

# Emergent Leaders and Transformational in Effective Leadership Development in Information Technology

<sup>1</sup>Yousef A.Baker El-Ebiary, <sup>2</sup>Ahmed Hassan Hassan, <sup>3</sup>Waheeb Abu-Ulbeh, <sup>4\*</sup>M. Hafiz Yusoff, <sup>5</sup>Seita Almandeel, <sup>6</sup>Bishwajeet Pandey

<sup>1</sup>Assoc. Prof.Dr., Faculty of Informatics and Computing, UniSZA University, Malaysia,  
yousefelebiary@unisza.edu.my

<sup>2</sup>Dr., Ajloun National University, Faculty of Information Technology, Jordan,  
Ahmed\_hassan@anu.edu.jo

<sup>3</sup>Palestine Ahliya University, Faculty of Information Technology  
wakf.utm@gmail.com

<sup>4\*</sup>Assoc. Prof.Dr., Faculty of Informatics and Computing, UniSZA University, Malaysia,  
hafizyusoff@unisza.edu.my

<sup>5</sup>Assoc. Prof.Dr., Faculty of Economics and Administration, King Abdulaziz University, Jeddah, Saudi Arabia  
sialmandeel@kau.edu.sa

<sup>6</sup>Postdoctoral Researcher, Gyancity Research Lab, India  
gyancity@gyancity.com

## Article Info

Volume 83

Page Number: 17095 - 17102

Publication Issue:

March - April 2020

## Abstract

The recent years have seen the growing interest towards effective leadership among scholars and yet, studies that examine leader development are still very few. Information technology (IT) is powerful and important as it can form and disrupt companies while also imparting companies with potential to expand. Meanwhile, leadership is highly restricted by context, and relevantly, to initiate the development of best practices for IT leadership development, the present paper attempted to study leadership development in the IT setting. Leadership was broadly reviewed in this conceptual paper, followed by a unified review of literature concerning leadership in the context of IT. Three recommendations for the attainment of effective development of IT leadership were elucidated in this study. Formal mentoring and vigorous feedback incorporated into the development plan should be part of the IT leadership development. For long-term success, IT leadership development should be made a primary process. Equally crucial for IT are the budding transformational leadership. IT departments should be the body implementing the proposed leadership development programs, considering that this study has found leadership to be among the most challenging skills to uncover in IT workforce. Training professionals can peruse the findings of this study in improving the leadership capability and development in the organization's IT unit. The reviewed literature found that within the IT context, the quantitative peer-reviewed research focusing on leadership development is unavailable. This denotes the need for more empirical works. Increased understanding of leadership development will be of value to both practitioners and researchers of IT.

**Keywords:** Information technology, Mentoring, Information Systems (IS), Leadership development, Transformational leadership, Emergent leadership.

## Article History

Article Received: 24 July 2019

Revised: 12 September 2019

Accepted: 15 February 2020

Publication: 28 April 2020

## I. Introduction

In an organization, effective leadership intensifies the organization's agility, management's capacity, employee's trust,

commitment and job satisfaction. It also increases the readiness of employees in increasing their effort and creative behaviour through IT-business alignment and IT competency. Hence, effective leadership is vital in the success of organization

[1]. The reputation of IT as a context for organizational behaviour has been increasing as IT firms develop major industries while also being part of the considerable recurrent as well as discretionary expenses within other firms.

Theories concerning effective leadership behaviours have been proposed and among them is Transformational Leadership (TL). Somehow, it is still uncertain as to how effective leadership skills are developed. Furthermore, leadership is primarily dictated by context, and for this reason, the scrutiny of leadership and its development should be executed in an environment that is highly contextualized. In the context of IT, the development of leadership has not received much attention from researchers. Meanwhile, a study among members of Society for Information Management involving 485 Chief Information Officers (CIOs) proved the importance of leadership as a soft skill among IT employees and yet, this skill was found to be the second most challenging to discover among them. Hence, through an integrative literature review, the present study attempted to delve into the budding subject of leadership alongside its progress in the context of IT [2].

Accordingly, leadership and its development process will be reviewed in the next section, with the focus on leadership behaviours and styles presented in the extant literature. The gap found in the IT leadership development literature could therefore be filled as this study delineates the effective Transformational Leadership (TL) behaviours, being the most popularly explored in the IT context [3]. Also, for the development of skills of leadership and of the sustainable competitive advantage in the context of IT, the present study proposes several appropriate programs.

