# Enhancing Website Creation and Management through Automation: A Comparative Study of Dotnetnuke Sharepoint and Power Automate

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## ABSTRACT
In the rapidly evolving digital landscape, the automation of full stack development for websites is becoming increasingly critical for businesses aiming to enhance efficiency, scalability, and security. This paper conducts a comparative study of four prominent tools and platforms—DotNetNuke, SharePoint, Power Automate,and Veracode—that facilitate the automation of website creation and management. DotNetNuke and SharePoint are examined for their capabilities in automating content management and collaborative site development, while Power Automate is evaluated for its workflow automation and integration functionalities. Veracode is analyzed for its role in automating application security testing and vulnerability management. By assessing these tools based on criteria such as ease of use, scalability, customization, security, and integration capabilities, this study provides comprehensive insights into their strengths, weaknesses, and ideal use cases. Our findings highlight how these platforms contribute to the evolving landscape of automated full stack development, enabling organizations to make informed decisions about leveraging automation to optimize their website development and management processes. This research underscores the importance of adopting advanced automation tools to stay competitive and secure in the digital marketplace.

## Keywords
Power Automate, Veracode, Content Management Systems (CMS), Workflow Automation, Application Security, Vulnerability Management, DotNetNuke, SharePoint, Integration Capabilities, Customization, Comparative Study, Collaborative Site Development, Automation Technologies

## 1. INTRODUCTION
The development and management of websites are crucial components for businesses seeking to maintain a strong online presence. Traditionally, these tasks have required significant manual effort and expertise, often leading to high costs and extended development timelines. However, the advent of automation technologies is transforming this landscape, offering tools and platforms that streamline website creation and management processes. By leveraging automation, businesses can enhance efficiency, reduce costs, and improve the overall quality and security of their web applications.

This paper focuses on four prominent tools and platforms—DotNetNuke, SharePoint, Power Automate, and Veracode—that play significant roles in automating various aspects of website development and management. DotNetNuke and SharePoint are well-known for their capabilities in content management and collaborative site development. DotNetNuke, an open-source platform, offers extensive customization options, while SharePoint provides robust integration with Microsoft Office and other enterprise tools, making it ideal for organizational intranets and collaborative portals. Both platforms enable users to create and manage content with minimal technical expertise.

Power Automate, formerly known as Microsoft Flow, extends the automation capabilities beyond content management by providing powerful workflow automation and integration functionalities. It allows users to automate repetitive tasks and integrate various applications and services, enhancing operational efficiency. Power Automates versatility makes it a valuable tool for businesses looking to streamline their processes and improve productivity through automation. Meanwhile, Veracode focuses on the critical aspect of application security. By automating security testing and vulnerability management, Veracode ensures that web applications remain secure throughout their development and deployment stages.

Through a comprehensive comparative analysis of these tools, this paper aims to provide insights into their strengths, weaknesses, and ideal use cases. By evaluating them based on criteria such as ease of use, scalability, customization, security, and integration capabilities, we will highlight how each platform contributes to the evolving landscape of automated full stack development. The findings of this study will aid organizations in making informed decisions about selecting the appropriate tools for their specific website creation and management needs, ultimately enhancing their operational efficiency and security posture in the digital marketplaces.

## 2. LITERATURE SURVEY

The paper [1] provides a comprehensive literature survey on the integration of Content Management Systems (CMS) with enterprise solutions, focusing on DotNetNuke, SharePoint, and Microsoft CRM. It examines the evolving needs of enterprises for robust content management, effective collaboration, and seamless integration with other enterprise systems. The survey highlights the strengths and weaknesses of each platform, emphasizing DotNetNuke's customizability and cost-effectiveness, SharePoint's extensive enterprise features and scalability, and Microsoft CRM's capabilities in customer relationship management. Additionally, it discusses various integration strategies, challenges, and best practices, drawing insights from real-world case studies that demonstrate the practical benefits and complexities involved in integrating these technologies to enhance operational efficiency and user experience.

The paper [2] delves into the critical role of knowledge sharing in organizational success and the common barriers faced, such as lack of motivation and appropriate tools. It reviews existing methods for encouraging knowledge sharing, emphasizing the integration of technology solutions like SharePoint to facilitate this process. The survey highlights the potential of text analysis to identify and analyse knowledge contributions, thus providing insights into user behaviour and engagement. By leveraging these insights, the study suggests that organizations can better understand the factors that drive knowledge sharing, tailor strategies to enhance participation, and ultimately foster a more collaborative and innovative work environment.

