (Baxter & Jack, 2008).

The main strength of this methodology is that it enables exploration of the selected phenomenon by using different sources of data and a variety of qualitative methods for collecting and analysing data. In addition, the case study methodology assumes that researchers do not have control in the setting in which the phenomenon is inquired (which is the real situation because the researchers only try to understand and describe the practice), and this leads to the proposal of the main research question:

RQ: How is the onboarding practice implemented in the company?

With this highly general research question, the main objective is to understand the onboarding practice and provide a detailed and reliable representation of how the practice is realised in the company, and based on that provide some recommendations for the onboarding practice improvements.

Selection of the case

A small local software company that operates in Serbia was selected as the case. The reasons for choosing the company are:

1. The long history of cooperation with the company in several fields of work, such as implemented projects, and previous joint research;
2. Knowing of employees in the company, both management and programmers;
3. Willingness to participate in research projects, by providing access to the context, people, and resources.

In addition, the majority of employees in the company are graduate students from our faculty, and this research intends to get insights into the onboarding practice and provide relevant recommendations for practice improvement. The practice improvement proposals will be discussed in the fifth section.

Data sources and collecting methods

The qualitative case study research methodology assumes the use of a variety of available data sources to get a deeper understanding of the practice and construct relevant and reliable findings (Yin, 2018). Therefore, for the selected company, the following sources of data were used: (1) recorded conversations with the company manager, (2) recorded conversations with leading engineers involved in onboarding practice, (3) field notes taken during conversations in the company, (4) company documents with the description of organisational issues in the company, and (5) an in-depth, semi-structured interview with an engineer who is directly in charge of implementing onboarding in the company. All collected data are in the form of unstructured text, suitable for further qualitative data analysis.

Since the study involved collecting data from human participants, ethical considerations were carefully addressed. All participants provided informed consent, and interviews were conducted with full respect for confidentiality and voluntary participation. Collected data were anonymised and securely stored, ensuring the protection of participants' identities and compliance with ethical research standards.

Data analysis methods

Since the objective of our study is to inquire about onboarding practices in the selected company (as stated in the research question (RQ), the intention is to construct a thematic framework with themes describing the onboarding practice. The thematic framework, which is usually constructed and rendered in the form of concepts or themes and their relations describing the inquired phenomenon, is recognised as a type of finding in the typology of qualitative findings proposed by Sandelowski and Barroso (Sandelowski & Barroso, 2003).

Based on the proposed research question and stated observations, a reflexive thematic analysis proposed by Braun and Clarke (Braun & Clarke, 2022) was adopted for data analysis. During the whole research process, memos were written to elaborate decisions and reflections (Birks et al., 2008). Two types of memos were written during the research process:

1. Theoretical memos - used to explain the identification and development of themes, and construction of the thematic framework as findings for the case.
2. Methodological memos - used for reflecting on the research process, methods, participants, decisions, dilemmas, and raised issues.

The analytical research process, that leads to the findings includes the following phases:

1. Familiarisation with the data set. It includes an initial reading of collected texts, their discussion within the research team and with the company manager, and finally the preparation of documents to be used in software for coding (QDA Miner Lite);
2. Data coding. Relates to the assignment of initial codes to text segments, as well as initial classification of codes, and brief description of codes in theoretical memos. The coding process was performed in the software QDA Miner Lite;
3. Generation of initial themes. It relates to the identification of the most important codes and similar codes, and promoting them to themes that reflect the most important concepts and issues identified in the text. Identified themes may relate to several codes identified in the text;
4. Review and development of themes. This relates to rethinking themes so that each theme brings something important to the understanding of the practice. In addition, it ensures clear connections to initial codes and text segments (traceability of data analysis process), and that the text segments fit themes. In this phase relationships between themes are identified and described, leading to the development of the thematic framework;
5. Refining, defining, and naming themes. The intention is to increase the quality of findings by ensuring the quality of each theme based on writing clear definitions for them. It includes

defining what is the central concept in defining the theme, defining theme boundaries, and how each theme fits and contributes to the overall findings. All relationships between themes are well established, and the quality of the whole thematic framework is ensured. Drawing a scheme that represents the thematic framework with themes and relationships increases the visibility and understandability of the findings. This phase is based on the discussion of research team members to clarify the meanings of all themes and relationships;

6. Writing up. It includes structuring and writing about constructed findings - the thematic framework for the company onboarding practice. This assumes writing about each theme, relationships between themes, and selecting text extracts from raw data to illustrate developed themes, which also increases the reliability of the findings and the whole research process.