## II. Leadership

The trait and skill-based models associated with effective leadership have been proposed by

several leadership studies. Traits and skills are distinct from one another in a sense that traits are inherent and cannot easily change, whereas skills are not, meaning that, skills can be developed and changed over time [4]. In the context of Human Resource Development, leadership models that are skill-based are highly valuable because they are linked to both training and talent development. The possibility of developing the workforce into leaders implies that leadership can be developed [5]. According to scholars who examine the concept of trait through skill-based models, personality traits appear to be correlated with leadership skills. Besides that, the authors found correlation between overall leadership effectiveness and conscientiousness. Meanwhile, other personality traits and TL appear to show weak association. Hence, having the knowledge on how to develop leadership behaviours is essential [6].

The effects of TL have been the main focus of many studies on IT employees. Notably, TL appears to be among the most popularly explored approaches of leadership. In the definition of TL, four Is are applied as follows: inspirational motivation, individualized consideration, idealized influence, and intellectual stimulation [7].

Multifactor Leadership Questionnaire (MLQ) is a distinctly valid implement used in gauging leadership; this instrument has been used in the investigation of TL [8]. A continuum of leadership behaviours is measured in MLQ. On the continuum, passive-avoidant leadership contains laissez-faire and management by exception-passive behaviours and this construct is the opposite of TL [9]. Meanwhile, transactional leadership is represented by management by exception active and contingent reward employed by leaders in the assurance of followers' compliance (i.e., the use of rewards and punishments). As for TL; [10] it involves the four Is as previously mentioned. Accordingly, leaders who apply TL would provide guidance to

followers toward a common vision for the purpose of improving the followers' motivation and commitment [11].

TL has been proven to be strongly linked to followers' motivation, satisfaction with leader, job satisfaction, and leadership effectiveness ratings. TL is also greatly associated with leader-member exchange (LMX) [12], by way of common dependence on the establishment of trust, respect, the establishment of clear role expectations, and the use of democratic approach in the resolution of problems [13]. TL generates LMX of high rate; it is possible to have transformational LMX at certain times and under certain conditions, at least. This implies the positive and constant effect of TL behaviours pertaining to the relation between followers and leaders. TL is hence undeniably important [14].

### III. Methodology

Google Scholar, EBSCO Business Source Complete, in addition to the University Library were employed in the execution of peer-reviewed research articles. Among the keywords used were "information technology" AND "leadership" along with "information systems" AND "leadership." Further, in searching the word "leadership," the Association for Information Systems journal database was utilized in this study. Countless articles were found but a lot had to be eliminated as they were based on non-professional settings (e.g., undergraduate education or online communities) [15]. Articles focusing on the industry segment "leadership" of organizations were eliminated as well. Similarly, articles that operationalized leadership as support for certain policy (e.g., quality management) considering that supporting policies do not reveal the content of leadership behaviour or qualities [16].

As assurance that all articles were not missed, the search was iteratively performed whereby the sources were viewed more than once. The search

terms used in this study were broad and inclusive and this allowed the articles related to the topic of interest to be identified. This study found a total of 13 quantitative studies, 5 qualitative studies, and 5 conceptual papers that cover leadership and leadership development within the IT setting. Notably, considering that the relevant articles were scarce, the articles on non-IT development of leadership were also incorporated in the formation of propositions.

### IV. IT Leadership

The function of IT in organizations is usually very specialized, and hence, professional IT knowledge in addition to the knowledge concerning the organization and the business industry of the organization is required. As such, IT leadership and IT intelligence are linked to one another, and IT leadership can assist in the formation of the stability and innovation of the organization. Considering that the effectiveness of leadership development is only realizable when there is relevancy to the competencies to be developed; the behaviours and competencies that are regarded as effective in the context of IT will be addressed in this paper first [17].

In leadership studies, the levels in the organizational hierarchy need to be differentiated. Among low-level IT employees, technical knowledge is crucial, while among middle managers, collaboration is progressively important, and for CIOs, or for the IT employee in the highest ranking, skills of people management and leadership are vital. For a large portion of extant research, the focus has been on CIO, while middle managers have not been sufficiently examined in this context. For researchers, engaging just one executive for research at countless organizations is likely to be much simpler as opposed to examining many individuals in a number of organizations, considering that only the latter is with the inclination to call for a recognized link to the organisations under study. Such situation is a

problem considering the increasing acknowledgement that at all hierarchical levels, IT needs ubiquitous and promising leadership [18].

