DEVOPS-AN OPEN ACCESS JOURNAL
Open Journal

DevOps-An Open Access Journal

Review

Building a Strong Portfolio for Aspiring DevOps Professionals

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Article information
Received: June 26th, 2023; **Revised:** August 21st, 2023; **Accepted:** November 4th, 2023; **Published:** November 22nd, 2023

Cite this article
Kunchenapalli V. Building a strong portfolio for aspiring DevOps professionals. 2023; 2(2). doi: https://doi.org/10.70705/ppp.doaj.2023.v02.i02.pp71-76

ABSTRACT

This article provides valuable insights and guidance for aspiring DevOps professionals on building a strong portfolio to succeed in the rapidly evolving technology industry. It highlights the importance of DevOps in driving innovation, efficiency, and collaboration within organizations, and emphasizes the growing demand for skilled professionals in this field. The article discusses the versatility and flexibility required in DevOps roles, and outlines essential skills such as version control, build automation, repository management, CI/CD, scripting and automation, configuration management, Infrastructure as Code, containerization, container orchestration, monitoring and observability, and cloud platforms. It also emphasizes the significance of additional skills, including systems design, data structures and algorithms, programming languages, and security. The article provides practical advice on building a compelling DevOps portfolio through personal projects, illustrating expertise, showcasing a range of projects, effective documentation and presentation, and continuous improvement. By following these guidelines and consistently enhancing their skills, aspiring DevOps professionals can position themselves for a successful and rewarding career in this dynamic field.

Keywords
Devops portfolio; Essential skills; Personal projects; Continuous improvement; Versatility in Devops.

INTRODUCTION

In the rapidly evolving world of technology, DevOps has emerged as a critical driver of innovation and efficiency. By seamlessly integrating development and operations practices, DevOps has become synonymous with agility, collaboration, and continuous improvement [1]. As organizations increasingly recognize the value of DevOps in enhancing software delivery and operational efficiency, the demand for skilled professionals in this field has skyrocketed [2].

For ambitious individuals seeking to embark on a thriving career in the dynamic realm of DevOps, crafting a compelling portfolio is of utmost importance. A well-structured portfolio serves as a powerful showcase of your abilities, experiences, and achievements, opening doors to a myriad of exciting opportunities in companies at the forefront of technological advancement [3].

A strong DevOps portfolio demonstrates your proficiency in key areas such as automation, continuous integration and deployment (CI/CD), infrastructure as code (IaC), and monitoring and logging [4]. It highlights your ability to bridge the gap between development and operations teams, fostering a culture of collaboration and shared responsibility [5]. Moreover, a portfolio that showcases your involvement in successful DevOps initiatives, such as implementing CI/CD pipelines or optimizing infrastructure, sets you apart from the competition [6].

In today's competitive technology landscape, building a solid DevOps portfolio is not merely a career aspiration but a strategic necessity. It serves as a testament to your skills, experience, and dedication to staying at the forefront of industry trends and best practices [7]. By investing time and effort into crafting a compelling portfolio, you position yourself for success in a field that is transforming the way software is developed, deployed, and maintained [8].

In the following sections, we will delve into the essential components of a winning DevOps portfolio, providing insights and guidance on how to showcase your expertise effectively. From highlighting relevant projects and certifications to demonstrating your ability to collaborate and innovate, we will explore the key elements that will make your portfolio stand out in the eyes of potential employers and clients [9].

II. THE DEVOPS LANDSCAPE

DevOps has emerged as a critical driver of innovation and efficien-

cy in today's rapidly evolving technological landscape. By seamlessly integrating development and operations practices, DevOps has become synonymous with agility, collaboration, and continuous improvement [10]. As organizations across various industries increasingly recognize the value of DevOps in enhancing software delivery and operational efficiency, the demand for skilled professionals in this field has skyrocketed [11].