The following section describes the results of our empirical research, offering details of the selected case and the key themes that emerged from data analysis.

CASE STUDY

This section presents details of the case study, including information on the selected company, the data analysis process and construction of the findings, and a discussion of the findings.

A qualitative analysis was conducted to study how the selected company implements onboarding. All qualitative data, collected as unstructured texts, were prepared in PDF documents and imported into the QDA Miner Lite software tool for qualitative data analysis. The analysis included coding the raw field data, synthesising codes into themes, deriving and refining themes, and identifying relationships between the themes. This study is a part of a larger ongoing project aimed at inquiring onboarding practices of small software companies in Serbia. For designing and conducting this study we relied on our experience in inquiring into the practice in another company (Stojanov et al., 2023) and analysing exceptions in onboarding practice (Gluvakov et al., 2024).

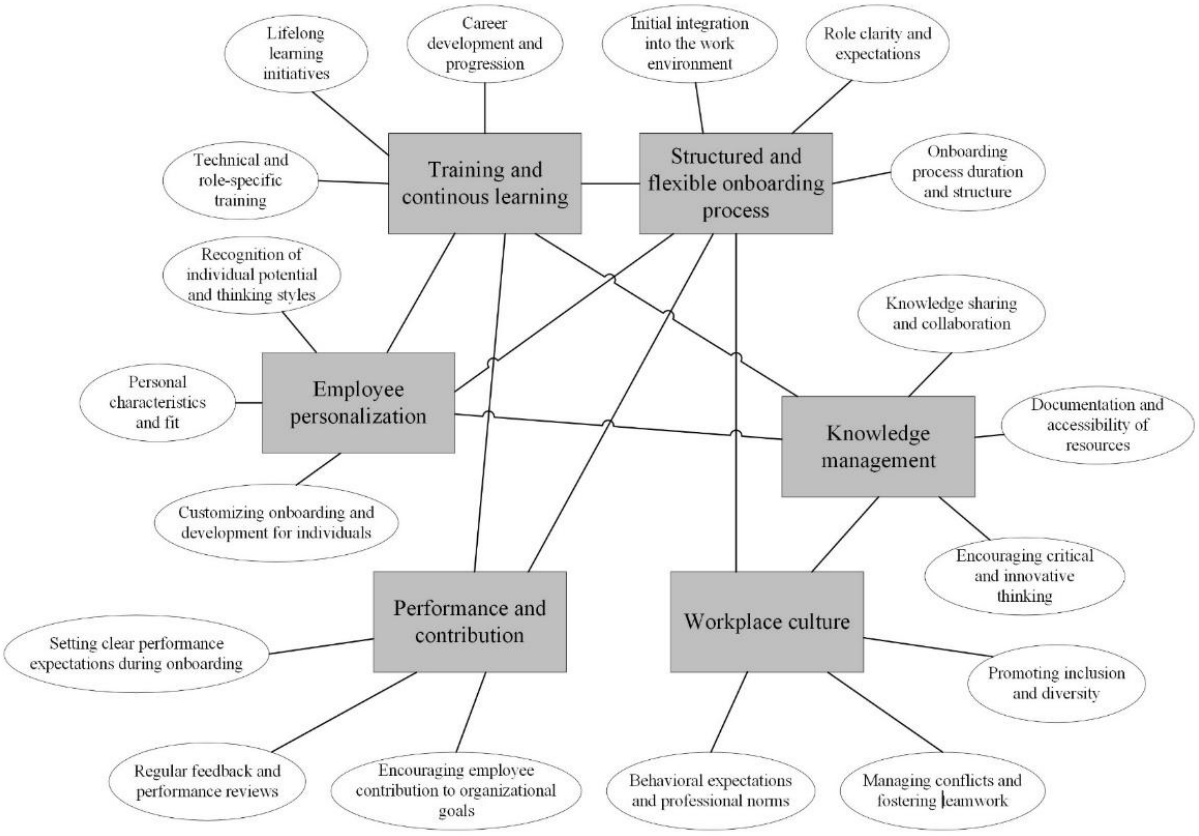

Figure 1: Thematic framework for onboarding practice

About the selected company

The study inquires into onboarding practices in a small software company focused on developing software solutions for business problems in various domains such as agriculture, services, logistics, accounting, etc. The company is mainly oriented towards local clients in Serbia. The business model includes regular contact with clients and programmers' everyday engagement in solving their business problems.

The company was founded in 2000 and currently has 10 employees. In addition to three leading programmers with over 20 years of experience in the industry, the company employs young programmers who most often come after completing their undergraduate studies. For these young new employees, onboarding is the first and most important phase that introduces them to the company's business, both from an organisational and technical perspective. These facts, as well as the willingness to participate in various research projects for over 15 years, influenced the choice of this company for inclusion in the study of onboarding practices.

Data analysis

Initial coding and data analysis were performed in the QDA Miner Lite software. The initial codes were marked with different colours to support visibility and clarity during the analysis and grouped into categories, which will lead to the identification of themes in further analysis. Through initial coding, a total of 41 initial codes were identified. Further analysis of the text, initial codes, and grouping categories resulted in the identification of the main themes and associated sub-themes that describe the onboarding practice. Through a more detailed discussion of the identified initial themes, the themes and sub-themes were refined. After the refinement of themes and sub-themes and identification of the relationships between them, the thematic framework with all relevant themes, sub-themes, and relationships was created (see Figure 1).