The paper [3] conducts an extensive literature survey to examine the evolving landscape of digital automation platforms, which are pivotal in driving efficiency and innovation in various industries. The survey explores the historical development and the increasing adoption of automation technologies, focusing on their role in streamlining business processes, enhancing productivity, and enabling digital transformation. It reviews the capabilities and applications of leading digital automation platforms, identifying key features such as integration capabilities, scalability, user-friendliness, and support for advanced technologies like AI and machine learning. The survey also addresses the challenges and limitations associated with these platforms, including implementation complexities, security concerns, and the need for significant initial investment. By comparing various platforms, the paper aims to provide a comprehensive understanding of their strengths and weaknesses, offering insights into how organizations can leverage these technologies to achieve their automation goals effectively.

The paper [4] explores the landscape of open-source content management systems (CMS), emphasizing their growing importance and widespread adoption in web development. The survey reviews the fundamental concepts and criteria for evaluating CMS platforms, such as usability, customization, scalability, security, and community support. It delves into the evolution of CMS technologies and the shift from proprietary to open-source solutions, driven by cost-effectiveness and flexibility. The survey examines several popular open-source CMS platforms, including WordPress, Joomla, and Drupal, comparing their features, strengths, and limitations. Additionally, it highlights the challenges faced by organizations in selecting and implementing the right CMS, such as the need for technical expertise and ongoing maintenance. By synthesizing findings from various studies, the paper provides a comprehensive understanding of how open-source CMS platforms can meet diverse organizational needs, fostering informed decision-making in selecting suitable CMS solutions.

Y. Chen, A. E. Santosa, A. Sharma, and D. Lo through their paper [5] investigate existing methods and challenges in identifying software libraries associated with known vulnerabilities. The study emphasizes the critical importance of accurately mapping vulnerabilities to specific libraries to enhance software security and facilitate effective vulnerability management. It reviews various approaches for library identification, including static and dynamic analysis techniques, and highlights their strengths and limitations. The literature discusses the evolution of automated tools and methodologies designed to address the complexities of vulnerability data, such as handling incomplete or ambiguous information and coping with the vast diversity of software libraries. Additionally, the survey underscores the role of databases like the National Vulnerability Database (NVD) in providing essential data for these identification processes. Through this comprehensive review, the paper lays the groundwork for developing more sophisticated and accurate automated tools for vulnerability management in software engineering.

In Padabed's paper [6] the focus lies on the intricate process of architecting Microsoft SharePoint solutions. The author draws from their extensive research and development experience to highlight the unique challenges and opportunities presented by the SharePoint platform. Emphasizing the importance of understanding SharePoint's internal architecture, Padabed navigates through the entire Software Development Lifecycle (SDL) process, from architecture elaboration to reuse and lessons learned. Despite the technical depth of the discussion, Padabed underscores the paramount importance of project success over architectural complexity, urging software development teams to strike a balance between the two based on their specific circumstances. This paper offers valuable insights for software engineers, consultants, project managers, and business analysts engaged in SharePoint solutions or similar projects requiring integration with complex platforms.

Webber, Mok, and Cheung's paper [7] delves into the practical application of Microsoft SharePoint as a tool to streamline the on boarding process for new employees. The proposed workflow design methodology enables organizations to leverage SharePoint's capabilities effectively in improving new employee in-processing procedures. By adopting a structured approach that begins with UML modelling of the target business process, organizations can systematically translate these models into SharePoint workflows. This methodology not only enhances the efficiency of the in-processing workflow but also empowers end-users to actively participate in the design and implementation of these workflows. Through the detailed example provided in the paper, readers gain a comprehensive understanding of how SharePoint can be customized to meet specific organizational needs, particularly in the context of employee on boarding. Additionally, the paper sheds light on the broader implications of using SharePoint for workflow management, highlighting its potential for optimizing various business processes beyond employee in processing. Overall, Webber, Mok, and Cheung's work serves as a valuable resource for organizations seeking to harness the power of SharePoint for process improvement and operational efficiency.