For individuals aspiring to establish a thriving career in the dynamic realm of DevOps, crafting a robust portfolio is of paramount importance. A well-structured portfolio not only showcases one's expertise but also opens doors to a wide array of opportunities within organizations that prioritize streamlined software delivery and operational excellence [12]. DevOps professionals play a crucial role in bridging the gap between development and operations teams, fostering collaboration, and ensuring seamless integration and delivery pipelines [13].

As companies across diverse sectors actively seek professionals well-versed in the intricacies of modern software development and deployment, the need for skilled DevOps engineers continues to grow [14]. These professionals are instrumental in driving innovation, optimizing processes, and nurturing a culture of collaboration and efficiency within organizations [15].

The DevOps landscape represents a paradigm shift in the way software is conceived, developed, and delivered [16]. DevOps professionals are at the forefront of this transformative journey, playing a pivotal role in fostering innovation and enhancing efficiency within organizations. They are the catalysts for agility, scalability, and resilience in today's fast-paced digital ecosystem [17].

As the demand for DevOps expertise continues to surge, skilled professionals find themselves at the vanguard of this revolutionary movement, shaping the future of software delivery and operational excellence [18]. They are the architects of change, empowering organizations to adapt, innovate, and thrive in an ever-evolving technological landscape [19].

III. VERSATILITY AND FLEXIBILITY

When it comes to DevOps, being adaptable and flexible are qualities that are highly sought after [20]. Professionals in this career path often have a wide range of skills, which allows them to easily transition between various roles in the field [21]. DevOps professionals are skilled at handling various responsibilities, such as managing infrastructure, optimizing cloud environments, and ensuring system and application reliability [22].

Being able to seamlessly move between roles such as infrastructure engineers, cloud engineers, and site reliability engineers showcases the diverse skill set developed in DevOps [23]. Having a wide range of skills not only makes you more marketable but also increases your chances of advancing in your career [24].

Professionals have the opportunity to explore various paths within DevOps, leveraging their strengths and interests to create a satisfying career trajectory [25].

In addition, the ability of DevOps professionals to adapt is crucial to their success [26]. Adapting to the ever- changing tech landscape requires the ability to seamlessly transition between various roles and technologies [27]. Staying adaptable and flexible not only keeps professionals engaged and challenged but also guarantees their continued relevance in an industry that is constantly evolving [28].

IV. ESSENTIAL SKILLS FOR ASPIRING DEVOPS PROFESSIONALS

Having a strong skill set is crucial for aspiring DevOps professionals who want to thrive in this ever-changing field [29]. Here's an elaboration on the essential skills to focus on:

1. Version Control: It is important to have a good grasp of version control concepts and be able to effectively use tools like Gitlab and GitHub [30]. These skills are essential for any developer. Managing code repositories effectively promotes teamwork, ensuring that everyone is on the same page and that code integration is smooth [31].
2. Build Automation: Understanding build automation tools like Maven and Gradle is essential for success [32]. These tools make it easier to compile, test, and deploy software artifacts, which improves efficiency and reliability in the development pipeline [33].
3. Repository Management: Efficient artifact storage and version control require proficiency in repository management tools like Nexus and Artifactory [34]. Our software seamlessly integrates with CI/CD pipelines, ensuring a smooth and efficient delivery and deployment process [35].
4. CI/CD: Understanding CI/CD concepts and being familiar with tools like Jenkins and ArgoCD is extremely important [36]. These tools streamline the software delivery process, allowing for fast and dependable deployments while maintaining continuous integration and delivery practices [37].
5. Scripting and Automation: Having a good understanding of scripting languages such as Bash and Python allows DevOps professionals to automate repetitive tasks and make operational workflows more efficient [38]. Automation is great for improving efficiency and reducing the need for manual intervention in different processes [39].
6. Configuration Management: Having expertise in configuration management tools like Ansible, Chef, and Puppet is essential [40]. These tools make it easier to set up and manage infrastructure resources, so you can ensure everything is consistent, scalable, and configured the way you want it [41].
7. Infrastructure as Code (IaC): It is important to have a good grasp of Infrastructure as Code (IaC) principles and be familiar with tools such as Terraform and Pulumi [42]. Infrastructure as Code (IaC) enables the automated provisioning and management of infrastructure resources, which enhances scalability, reproducibility, and agility in infrastructure management [43].
8. Containerization: It is a crucial skill to have, and it is important to be proficient in technologies like Docker [44]. Containerization makes it easy to package and deploy applications in portable containers, which helps with scalability, resource usage, and application isolation [45].
9. Container Orchestration: Experience with container orchestration platforms such as Kubernetes is valuable [46]. These platforms allow for easy management and scaling of containerized applications, ensuring they are always available, can handle errors,

and can use resources efficiently [47].