In the thematic framework presented in Figure 1, identified themes are represented in a rectangular shape, while sub-themes are shown in ellipses. Figure 1. also shows the connectivity of the themes, which is discussed later in the text. Within this thematic framework, the Structured and flexible onboarding process reflects the balance between the structured duration and milestones of onboarding while accommodating the unique needs of the job and the candidate's experience. The theme of Training and continuous learning includes the training processes, ongoing education, and professional development through seminars and webinars. This theme highlights the importance of equipping employees with both specific tools and broader critical thinking skills. Training and continuous learning are connected to the Structured and flexible onboarding process theme because flexibility in onboarding often includes individual training needs, binding into continuous learning principles. Employee personalisation as a theme focuses on the significance of personal traits, affinities, and thinking styles in determining how well an employee fits into the company. It considers both initial compatibility and how personal traits emerge over time. This theme is related to the Structured and flexible onboarding process and Training and continuous learning because personalisation improves onboarding by adapting processes to suit each employee’s needs, creating a more effective and engaging experience. Additionally, training programmes often need to be personalised based on individual learning styles and career aspirations. The theme of Knowledge management addresses how employees interact with each other, share knowledge, and collaborate to achieve success. It highlights the importance of knowledge management in IT companies. This theme is connected with Training and continuous learning because continuous learning relies on accessible and organised knowledge resources, making knowledge management a key element of effective training. It is also connected to employee personalisation because it can refer to different thinking styles and learning preferences. Performance and contribution as a theme is focused on evaluating an employee’s performance through their work quality, initiative, and contribution to company success. This theme is related to the Structured and flexible onboarding process, because onboarding is the first step where performance expectations are set, and the relation with the theme of Training and continuous learning shows that continuous learning contributes to performance by addressing skill gaps and increasing employee capabilities. The theme of Workplace culture highlights the importance of fostering a positive work environment and managing inappropriate behaviours and personal conflicts. This theme is connected with the Structured and flexible onboarding process, as onboarding introduces employees to workplace culture, setting

expectations for behaviour and collaboration. Additionally, this theme is related to the Knowledge management theme highlighting that the culture that values knowledge sharing and collaboration strengthens workplace relationships and collective problem-solving.