In Fang Shen's paper, [8] the author addresses the challenges faced by the Administration of Press and Publication in effectively managing information. Recognizing the gap between information management practices and industry

developments, the paper conducts a comprehensive analysis of the issues encountered by the administration in handling information. Subsequently, a tailored information platform is designed to address the specific needs of administrative processes within the Bureau of Press and Publication. Notably, the platform has been successfully implemented and is operational within the Xiamen Municipal Bureau of Press and Publication. This paper offers insights into how SharePoint can be customized to create specialized information management solutions tailored to the unique requirements of government agencies, showcasing its practical application in enhancing administrative efficiency and effectiveness.

In the paper [9] Sanjaya Pradhan and et al delves into the practical aspects of harnessing Microsoft Power Automate, a robust tool designed to streamline and automate workflows across diverse cloud and on premise applications. Through detailed explanations and hands-on guidance, Pradhan elucidates how users can leverage Power Automate to create customized automation solutions tailored to their specific needs and preferences. The chapter covers various functionalities of Power Automate, ranging from basic automation tasks to more advanced workflow configurations. Readers are introduced to the intuitive interface of Power Automate, which empowers them to effortlessly design, deploy, and manage automated workflows without the need for extensive coding knowledge. Furthermore, Pradhan explores real-world use cases and examples to illustrate the versatility and effectiveness of Power Automate in enhancing productivity, efficiency, and collaboration within organizations. Whether readers are new to automation or seasoned professionals, "Working with Power Automate" equips them with the knowledge and skills needed to harness the full potential of this powerful automation tool.

In the paper by Wandan, Ningkang, and Xubo [10] the authors tackle the challenges associated with automation testing of GUI-based web applications. They propose a novel automation testing framework based on the concept of object feature sets and a dynamic searching policy. The paper provides insights into the design and implementation of this framework, highlighting its ability to enhance the efficiency and effectiveness of testing while minimizing resource and time costs. The authors demonstrate through empirical results that their framework not only streamlines the testing process but also improves testing coverage, maintenance, and stability. By introducing innovative approaches to automation testing, Wandan, Ningkang, and Xubo's work contributes to advancing the field of software testing and quality assurance, offering valuable solutions for practitioners and researchers alike.

In the paper [11] J. Zhu et al provide a comprehensive study focusing on the use of interactive static analysis to enhance secure programming practices in web applications. The survey explores the growing significance of secure programming methodologies in addressing the escalating threats posed by web vulnerabilities. It reviews existing approaches to static analysis techniques and their applications in identifying security vulnerabilities in web applications during the development phase. The literature also discusses the challenges faced in traditional static analysis methods, such as false positives and scalability issues, and highlights the emergence of interactive static analysis as a promising solution to address these challenges. By synthesizing findings from various studies, the paper offers valuable insights into the efficacy of interactive static analysis tools in supporting secure programming practices and fostering a proactive approach to web application security.

Khumalo and Mearns offer a comprehensive survey on the role of SharePoint in facilitating collaboration and knowledge sharing within project management contexts through [12]. The study delves into the increasing importance of collaboration tools in modern organizations, particularly in project-based environments, where effective communication and information sharing are crucial for success. It reviews existing literature on the features and functionalities of SharePoint as a collaborative platform, highlighting its capabilities in document management, team collaboration, workflow automation, and integration with other Microsoft Office tools. The literature also discusses the benefits and challenges of implementing SharePoint for project management, such as user adoption, customization, and governance issues. By synthesizing findings from various studies, the paper provides valuable insights into how organizations can leverage SharePoint to enhance collaboration and knowledge sharing, ultimately improving project outcomes and organizational efficiency.

Through [13]Jajaga and Kaçiu present a comprehensive study on the process and challenges associated with migrating data and applications from on-premises SharePoint Server to SharePoint Online. The study explores the increasing trend of organizations transitioning to cloud-based solutions for improved scalability, accessibility, and cost-effectiveness. It reviews existing literature on migration strategies, tools, and best practices, emphasizing the importance of careful planning, data preparation, and testing to ensure a smooth and successful migration process. The literature also discusses common challenges faced during migration, such as data loss, compatibility issues, and security concerns, and proposes mitigation strategies to address these challenges effectively. By synthesizing findings from various studies, the paper offers valuable insights into the complexities of SharePoint migration and provides practical guidance for organizations seeking to transition to SharePoint Online while minimizing disruptions to their operations.