10. Monitoring and Observability: Experience with monitoring and observability tools like Prometheus, Grafana, Datadog, and Splunk is crucial [48]. These tools offer valuable insights into application and infrastructure performance, making it easier to detect issues, troubleshoot problems, and optimize performance [49].

11. Cloud Platforms: Having a strong understanding of cloud platforms such as Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP) is crucial [50]. Having a good grasp of cloud services allows for the smooth implementation and control of flexible, reliable, and budget-friendly cloud-based applications [51].

V. ADDITIONAL/ADVANCED SKILLS

To truly excel in the world of DevOps, it is important to go beyond just mastering the basics. It is about embracing a mindset of constant growth and always seeking to expand your skill set [52]. Let us dive deeper into why it is crucial to complement your core DevOps skills with a solid understanding of systems design, data structures and algorithms, programming languages, and security.

1. Systems Design: DevOps professionals must have a solid grasp of systems design principles. This knowledge is key when it comes to architecting and optimizing intricate software systems [53]. Having a strong grasp of designing scalable, resilient, and efficient systems is crucial for effectively implementing DevOps practices and meeting the ever-changing needs of businesses [54].

2. Data Structures and Algorithms: Understanding data structures and algorithms is crucial for enhancing software performance and efficiency [55]. Professionals in the field of DevOps who possess a solid understanding of data structures and algorithms can come up with creative solutions for intricate issues. They can enhance system performance and make the development and deployment process more efficient [56].

3. Programming Languages: Being skilled in programming languages like Python, Java, Go, or Ruby can greatly improve a DevOps professional's flexibility and efficiency [57]. Programming skills are incredibly useful for automating tasks, writing scripts, and creating personalized tools and solutions to tackle unique challenges in software development, deployment, and operations [58].

4. Security: DevOps professionals must have a strong grasp of security principles and best practices to effectively protect applications, infrastructure, and data [59]. Understanding security protocols, encryption techniques, and vulnerability management is crucial for minimizing security risks and meeting regulatory requirements [60]. This strengthens the organization's overall resilience and security [61].

DevOps professionals can enhance their capabilities and marketability in the field by acquiring additional or advanced skills in systems design, data structures and algorithms, programming languages, and security [62]. Professionals with these additional skills can handle complex challenges, foster innovation, and make valuable contributions to the success of DevOps initiatives in organizations [63]. In addition, having a diverse range of skills makes DevOps professionals highly valuable in a rapidly changing and competitive technology industry [64].

VI. BUILDING YOUR PORTFOLIO

Aspiring DevOps professionals must have a strong portfolio that demonstrates their skills and helps them stand out in a competitive job market [65]. Let us dive into how aspiring DevOps professionals can effectively build their portfolios:

1. Personal Projects: Taking on personal projects is essential for developing a strong DevOps portfolio [66]. These projects provide a platform for individuals to showcase their technical skills in practical situations, highlighting their problem-solving abilities and creativity [67]. Personal projects offer concrete demonstrations of a candidate's abilities, whether it is automating deployment processes, setting up CI/CD pipelines, or optimizing infrastructure configurations [68].

2. Illustrating Expertise: Personal projects can be valuable assets to present during job interviews [69]. They provide interviewers with valuable insights into a candidate's practical experience and their problem- solving approach when faced with technical challenges [70]. Aspiring DevOps professionals can effectively demonstrate their expertise and proficiency in relevant technologies and methodologies by presenting well- documented and well-executed projects [71].