Discussion of findings

Regarding the discussion of the theme Structured and flexible onboarding process, the company onboarding is formalised but dynamic in the sense that there is a highlight on meeting the individual needs and experiences of employees in this process. The time and structure of onboarding are a function of the nature of the positions and the need to establish a conducive working environment. It usually lasts from six months to a year, which is the amount of time taken to acquire the skills required for autonomous working. It mainly includes an initiation stage, whose purpose is to evaluate the existing knowledge of the employee and to develop that knowledge. Quotation "The period required to get a usable programmer is from six months to a year. In the beginning, it is familiarisation… We examine what knowledge they brought, and based on that we trace the path." this highlights the structured yet flexible nature of onboarding, which adjusts to employee's basic competencies. Role clarity is also highlighted during onboarding, which ensures that employees understand their contribution to the company's goals, software development, and maintenance, which is supported by the words: "We need to create someone who will develop and maintain the software since this is the main activity of the company." This clarity reduces uncertainty and improves the integration of new hires into their roles. The company fosters a relaxed and supportive atmosphere to ease the transition into the work environment. For example, the study participant described the onboarding environment as one where "there is no pressure and high expectations, especially in those first 3-4 months," demonstrating the company's commitment to making new employees feel comfortable and valued.

Training and continuous learning highlights that training during onboarding serves as the foundation for continuous learning. The process contains technical training, knowledge sharing, and the development of problem-solving skills. The initial phase of onboarding introduces employees to essential tools and frameworks, equipping them with the technical skills required for their roles, which is explained with the words: "We introduce them to the tools, frameworks, and things that make up the majority of any of our applications." In addition to initial training, the company emphasises lifelong learning through seminars, webinars, and online platforms to ensure employees stay up to date with industry trends, noted as: "Earlier, there were several seminars… Of course, the next thing are webinars, and YouTube channels, which are available." The company also ensures that employees are not strictly specialised but are prepared to handle a variety of tasks, which is supported by words: "We are slowly expanding that range of jobs and going in-depth as well. It depends on the need of the job." This expands employees' skills and promotes career development, as illustrated by the example of an employee who became a full-stack developer within a year.

Employee personalisation is a key feature of the company's onboarding and training process, emphasising individual strengths, affinities, and thinking styles. The company tailors onboarding to the unique attributes of each employee, recognising the importance of both technical and human factors. Consideration of individual characteristics is stated: "We examine not only the prior knowledge that people have brought but also affinities… everyone finds their place." This personalisation ensures that employees are aligned with roles that match their strengths and interests. Moreover, the company places significant importance on recognising and fostering cognitive abilities, which is illustrated with: "I'm not interested in the syntax, just to see how you think. We need to recognise the way of thinking." This focuses on cognitive skills over technical skills and ensures that employees are equipped to handle complex and creative tasks.

The company's knowledge management practice focuses on documenting key information, teamwork, and critical thinking. They make knowledge transferable for both individuals and organisations. Documentation is the key to maintaining continuity and quality, especially for reusable components, as explained by words: "What we try to document are mostly technical instructions for things that more people use… It's such a colorful thing that even after 20 years of work you don't know half of it." Knowledge sharing is integral to the company's culture, with an emphasis on collaboration and mutual support, described by words: "that exchange of knowledge and

information… when several people start to motivate each other." This collaborative approach increases problem-solving and innovation.

Performance expectations are set early in the onboarding process, with a focus on fostering a sense of contribution and ownership. Employees are evaluated based on their interest, effort and results, not on rigid metrics. The company's approach to performance evaluation is informal but effective, noted with words: "You can see the grade through the result and how interested they are, how much they try." The company also strives to involve new employees in meaningful work as soon as possible. As stated in the study, "In principle, we try to get them to feel that they are contributing as soon as possible." This approach helps the integration process and boosts employee engagement.

Behavioural expectations are clearly defined to maintain a positive and productive work environment, noted with the words: "If you let some things go 'under the radar'… sooner or later it will start to hurt. And we all depend on work, including our families." This approach ensures accountability and professionalism. The company also values diversity, with employees from various educational backgrounds contributing to the organisation's success, explained with the words: "We also have economists here who are programmers… everyone finds their place."