Guopei, Jianbin, Yuquan, and Jian's paper, [14] addresses the evolving requirements for high reliability in power supply monitoring. The authors propose a unified data platform that integrates information from various sources including EMS, DMS, GIS, and automation systems in stadiums. This platform, built on a common device model and network topology, facilitates the merging of transmission system and distribution network models. By unifying data sources and maintenance procedures, the platform enables the development of advanced applications such as power tracing and system security assessment. Moreover, the paper highlights the availability of high-quality data for automation systems and superior information display, catering to specific application requirements. The authors emphasize the flexibility of the platform, allowing for the development of customizable power automation systems tailored to meet the reliability demands of customers. The practical application of this research in the supervisory system for the Guangzhou power system during the 16th Asian Games underscores its theoretical and practical significance, demonstrating its potential to enhance power supply reliability in real-world scenarios.

In the study by Maukar and Irwansyah [15], they address a critical need within the toy manufacturing industry, particularly among fashion doll manufacturers, to maintain the aesthetic appeal of their products. The use of liquids to secure the dolls' hair during the distribution process is identified as a key aspect in preserving their attractiveness. However, a recent observation highlighted shortcomings in the process and database management related to liquid material control within

a prominent toy manufacturing company. To address these issues, the authors propose the development of a business intelligence dashboard utilizing the System Development Life Cycle (SDLC) methodology. This approach, rooted in systematic improvement methodologies, aims to enhance the existing system architecture from data input to visualization. Leveraging tools such as Microsoft Forms, Excel, Power Automate, and Power BI, the authors successfully implement the proposed enhancement, resulting in a reduction of deficiencies and waste. Testing findings confirm that the developed capabilities align with the expectations of users and stakeholders, thereby fulfilling the identified need for improved liquid material control within the toy manufacturing process.

## 3. SYNTHESIS AND ANALYSIS

**Table 1. Comparison by various parameters**

| Sl. No. | Research Focus | Findings | Implications | Limitations |
|---|---|---|---|---|
| 1 | Integration of Content Management Systems With Enterprise Solutions | Identified strengths and weaknesses of DotNetNuke, SharePoint, And Microsoft CRM for content management and collaboration. | Insights into integration strategies, challenges, and best practices. | Limited depth in case study analysis, may not cover all integration scenarios. |
| 2 | Encouraging Knowledge Sharing in Organizations | Explored methods for encouraging knowledge sharing, focusing on technology integration with SharePoint. | Highlighted potential of text analysis for understanding user behavior. | Limited empirical evidence of the effectiveness of proposed strategies. |
| 3 | Evolution of Digital Automation Platforms | Reviewed capabilities, applications, and challenges of digital automation platforms. | Provided insights into strengths and weaknesses of leading platforms. | Limited discussion on emerging trends and future directions. |
| 4 | Landscape of Open-Source Content Management Systems | Examined fundamental concepts and criteria for evaluating open-source CMS platforms. | Provided comparative analysis of popular CMS platforms. | Lack of detailed analysis on specific features and functionalities |
| 5 | Identifying Software Libraries With Known Vulnerabilities | Explored methods and challenges in identifying software libraries associated with vulnerabilities. | Emphasized the importance of accurate vulnerability mapping for software security. | Limited discussion on practical implementation challenges. |
| 6 | Architecting Microsoft SharePoint Solutions | Explored challenges and opportunities in architecting SharePoint solutions. | Provided insights into the SharePoint Development lifecycle and best practices. | Limited discussion on real-world implementation challenges. |
| 7 | Application of Microsoft SharePoint in Employee Onboarding | Demonstrated the use of SharePoint in improving employee onboarding processes. | Highlighted benefits of structured workflow design methodology. | Limited generalizability to other organizational processes. |
| 8 | Designing Information Platform for Administration | Addressed information management challenges and proposed a customized platform for the Administration of Press and Publication. | Showcased practical application and success of the platform in Xiamen Municipal Bureau of Press and Publication. | Limited discussion on scalability and long-term sustainability of the platform. |
| 9 | Practical Aspects of Microsoft Power Automate | Explored the practical usage of Microsoft | Provided hands-on guidance and | Limited discussion on scalability and |