3. Range of Projects: Having a portfolio that includes a variety of projects shows flexibility and the ability to adapt [72]. Those interested in DevOps can explore various projects that encompass different areas of the field, including infrastructure automation, containerization, CI/CD implementation, and cloud deployment [73]. The wide range of experiences highlights the candidate's versatility and their capacity to handle different obstacles in the DevOps field [74].

4. Documentation and Presentation: It is important to properly document and present personal projects to effectively showcase your work [75]. Having a well-documented project that outlines its objectives, methodologies, and outcomes is important, as it helps reviewers and interviewers understand the context [76]. In addition, when you present your projects in a visually appealing and well-organized manner, it can greatly enhance their impact and professionalism [77].

5. Continuous Improvement: Building a DevOps portfolio is a never-ending journey that demands constant improvement and fine-tuning [78]. Aspiring professionals need to keep their portfolios up-to-date by showcasing their most recent projects and accomplishments [79]. This showcases a dedication to personal development and acquiring knowledge, which are greatly appreciated qualities within the DevOps community [80].

VII. CONCLUSION

In conclusion, building a strong portfolio is essential for aspiring DevOps professionals to succeed in the rapidly evolving technology industry. By focusing on essential skills such as version control, build automation, repository management, CI/CD, scripting and automation, configuration management, Infrastructure as Code, containerization, container orchestration, monitoring and observability, and cloud platforms, as well as additional skills like systems design, data structures and algorithms, programming languages, and security, individuals can position themselves for a successful career in DevOps.

Developing a compelling portfolio through personal projects, illustrating expertise, showcasing a range of projects, effective documentation and presentation, and continuous improvement is crucial to stand out in a competitive job market and demonstrate the versatility and adaptability required in this dynamic field.

REFERENCES

[1] L. Bass, I. Weber, and L. Zhu, "DevOps: A Software Architect's Perspective," Addison-Wesley Professional, 2015.

[2] J. Davis and K. Daniels, "Effective DevOps: Building a Culture of Collaboration, Affinity, and Tooling at Scale," O'Reilly Media, 2016.

[3] G. Kim, J. Humble, P. Debois, and J. Willis, "The DevOps Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations," IT Revolution Press, 2016.

[4] A. Verma, "Practical DevOps," Packt Publishing, 2016.

[5] M. Skelton and M. Pais, "Team Topologies: Organizing Business and Technology Teams for Fast Flow," IT Revolution Press, 2019.

[6] J. Forsgren, G. Kim, and N. Kersten, "Accelerate: The Science of Lean Software and DevOps," IT Revolution Press, 2018.

[7] M. Shahin, M. A. Babar, and L. Zhu, "Continuous Integration, Delivery and Deployment: A Systematic Review on Approaches, Tools, Challenges and Practices," IEEE Access, vol. 5, pp. 3909-3943, 2017.

[8] L. E. Lwakatare, P. Kuvaja, and M. Oivo, "Dimensions of DevOps," in Agile Processes in Software Engineering and Extreme Programming, Springer, Cham, 2015, pp. 212-217.

[9] A. Balalaie, A. Heydarnoori, and P. Jamshidi, "Microservices Architecture Enables DevOps: Migration to a Cloud-Native Architecture," IEEE Software, vol. 33, no. 3, pp. 42-52, 2016.

[10] J. Humble and D. Farley, "Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation," Addison-Wesley Professional, 2010.

[11] M. Walls, "Building a DevOps Culture," O'Reilly Media, 2013.

[12] K. Daniels and J. Davis, "Effective DevOps: Building a Culture of Collaboration, Affinity, and Tooling at Scale," O'Reilly Media, 2016.

[13] L. E. Lwakatare, P. Kuvaja, and M. Oivo, "Dimensions of DevOps," in Agile Processes in Software Engineering and Extreme Programming, Springer, Cham, 2015, pp. 212-217.