Onboarding can be seen as the foundation for continuous learning, providing employees with the initial skills needed for long-term development. This is supported by the statement: "In the first month or two, work will be done to familiarise them with the environment and the tools." The focus on individual strengths extends to how knowledge is shared and accessed, ensuring that employees can learn in ways that suit their preferences, explained with the words: "We try to introduce them in basic terminology… It is important for us to recognise the way of thinking." A collaborative culture enhances knowledge sharing, as described by the words: "That exchange of knowledge and information… that is something that is irreplaceable." Onboarding introduces employees to the company's values and behavioural norms, setting their integration into the workplace, noted with: "We try to make the atmosphere as relaxed as possible… there is no pressure and high expectations."

The themes extracted from the second study highlight a complete approach to onboarding, characterised by flexibility, collaboration, and personalisation. The company's practices reflect an understanding of the dynamic nature of onboarding and the importance of aligning it with individual and organisational goals. The relationships between themes further illustrate the connection of these processes, demonstrating their role in the creation of a productive and engaged work environment.

In order to ensure the credibility and reliability of our findings, we provide an overview of the methodological rigour applied during the study.

RESEARCH VALIDITY

This discussion aims to increase the validity and credibility of the presented study and the findings. First, the detailed descriptions of the used methodology in the third section, and the case study in the fourth section, provide evidence of the research design and implementation. Validity is discussed in the sense of four aspects as defined by Maxwell (1992) – descriptive validity, interpretative validity, theoretical validity, and generalisability (Maxwell, 1992).

Details on the data analysis process of the raw data by using reflexive thematic analysis and created research findings supported with excerpts from raw data increased the descriptive validity of the study. With the thick description of identified themes, accompanied by quotations from raw data, descriptions of the findings provide a reliable representation of the inquired practice in the company.

Interpretative validity is supported by the detailed description of the research design, and with details of all phases in analysing data. Additional support for interpretative validity is the extensive use of quotations from raw data, which enables tracking the way of analysis from the findings to data collected in the field. To eliminate or minimise the subjectivity in the construction of the findings as one of the main threats in qualitative research (Cho & Trent, 2006), data analysis and interpretation were performed by all authors (researchers).

The objective of the presented study and its findings is not to develop abstract theoretical concepts, leading to theory, but rather to enable a deeper understanding of the practice. Therefore, with the findings presented as the thematic framework theoretical validity is not directly achieved, but

further research that will include a larger number of cases may provide the basis for developing a more abstract theoretical representation of the inquired phenomenon of onboarding.

Generalisability has not been planned nor achieved in this research. However, the presented findings may be included in a more comprehensive analysis of a larger number of cases that can lead to more general findings and recommendations. However, the high diversity and volatility of small software companies make challenging attempts to provide generalised proposals and frameworks for any segment of their practice, including onboarding.

The following section discusses the wider implications of our findings for both industry professionals and academic researchers.

RESEARCH IMPLICATIONS

Implications for industry practitioners

The findings of this research offer valuable insights for industry practitioners, particularly in the onboarding process practice. One of the main implications is recognising the key role that a well-structured process plays in facilitating the integration of new employees. Practitioners are encouraged to invest their resources and time in developing comprehensive programs that not only familiarise new employees with the organisation's culture and processes but also provide them with the necessary support and resources to successfully advance in their roles.

The research findings highlight the importance of fostering open communication and a trusting relationship between new employees and their colleagues. Practitioners should consider implementing various programmes to promote knowledge sharing and enhance the onboarding experience. By establishing a supportive environment, organisations can help new hires navigate their roles more effectively and reduce the time to become fully productive. Industry practitioners should ensure that the onboarding experience communicates the organisation's vision and mission, as this can significantly impact employee engagement and retention. By reinforcing company goals during the onboarding process, practitioners can create a sense of belonging among new hires, which will ultimately benefit the entire organisation.