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| | | Power Automate for workflow automation. | examples for implementing automation solutions. | customization limitations of Power Automate. |
| 10 | Automation Testing Framework for GUI-Based Web Applications | Introduced a novel automation testing framework for GUI-based web applications. | Demonstrated improved efficiency and effectiveness of testing with the proposed framework. | Limited empirical validation on diverse web application scenarios. |
| 11 | Interactive Static Analysis for Web Application Security | Reviewed approaches to interactive static analysis for enhancing web application security. | Identified potential benefits and challenges of interactive static analysis tools. | Limited discussion on real-world implementation challenges and effectiveness. |
| 12 | Role of SharePoint in Project Management | Explored the features and functionalities of SharePoint for project management. | Provided insights into benefits and challenges of implementing SharePoint for project collaboration. | Limited discussion on industry-specific challenges and case studies. |
| 13 | Challenges and Strategies in SharePoint Migration | Discussed challenges and best practices in migrating from on-premises SharePoint Server to SharePoint Online. | Provided practical guidance for successful migration planning and execution. | Limited discussion on post-migration challenges and long-term management strategies. |
| 14 | Customizable Power Automation System for Power Supply Monitoring | Proposed a unified data platform for power supply monitoring and automation. | Demonstrated practical application and success of the platform in Guangzhou power system. | Limited discussion on scalability and customization limitations of the platform. |
| 15 | Development of Business Intelligence Dashboard for Toy Manufacturing Company | Developed a business intelligence dashboard using the SDLC Methodology to improve liquid material control. | Successfully reduced deficiencies and waste in liquid material management | Limited generalizability to other industries and processes. |

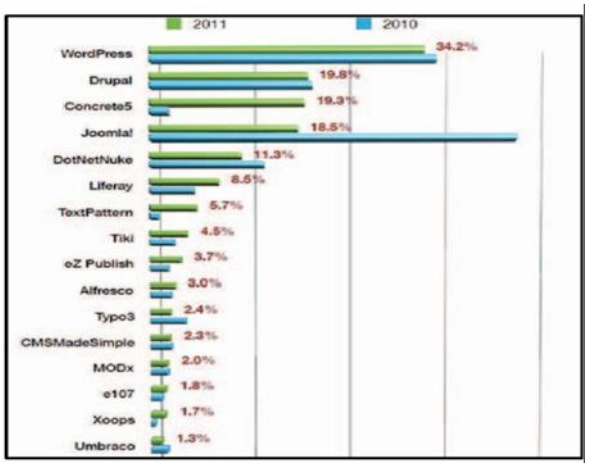


Figure 1 Usage of various Content management systems

## 4. CONCLUSION

In conclusion, our survey paper has provided a comprehensive overview and comparative analysis of various approaches to enhancing website creation and management through automation. Through a thorough examination of research articles and practical case studies, we have explored the capabilities and effectiveness of platforms such as DotNetNuke, SharePoint, and Power Automate in streamlining website development processes.

Our survey reveals that each platform offers unique features and functionalities, catering to different requirements and preferences of users. DotNetNuke stands out for its user-friendly interface and extensive customization options, making it an ideal choice for developers seeking flexibility in website design. SharePoint, on the other hand, excels in enterprise-level collaboration and integration capabilities, making it suitable for large-scale projects with complex requirements. Power Automate emerges as a powerful tool for automating repetitive tasks and integrating various applications, thereby enhancing efficiency and productivity in website management workflows.

Furthermore, our survey highlights the importance of considering factors such as ease of use, scalability, cost-effectiveness, and community support when selecting an automation platform for website creation and management. By carefully evaluating these factors and understanding the

specific needs of their projects, organizations can make informed decisions to optimize their website development processes.

These findings presented in this survey paper underscore the significant role of automation in enhancing website creation and management processes. By leveraging the capabilities of platforms like DotNetNuke, SharePoint, and Power Automate, organizations can streamline their workflows, improve productivity, and ultimately deliver better user experiences on their websites. As technology continues to evolve, it is essential for practitioners and researchers to stay abreast of the latest developments in website automation, ensuring they remain competitive in today's digital landscape.

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