Digital Talent of Banking: Need Analysist of Development, Security and Operational (DevSecOps) by Bootcamp Approach

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Abstract

Software development has undergone a tremendous evolution throughout the last few decades. From its beginnings as a simple programme in a mainframe environment, software has evolved into a highly complex ecosystem that runs on a network. At the same time, the expectations of users have continued to evolve. Today they are dominated by the digital generation who grew up and developed in the era of digital technology, characterised by the widespread use of computer technology and the internet. This research aims to analyse the needs of banking institutions in developing digital talent through devsecops. Development, Security and Operational (DevSecOps) as a concept that focuses on security in every stage of software development, ensuring that security is not only the responsibility of the security team, but also an integral part of the development culture. This research uses a qualitative approach. Interviews were conducted at ASK Learning to trainees. The results showed that the importance of training in the context of DevSecOps is strongly felt by many companies that apply this approach. The current training is still focused on each specific field such as Programming. Bootcamp is an alternative training method that is suitable for fields that require increased skills and are carried out in a short time.

Keywords: digital talent; banking; devsecops; bootcamp.

Introduction

In today's era of digital transformation, many organisations are experiencing significant changes in the way they operate and communicate (Yang et al., 2024). Successful businesses are increasingly relying on information and communications technology (ICT) to accelerate product innovation, improve efficiency and respond quickly to market changes (Santarsiero et al., 2024). ICT is not just a technology infrastructure, but also a strategy that integrates technology with existing business processes (Malewska et al., 2024). Technology adoption will remain a key driver of business transformation in the next five years (World Economic Forum, 2023). Software development has undergone a tremendous evolution throughout the last few decades. From its beginnings as a simple programme in a mainframe environment, software has evolved into a highly complex ecosystem that runs on a network. Innovations such as operating systems, application software, and cloud computing have changed the way we work, communicate, and access information (Chen et al., 2024). Software products are developed incrementally using agile methods, run in the cloud, with good security systems and maintained and managed by DevOps teams (Amaro et al., 2025). Furthermore, artificial intelligence and machine learning technologies have delivered software that is capable of self-learning and adaptation (Russel et al., 2010). With the continuous development of technology, software has become the backbone of the digital revolution and enables the rapid development of technologies, from artificial intelligence to the Internet of Things (Arthur, 2017). At the same time, the expectations of users continue to evolve. They are currently dominated by the digital generation who grew up in the era of digital technology, characterised by the widespread use of computer technology and the internet.

This generation includes people born from the 1980s to the present day (Telukdarie et al., 2022). They expect an intuitive, responsive and personalised experience in using the software. In addition, they expect the software to be secure and protect their privacy. They want to be confident that their personal data will not be misused or accessed by unauthorised parties (Kou et al., 2023). This drives organisations to develop and implement better, faster and more secure software.

In an effort to meet these expectations, many organisations have turned to a faster and more responsive software development approach known as DevOps (Plant et al., 2024). According to Giamattei et al. (2024) DevOps is an approach that combines development (Dev) and operations (Ops) to create a more efficient and collaborative development process. This Devops method emphasises automation, continuous testing, and closer integration between development and operations teams (Díaz et al., 2024).

Before DevOps, many organisations experienced problems because developers and operations teams worked separately and often in different silos (Cuadra et al., 2024). The development team is responsible for developing the software, while the operations team is responsible for running and managing the infrastructure. The mismatch between these two teams often leads to conflicts, delays in product launch, and vulnerabilities in security.

However, with this change also comes new challenges in terms of software security. Security is often not effectively integrated in the software development lifecycle, and security issues can arise in the late stages of development, which can cause great harm to the organisation. To address this, the concept of DevSecOps emerged, which integrates security (Sec) in every stage of software development (Jha et al., 2023).

DevSecOps as a concept that focuses on security in every stage of software development, ensuring that security is not only the responsibility of the security team, but also an integral part of the development culture (Grande et al., 2024). However, to successfully adopt DevSecOps, organisations need resources that are competent in this field.