Companies should implement flexible onboarding programs that adapt to the prior knowledge and learning pace of employees. This would enable faster inclusion of employees in existing teams and increase their productivity. It is very important that technical training and personal development are balanced through a combination of structured frameworks and informal mentoring. This will help employees develop technical and personal skills. It is also recommended to use resources such as webinars, tutorials, and knowledge-sharing platforms to support continuous learning during the onboarding process. Reliability, adaptability, and the ability to work in teams are considered key to the successful integration of employees into the company's values and culture. Knowledge transfer can take place through team interactions and joint problem-solving, which further encourages innovation and creativity. A relaxed and informal working atmosphere with an emphasis on personal responsibility is important for the company because it can contribute to reducing stress, increase job satisfaction, and contribute to employee retention in small companies.

The practical insights presented in this case study can serve as a valuable reference point for other small software enterprises aiming to refine their onboarding approaches. The flexible framework proposed here can be adapted to different organisational contexts, promoting the consideration of best practices across the sector. Additionally, the identified challenges and responses can inform future industry-wide onboarding strategies and policy recommendations.

Implications for academic researchers

Researchers can learn how to create a theoretical thematic framework by using reflexive thematic analysis of unstructured textual data. The presented approach for developing a framework using reflexive thematic analysis can be adapted and implemented in other research projects. The article guides researchers on how a systematic approach to qualitative data analysis can contribute to the understanding of complex topics such as onboarding. By including the diverse perspectives and experiences of participants, researchers can gain deeper insights and develop richer theoretical models that can be helpful in further research.

The researchers can use the presented thematic framework as a starting point for their research on very specific issues (themes). For example, future research may examine the effectiveness of informal knowledge transfer compared to formalised knowledge management systems in onboarding, especially in the IT sector where tools and technologies are rapidly evolving. In addition, this research shows how companies can balance structured documentation and dynamic interaction-based learning for more effective knowledge retention and transfer.

It is very important to emphasise how the onboarding process fits and correlates with the organisational culture, especially in small IT companies. Analyzing how culture is transmitted through onboarding, as well as its impact on employee engagement and loyalty, could yield significant insights for academic understanding and practical application. Investigating how mentoring relationships affect employee satisfaction, knowledge acquisition, and long-term career development can also be done.

There is a need for research into psychological factors such as personal characteristics, motivation, and engagement, which, together with technical onboarding programmes influence the success of employee integration. This aspect includes not only technical skills but also the psychological readiness and adaptability of employees.

RECOMMENDATIONS FOR PRACTICE

Recommendations for the Industry Practice

Practical recommendations, based on the presented and analysed thematic framework, for small software companies are given.

The first recommendation implies the strategic placement of the onboarding process and includes the creation of a clear phased onboarding structure that lasts from three to six months so that new employees gradually enter the work environment and culture. Additionally, flexibility in duration is recommended, which enables the length of onboarding to be adjusted in accordance with the individual needs of new employees, as well as the recognition of key challenges and their resolution.

The second recommendation implies effective knowledge management and includes the creation of a centralised knowledge base where key materials are easily accessible, defined responsibilities in knowledge transfer through mentoring and personalised training where new employees receive tasks following their knowledge and experience.

The third recommendation implies improving the selection and evaluation of candidates and includes the simulation of real work challenges for new employees, the performance to be achieved during the onboarding process and regular feedback to assess progress and possible adjustments to the onboarding process.

The fourth recommendation implies coordination of the onboarding process with the organisational culture and includes the introduction to informal aspects of work by mentors and other colleagues, promoting open communication by asking questions and exchanging information between existing and new employees, as well as team activities so that new employees can more easily connect with existing employees and adopt the company's values.

The fifth recommendation implies support for continuous learning and development and includes the insight of new employees into the possibilities of advancement through various trainings, as well as a combination of independent learning of employees through documentation and courses and learning with a mentor through specialisation and technical training.

Application of these recommendations enables small software companies to establish a flexible onboarding process with structured elements that align with knowledge, selection, organisational culture, and continuous employee development.

Practice improvement proposals for the selected company

It is advisable to develop more detailed onboarding processes, which would include a general introduction to the company and sessions related to the projects and technical issues. Standardised onboarding templates and checklists, tailored to each service, need to be introduced. This would ensure uniformity in the training of new employees.