[14] J. Wettinger, U. Breitenbücher, and F. Leymann, "DevOpSlang - Bridging the Gap Between Development and Operations," in Service-Oriented and Cloud Computing, Springer, Berlin, Heidelberg, 2014, pp. 108- 122.

[15] A. Balalaie, A. Heydarnoori, and P. Jamshidi, "Microservices Architecture Enables DevOps: Migration to a Cloud-Native Architecture," IEEE Software, vol. 33, no. 3, pp. 42-52, 2016.

[16] L. Bass, I. Weber, and L. Zhu, "DevOps: A Software Architect's Perspective," Addison-Wesley Professional, 2015.

[17] J. Forsgren, G. Kim, and N. Kersten, "Accelerate: The Science of Lean Software and DevOps," IT Revolution Press, 2018.

[18] G. Kim, J. Humble, P. Debois, and J. Willis, "The DevOps Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations," IT Revolution Press, 2016.

[19] M. Skelton and M. Pais, "Team Topologies: Organizing Business and Technology Teams for Fast Flow," IT Revolution Press, 2019.

[20] L. E. Lwakatare, P. Kuvaja, and M. Oivo, "An Exploratory Study of DevOps Extending the Dimensions of DevOps with Practices," in Proceedings of the Eleventh International Conference on Software Engineering Advances (ICSEA), 2016, pp. 91-99.

[21] A. Wiedemann, M. Wiesche, and H. Krcmar, "Skill Set for DevOps Teams," in Proceedings of the 52nd Hawaii International Conference on System Sciences, 2019, pp. 7875-7884.

[22] R. Jabbari, N. bin Ali, K. Petersen, and B. Tanveer, "What is DevOps? A Systematic Mapping Study on Definitions and Practices," in Proceedings of the Scientific Workshop Proceedings of XP2016, 2016, pp. 1-11.

[23] C. Ebert, G. Gallardo, J. Hernantes, and N. Serrano, "DevOps," IEEE Software, vol. 33, no. 3, pp. 94-100, 2016.

[24] L. Leite, C. Rocha, F. Kon, D. Milojicic, and P. Meirelles, "A Survey of DevOps Concepts and Challenges," ACM Computing Surveys, vol. 52, no. 6, pp. 1-35, 2019.

[25] S. Jones, J. Noppen, and F. Lettice, "Management Challenges for DevOps Adoption within UK SMEs," in Proceedings of the 2nd International Workshop on Quality-Aware DevOps, 2016, pp. 7-11.

[26] M. Rajkumar, A. K. Pole, V. S. Adige, and P. Mahanta, "DevOps Culture and its Impact on Cloud Delivery and Software Development," in Proceedings of the International Conference on Advances in Computing, Communication, & Automation (ICACCA), 2016, pp. 1-6.

[27] M. Senapathi, J. Buchan, and H. Osman, "DevOps Capabilities, Practices, and Challenges: Insights from a Case Study," in Proceedings of the 22nd International Conference on Evaluation and Assessment in Software Engineering, 2018, pp. 57-67.

[28] H. H. Mohamed, "Adoption of DevOps Practices in Software Development Organizations: An Exploratory Study," in Proceedings of the 2nd Africa and Middle East Conference on Software Engineering, 2016, pp. 1-5.

[29] L. E. Lwakatare, P. Kuvaja, and M. Oivo, "Relationship of DevOps to Agile, Lean and Continuous Deployment," in Product-Focused Software Process Improvement, Springer, Cham, 2016, pp. 399-415.

[30] J. Humble and D. Farley, "Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation," Addison-Wesley Professional, 2010.

[31] M. Shahin, M. A. Babar, and L. Zhu, "Continuous Integration, Delivery and Deployment: A Systematic Review on Approaches, Tools, Challenges and Practices," IEEE Access, vol. 5, pp. 3909-3943, 2017.

[32] M. Meyer, "Continuous Integration and Its Tools," IEEE Software, vol. 31, no. 3, pp. 14-16, 2014.

[33] A. Miller, "A Hundred Days of Continuous Integra-

tion," in Proceedings of the Agile 2008 Conference, 2008, pp. 289-293.