Human resources in the company are required to keep up with technological developments and adapt to changes quickly. They must develop their competence in accordance with existing business needs but cannot be separated from the demands to achieve the required performance. To be able to achieve these performance targets, Upskilling and Reskilling are needed for information technology human resources. Therefore, this research aims to analyse the needs of banking institutions in developing digital talent through devsecops.

Method

The qualitative research method was chosen by the researcher because it is suitable for analysing the needs of digital talent development (Moleong, 2017). This descriptive research was conducted to identify and analyse problem solving in banking business services facing technological advances. The participants in this study were ten ASK Learning trainees. Structured interviews were conducted with interview guidelines related to training activities conducted, materials and modules used and input for assessment improvement. Ten participants were selected through purposive sampling with criteria tailored to the needs of the research. Descriptive research conducted by researchers is a description of the results of in-depth interviews with participants. Thus, the data obtained was analysed with a qualitative approach. To maintain the research code of ethics, we disguised the names of participants. The analysis technique used is that researchers collect data through interviews. Furthermore, researchers conducted data reduction by sorting out the notes found to be presented in the form of narrative text and drawing conclusions (Moleong, 2017).

Result and Discussion

The importance of training in the context of DevSecOps is felt by many companies that apply this approach. The current training is still focused on each specific field such as Programming, UI/UX, Software Engineering, Database, Networking, IT Architecture, Security and Project Management with each training field taking a long time to master. However, with the rapid development and

changes in technology, companies need to increase the competence of human resources in a fast and ready-to-use time according to company conditions. The results of this study illustrate that the training conducted requires improving the quality of service on the material. This condition can be shown in the interview results compiled into Table 1 as follows:

Table 1. Participant interview results

No	Indicators	Statements
1	Training	Aji (M): 'The training organised is good, it's just that it is still not maximising the use of digital media.' (20 April 2024) Nuri (F): 'In my opinion, the training is not very effective because the material presented is difficult to understand such as DevSecOps.' (20 April 2024)
2	Material	Rudi (M): 'The training is good, but the materials used should be adjusted to the existing conditions. In addition, it is better if the training leads to practicum.' (20 April 2024) Leo (M): 'The DevSecOps training should use a learning management system or be digital-based. In addition, the material is also adjusted to the needs of the participants.' (20 April 2024)

Table 1 shows that training conducted with DevSecOps material requires technology integration such as learning management system. Learning, performance improvement, and training are important concepts in improving individual and organisational capabilities in companies. Learning is the process by which a person acquires new knowledge and skills through experience, instruction, observation, and reflection (Budiaman et al., 2021). Performance improvement refers to the process of increasing the capacity of an individual or organisation to achieve desired goals. This can be achieved through various methods such as training, performance feedback, and process redesign (Aguinis et al., 2013). Meanwhile, training is a systematic process of changing employee behaviour with the aim of improving organisational performance. Training focuses on providing specific skills that employees need for their job performance (Noe et al., 2016).

Learning underpins the acquisition of individual knowledge and skills that are prerequisites for performance improvement. Meanwhile, training and other performance improvement methods apply learning to enhance the capacity of human resources to achieve organisational goals. All three are important for individual and organisational optimisation.

Bootcamp is a training programme that is conducted intensively with materials that have been structured to be relevant to careers in a particular field, generally focusing on a few skills that are in high demand by the company, and can be conducted synchronously (live online bootcamp) and asynchronously (online bootcamp) (Berridge et al., 2019). Bootcamp is an alternative training method that is suitable for fields that require increased skills and are carried out in a short time (Schmitt et al., 2022). Effective training will equip professionals with the knowledge and skills needed to understand and effectively implement DevSecOps practices in their daily work. Therefore, the development of an appropriate and efficient training model for DevSecOps is an urgent need..

