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## Editorial

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Welcome to V11N4 of *IJWET*. There are four papers in this issue. The first paper is 'The employee factor: perspectives on implementing enterprise social software' by Dania Radi, Stephan Schlögl, Clint Leahr and Reinhard C. Bernsteiner. According to these authors, implementation strategies for enterprise social software (ESS) often focus too much on technical details and thereby neglect the need for understanding the employee perspective. Yet, the success of an implementation usually depends on the employees' attitudes towards the offered solution. This paper investigates various challenges of implementing enterprise social networks (ESN). A special focus of the presented work is set on the challenge factor 'employees' and their attitudes towards social networks at the workplace. A mixed research methodology combining a questionnaire study and expert interviews was used to explore user perspectives as well as current implementation practices of ESS.

Their results show that employees see ESS usage as largely positive. These authors argue that the perceived benefits include less email traffic, easier collaboration, more accessible expert knowledge, and lower communication barriers. However, it was also found that employees may be seen as the main challenge factor impeding a successful ESS implementation. In particular security concerns, the lack of guidelines, and the often missing appreciation for some of the benefits may require an adequate communication strategy. To that end, our research results show that the integration of ESS is rather challenging and highly dependent on the level and quality of communication. More studies are required to verify the results.

The second paper is 'Web navigation prediction using Markov-based models: an experimental study' by Honey Jindal and Neetu Sardana. According to Jindal and Sardana, predicting the next set of web pages that a user may visit based on the knowledge of previously visited web pages is problematic. Web navigation prediction (WNP) has attracted a lot of research interest on the web because it can be used to improve the web cache performance, improve search engines, recommend related pages, personalise the browsing experience improve website design, location prediction and anomaly detection. These authors argue that a Markov model and its variations are widely used to represent and analyse the navigational data on web. It can also be used to predict user navigation behaviour.

Markov models have been used extensively to navigate patterns on the web. Research is still in progress for determining the suitability of Markov models for various web applications. The authors in this paper present comparison of existing Markov-based

models for WNP, and its merit lies in the non-trivial conclusions derived by the experiments. Comparison is done in terms of state-space complexity, failure cases, coverage, prediction accuracy and model accuracy. The models considered are the traditional Markov model (MM), all-Kth Markov model (KMM), modified Markov model (MMM), All-Kth modified Markov model (KMMM), frequency-pruned Markov model (FPMM), confidence-pruned Markov model (CPMM) and error-pruned Markov model (EPMM). These authors found that despite the wide usage of the Markov models for prediction of future events, we have observed that the Markov models do not predict for unseen data, which results in more failure cases. This also affects the accuracy. Although, the all-Kth modified Markov model is found to be the best suited model for navigation prediction due to its low failure cases and high accuracy, but its state-space complexity is a major concern which needs to be addressed.

The third paper is 'Revealing academic web interlinking motives through webometrics and statistical techniques: Nigerian university websites as a case study' by Anthony M. Nwohiri and Andrey A. Pechnikov. In this paper, the authors argue that, poor understanding of the motive behind creation of web links is one of the major obstacles in the emerging scientific field of webometrics. In practice, it is very difficult, or perhaps impossible to evaluate and categorise web communication in general, due to both the heterogeneity of web publications and traditional problems involved in retrieving the appropriate information, even when the size of the web is not factored in. They further went on to suggest that applying only quantitative assessment without taking into account the importance of each hyperlink would yield quite a rough and inaccurate webometrics model. Thus, it is important to study the reasons for creating the hyperlinks. They believe that there is now a considerable body of research to show that patterns of web linking between universities can be strongly associated with research productivity.

Applying only quantitative assessment without taking into account the importance of each hyperlink would yield quite a rough and inaccurate webometrics model. Studying the reasons for creating the hyperlinks makes such models more adequate and closer to reality. The authors examined the websites of the universities of Africa's most populous country Nigeria. The goal was to unearth the reasons why external hyperlinks are placed on these sites and identify any peculiarities by geographical location. Academic website interlinking motivations were formulated. Over 6,000 hyperlinks placed on the websites of 86 Nigerian universities were categorised under these interlinking motivations. A Chi-squared test revealed distinctive features, which are characteristic of specific geographical regions of Nigeria. One of the main conclusions is that for Nigerian universities, link creation motivations are strongly dependent on geographical region. These authors argue that the results obtained could be of great importance for academic webpage developers and authors. The results can help website/page developers to modify their work towards enhancing the use of external hyperlinks as a major communication tool on the web. Further work is needed to validate the finding.

The last paper is 'Reference software architecture for improving modifiability of personalised web applications – a controlled experiment' by Luz-Viviana Cobaleda, Raúl Mazo, Jorge Luis Risco Becerra and John-Freddy Duitama. According to these authors, although web personalisation has been studied for the last two decades, there remains a need to address current challenges: context-awareness and the inclusion in a business environment. The variety of mobile devices and their continuous technological evolution demands the development of new personalisation strategies. Additionally, two factors complicate the inclusion of personalised web applications in a business

environment: the frequent change of personalisation strategies for each business, and the technical complexity to integrate these strategies in a short time.

In this paper, the authors propose a reference software architecture that uses the software modifiability as the main architectural drive and is based on component weaving process. This reference architecture uses software component weaving as an alternative to tackling the challenges of including personalised behaviour into web applications. They argue that their proposed approach facilitates the enterprises to adopt web-personalised systems into their business as a strategic tool. These authors validate their reference architecture through a controlled experiment in a real business case taken from a Brazilian e-commerce enterprise. They compared five change scenarios that are implemented under two architectures: experimental and control architecture. According to these authors, the implementation of the change scenarios under the two architectures allowed them to identify the benefits in complexity of integration of personalised behaviour in a web personalised application. In spite of that, they cannot guarantee that the reference architecture will always provide similar results on other domains and applications. More empirical studies are required to test more scenarios, experiment with different domains such as e-health or e-learning; and integrate model driven development (MDD) approaches and technologies to automatically derive the web applications code.