Further, an organisational culture that fosters open communication, especially in the process of introducing new employees should be nurtured. A possible way to achieve this is to organise culture

development workshops to ensure that new employees better understand the company's values and communication practices.

It is necessary to improve the candidate selection process with clearer standards and criteria for evaluating technical skills and fitting into the company's culture. Preferably, specific interview guidelines and evaluation criteria should be provided to assess candidates' cultural competence and technical skills. This leads to the desirability of introducing role-specific assessments to more effectively assess a candidate's practical skills.

Establishing formal procedures for knowledge transfer to prevent potential omissions, especially with information that is not easily documented is desirable. A company can develop a knowledge-sharing programme, such as a mentoring system, where new hires would work with more experienced colleagues to help them master the skills needed for the job.

The application of these suggestions could contribute to a more efficient onboarding process, higher productivity, and better engagement of new employees in the organisation.

CONCLUSIONS

The results of our study highlight that onboarding processes in small software companies, although often informal and flexible, play a critical role in effectively integrating new employees and enhancing their productivity. Key findings include the importance of tailored training, knowledge sharing through informal methods, and strong alignment with the company's culture. The selected company relies heavily on personalised approaches, which help address individual learning needs. However, the lack of structured onboarding process materials and formal feedback mechanisms was identified as a significant gap. Addressing these issues could standardise the onboarding experience, leading to more consistent employee performance and improved retention rates.

Future research will delve into a comparative analysis of formal versus informal onboarding practices in small IT companies to assess their respective impacts on employee retention and job performance. Additionally, investigating the potential benefits of integrating formal knowledge management systems could enhance the existing informal practices, making the onboarding process more efficient. Further studies could also explore the psychological aspects of onboarding, such as the impact of motivation, engagement, and personal traits on the success of integration.

Development of a more general framework, or even a theory, for onboarding practice that can be used by the majority of small software companies, is challenging and demanding research direction.

Finally, longitudinal research examining the effects of ongoing mentorship on career progression and job satisfaction would provide valuable insights into the long-term outcomes of onboarding initiatives.

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ONBORDING U MALIM SOFTVERSKIM PREDUZEĆIMA: PRAKTIČNE PREPORUKE IZ KVALITATIVNE STUDIJE SLUČAJA

Onbording predstavlja temelj efikasne integracije radne snage u softverskoj industriji i omogućava brzu i besprekornu adaptaciju zaposlenih na organizacione radne tokove i kulturu. Posebno je važno za male softverske kompanije, gde ograničeni budžeti, ograničenja resursa i jedinstvene organizacione strukture povećavaju izazove ulaska u rad. Ovaj članak istražuje prakse uključivanja u maloj softverskoj kompaniji, fokusirajući se na to kako su novi zaposleni efikasno integrisani u organizacionu kulturu i tokove posla. Kvalitativni pristup studije slučaja korišćen je kako bi se otkrili uvidi koji se mogu primeniti i nijanse specifične za određeni kontekst. Nalazi ističu da su kulturno usklađivanje, organizaciono učenje i praktična razmena znanja ključni za efektivnu integraciju novih zaposlenih. Međutim, izazovi kao što su nedosledna dokumentacija i nedostatak standardizovanih procesa dovode do značajne varijabilnosti i neefikasnosti. Uprkos identifikovanim nedostacima, izabrana kompanija pokazuje fleksibilnost u prilagođavanju svojih pristupa individualnim potrebama. Rezultati ove studije mogu imati šire implikacije na softversku industriju, posebno u kreiranju strategija inkluzije koje se bave aspektima koji su usmereni na čoveka i aspekte upravljanja znanjem. Rezultati ovog istraživanja mogu usmeriti mala preduzeća ka održivijim praksama integracije talenata i doprineti trendovima razvoja radne snage u celoj industriji. Na osnovu rezultata istraživanja date su preporuke za praksu.

Ključne reči: Onbording; Mala softverska preduzeća; Integracija novih zaposlenih; Kvalitativna studija slučaja; Preporuke za praksu.