[34] J. Wettinger, U. Breitenbücher, and F. Leymann, "Standards-Based DevOps Automation and Integration Using TOSCA," in Proceedings of the 7th International Conference on Utility and Cloud Computing, 2014, pp. 59-68.

[35] A. Balalaie, A. Heydarnoori, and P. Jamshidi, "Microservices Architecture Enables DevOps: Migration to a Cloud-Native Architecture," IEEE Software, vol. 33, no. 3, pp. 42-52, 2016.

[36] L. Chen, "Continuous Delivery: Overcoming Adoption Challenges," Journal of Systems and Software, vol. 128, pp. 72-86, 2017.

[37] J. Humble and D. Farley, "Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation," Addison-Wesley Professional, 2010.

[38] K. Morris, "Infrastructure as Code: Managing Servers in the Cloud," O'Reilly Media, 2016.

[39] M. Hüttermann, "DevOps for Developers," Apress, 2012.

[40] K. Daniels and J. Davis, "Effective DevOps: Building a Culture of Collaboration, Affinity, and Tooling at Scale," O'Reilly Media, 2016.

[41] J. Wettinger, U. Breitenbücher, and F. Leymann, "DevOpSlang - Bridging the Gap Between Development and Operations," in Service-Oriented and Cloud Computing, Springer, Berlin, Heidelberg, 2014, pp. 108- 122.

[42] K. Morris, "Infrastructure as Code: Managing Servers in the Cloud," O'Reilly Media, 2016.

[43] M. Artac, T. Borovssak, E. Di Nitto, M. Guerriero, and D. A. Tamburri, "DevOps: Introducing Infrastructure-as-Code," in Proceedings of the 39th International Conference on Software Engineering Companion, 2017, pp. 497-498.

[44] D. Merkel, "Docker: Lightweight Linux Containers for Consistent Development and Deployment," Linux Journal, vol. 2014, no. 239, 2014.

[45] R. Peinl, F. Holzschuher, and F. Pfitzer, "Docker Cluster Management for the Cloud - Survey Results and Own Solution," Journal of Grid Computing, vol. 14, no. 2, pp. 265-282, 2016.

[46] B. Burns, B. Grant, D. Oppenheimer, E. Brewer, and J. Wilkes, "Borg, Omega, and Kubernetes," Communications of the ACM, vol. 59, no. 5, pp. 50-57, 2016.

[47] C. Pahl, A. Brogi, J. Soldani, and P. Jamshidi, "Cloud Container Technologies: A State-of-the-Art Review," IEEE Transactions on Cloud Computing, vol. 7, no. 3, pp. 677-692, 2019.

[48] J. Turnbull, "The Art of Monitoring," James Turnbull, 2014.

[49] B. H. Sigelman et al., "Dapper, a Large-Scale Distributed Systems Tracing Infrastructure," Google Technical Report, 2010.

[50] M. Virmani, "Understanding DevOps & Bridging the Gap from Continuous Integration to Continuous Delivery," in Proceedings of the 5th International Conference on Innovative Computing Technology (INTECH), 2015, pp. 78-82.

[51] L. Bass, I. Weber, and L. Zhu, "DevOps: A Software Architect's Perspective," Addison-Wesley Professional, 2015.

[52] R. Jabbari, N. bin Ali, K. Petersen, and B. Tanveer, "What is DevOps? A Systematic Mapping Study on Definitions and Practices," in Proceedings of the Scientific Workshop Proceedings of XP2016, 2016, pp. 1-11.

[53] M. Nygard, "Release It!: Design and Deploy Production-Ready Software," Pragmatic Bookshelf, 2017.

[54] M. Richards, "Software Architecture Patterns," O'Reilly Media, 2015.

[55] T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein, "Introduction to Algorithms," MIT Press, 2009.

[56] S. McConnell, "Code Complete: A Practical Handbook of Software Construction," Microsoft Press, 2004.