The results of this study answer the challenge in Information Technology (IT) training in the Company is the material that quickly changes along with changes in technology. Thus, training conducted in the banking business is required not only to understand, but also to be able to apply the learning outcomes. The implementation of DevSecOps as a new field that combines Development, Security and Operational requires special skills and training. Lack of DevSecOps talent is one of the main barriers to implementation, especially in the financial industry. Therefore, comprehensive DevSecOps training is required for the financial industry to fully utilise this approach to improve its cybersecurity.

DevSecOps training has a lot of material and requires a comprehensive training model that can be implemented in a short period of time. By using a bootcamp approach, the effectiveness of knowledge and skills transfer to the trainees can be further enhanced.(Sas et al., 2023). This intensive and practical learning model allows participants to apply DevSecOps concepts and techniques directly in a supportive learning environment.

On the other hand, this research provides a basis for conducting the instructional design process (Bannan, 2013). Instructional design involves analysing learning needs, formulating learning objectives, developing learning materials, selecting appropriate teaching methods, and ongoing evaluation and revision of the instructional design. Therefore, the results of the needs analysis conducted based on the views of the participants aim to ensure that the bootcamp approach-based training is effective, efficient, and can result in the achievement of competencies expected by the company.

Training is part of instructional design that focuses on instructional solutions to solve performance problems (Yimam, 2022). Training is usually aimed at adults who already have a knowledge base and work experience, Training activities include needs assessment, instructional design, implementation, and programme evaluation. The main objective of training is to improve the work skills of participants so that they can perform their jobs more effectively and efficiently (Mansour et al., 2022).

A needs analysis is conducted before designing a training programme to identify performance gaps that need to be improved through training. Training activities can be conducted in the workplace (on the job training) or outside the workplace (off the job training). Popular training methods include demonstrations, case studies, simulations, e-learning, and others. Technology plays an important role in implementing and evaluating training programmes. Therefore, the results of this study are in line with Morrison et al. (2019) effective training has several characteristics such as clear training objectives, relevant materials, appropriate methods, sufficient duration, and evaluation and feedback.

Relevant materials can be adjusted through the needs of the trainees by conducting preliminary observations. Thus, the training conducted is in accordance with the work of the participants and can be implemented in their work. In contrast to the view of Noe (2023) Training is an effective solution to improve the performance of a company's human resources. The results of this study show the effectiveness of the training can be seen from the participants' understanding. DevSecOps material is one of the materials that is difficult for participants to understand. Therefore, the integration of digital technology is needed in the training process.

Due to the demands of rapid change, a training method that is dense but can be implemented in a short time is needed. Bootcamp is a short-term intensive training with a duration of between 1 week to 3 months that aims to transfer knowledge and skills quickly so that participants are ready to work in a short time. In technology-related fields, the concept of training using the bootcamp approach is becoming increasingly popular (Horton, 2012).

DevSecOps training with a bootcamp approach is an intensive programme designed to provide practical knowledge and skills in integrating security into the software development process using the DevOps approach. The bootcamp covers a wide range of topics, from introduction to the DevSecOps concept, security in the software development lifecycle (SDLC), infrastructure as code (IaC), container security, security automation, CI/CD pipeline, to security monitoring and incident response. Participants will learn about the latest tools and technologies used in the DevSecOps ecosystem, such as static and dynamic security testing tools, infrastructure automation tools, container platforms, and security monitoring tools.

On the other hand, the Bootcamp training method has several advantages over traditional training methods. One of the main advantages is the intensity of the training. Bootcamps allow learners to fully focus on a specific topic for several weeks, so they can absorb information and develop skills very quickly (Tarling et al., 2023). Learners are expected to be fully engaged in the learning process, often through a combination of

lectures, discussions, exercises and projects. Minimal breaks and a fast pace encourage learners to always remain focused and actively engaged in each session.

Conclusion

This research concludes that the training provided to banking institutions needs to be improved through the development of digital technology. bootcamp training strategies offer a unique training approach that is well suited to the needs of today's information technology industry. With a combination of immersive and practical approaches, bootcamp ensures that participants not only acquire knowledge but are also able to apply it effectively. In addition, this research is the first step for future research in conducting training strategies on digital talent of banking.

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