[57] A. T. Velte, T. J. Velte, and R. Elsenpeter, "Cloud Computing: A Practical Approach," McGraw-Hill, 2010.

[58] D. Spinellis, "Code Reading: The Open Source Perspective," Addison-Wesley Professional, 2003.

[59] M. Bartock et al., "Cyber Security Framework Manufacturing Profile," National Institute of Standards and Technology, 2017.

[60] R. Krutz and R. Vines, "Cloud Security: A Comprehensive Guide to Secure Cloud Computing," Wiley, 2010.

[61] J. Humble and D. Farley, "Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation," Addison-Wesley Professional, 2010.

[62] S. Murugesan and I. Bojanova, "Encyclopedia of Cloud Computing," Wiley, 2016.

[63] C. A. Cois, J. Yankel, and A. Connell, "Modern DevOps: Optimizing software development through effective system interactions," IEEE International Professional Communication Conference, 2014, pp. 1- 7.

[64] A. Balalaie, A. Heydarnoori, and P. Jamshidi, "Microservices Architecture Enables DevOps: Migration to a Cloud-Native Architecture," IEEE Software, vol. 33, no. 3, pp. 42-52, 2016.

[65] L. E. Lwakatare, P. Kuvaja, and M. Oivo, "Dimensions of DevOps," in International Conference on Agile Software Development, Springer, Cham, 2015, pp. 212-217.

[66] J. Davis and K. Daniels, "Effective DevOps: building a culture of collaboration, affinity, and tooling at scale," O'Reilly Media, Inc., 2016.

[67] A. Dyck, R. Penners, and H. Lichter, "Towards definitions for release engineering and DevOps," in IEEE/ACM 3rd International Workshop on Release Engineering, 2015, pp. 3-3.

[68] L. Bass, I. Weber, and L. Zhu, "DevOps: A Software Architect's Perspective," Addison-Wesley Professional, 2015.

[69] J. Wettinger, U. Breitenbücher, and F. Leymann, "Standards-Based DevOps Automation and Integration Using TOSCA," in Proceedings of the 7th International Conference on Utility and Cloud Computing, 2014, pp. 59-68.

[70] G. Kim, J. Humble, P. Debois, and J. Willis, "The DevOps Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations," IT Revolution Press, 2016.

[71] C. Ebert, G. Gallardo, J. Hernantes, and N. Serrano,

"DevOps," IEEE Software, vol. 33, no. 3, pp. 94-100, 2016.

[72] R. Jabbari, N. bin Ali, K. Petersen, and B. Tanveer, "What is DevOps? A Systematic Mapping Study on Definitions and Practices," in Proceedings of the Scientific Workshop Proceedings of XP2016, 2016, pp. 1-11.

[73] L. E. Lwakatare et al., "DevOps in practice: A multiple case study of five companies," Information and Software Technology, vol. 114, pp. 217-230, 2019.

[74] M. Rajkumar, A. K. Pole, V. S. Adige, and P. Mahanta, "DevOps culture and its impact on cloud delivery and software development," in International Conference on Advances in Computing, Communication, & Automation (ICACCA), 2016, pp. 1-6.

[75] M. Walls, "Building a DevOps Culture," O'Reilly Media, Inc., 2013.

[76] J. Humble and D. Farley, "Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation," Addison-Wesley Professional, 2010.

[77] M. Httermann, "DevOps for developers," Apress, 2012.

[78] S. K. Bang, S. Chung, Y. Choh, and M. Dupuis, "A grounded theory analysis of modern web applications: knowledge, skills, and abilities for DevOps," in Proceedings of the 2nd annual conference on Research in information technology, 2013, pp. 61-62.

[79] T. Dingsøyr, C. Lassenius, T. Dybå, D. Sjøberg, and N. B. Moe, "Agile Software Development: An Introduction and Overview," in Agile Software Development, Springer, Berlin, Heidelberg, 2010, pp. 1- 13.

[80] J. Willis, "What DevOps Means to Me," in DevOps for Digital Leaders, Apress, Berkeley, CA, 2016, pp. 97- 108.