In the contexts of IT especially, the distinctive role played by leadership is particularly crucial. In this regard, technical IT employees are offered with dual career paths in advancing their career just like the managers. The possibility of dual career paths presents the technical IT employees with the exact increments in terms of income and title as enjoyed by managers for performing their specified tasks (technical problems). In the assessment of technical professionals, leadership is regarded as a crucial dimension to address, and for technical employees, leadership concentrates on idea supporting, interpersonal communication, and collaboration as well [19].

In the IT context, the distinction of effective leadership behaviours is hence crucial, not just for different hierarchy levels, but also for technical and non-technical employees, considering that these employees are promoted via the hierarchy. However, the prevailing leadership development research does not make a distinction between technical and non-technical career paths. The related outcomes of research for the CIO are discussed in this study as well. For the majority of the reviewed research, cross-sectional data collection was employed, and as it does not allow any inference made concerning causality, it becomes a significant flaw [20].

The literature on alignment is showing the expansive studies covering CIO behaviours. In this regard, effective leadership is regarded as a necessity for alignment but for the purpose of this study, alignment will not be addressed. Furthermore, the establishment of trust with the top management team is regarded as highly vital for the CIO as trust allows the formation of relationship between both. Equally, political skills, communication skills, and also knowledge relating to both IT and the business building are

vital for CIOs in order to be effective. In a study among CIOs in organizations in Singapore, it was found that CIOs who are highly educated, extraverted, and open to experience, appear to demonstrate higher innovative usage of IT. For firms that experience fast transformation of technology, it is possible that these characteristics would be increasingly important. In the context of IT, TL behaviours are important, and such importance has led to the inclusion of the fifth I namely IT leadership, expanding the TL model. Accordingly, the leadership model of IT contains the establishment of the strategic IT plan, management of the reengineering of business process, comprehension of the developing technologies, formation of flows of electronic communication in the entire organization, as well as the formation and preservation of IT staff with skills of high level [21]. CIOs can achieve effectiveness through the application of TL because this approach allows organizational transformation which enhances the return on IT investment.

Among middle managers, the outcomes of IT context appear to be in agreement with the findings elsewhere. This shows that TL has linkage to the affective commitment and performance of follower. Within similar situation, being led by transformational leaders, minorities may feel LMX in a different manner. For all IT employees, LMX increases organizational commitment. Nonetheless, career mentoring which is a constituent of the dimension of individualized TL consideration, had no effect on the commitment level of minority workers, whereas psychosocial mentoring appears to be linked to higher merit pay but in this context, it only occurred among minorities. The use of Transformational Leadership Behavior Inventory in leadership behaviours measurement is to identify and convey a vision and foster the goals of group for increasing the intent of IT personnel in remaining with the organization. Furthermore,



the provision of a model that seemingly decreases autonomy appears to have a negative relation with stay intention [22]. Burnout has linkage to turnover, while TL appears to have linkage to burnout.

Within the context of IT, effective leadership is vital in leading the employees of IT. Somehow, there has been no impact imparted by the IT employees on the non-IT ones. It is hence crucial to have awareness of effective leadership for inter-departmental alliance and change management. Contingent reward and TL that are utilized by project champions appear to be associated with perceived usefulness. However, these constructs appear to be unrelated to perceived ease of use. In this regard, it was found that contingent reward and TL furnished by the manager have no linkage to perceived usefulness or ease of use. This implies that IT is crucial in the context of change management. Additionally, idealized influence and inspirational motivation which are usually termed as charismatic leadership, have been found to have positive linkage to both use intentions and actual usage of new technology.

The leadership notion within the developer and analyst context has been examined in several studies. Nonetheless, among programmers and analysts, the significance of leaders for job satisfaction was confirmed and supported in conceptual development. Notably, leader behaviour was scrutinised through the comparison made between the successful project teams and the less successful ones. For more successful teams, their leaders play the role of organizational catalysts, while providing the intellectual stimulations to the members of the group. Also, the leaders appeared to manifest charisma and they employ contingent reward. Furthermore, both researchers and practitioners are increasingly certain in regards to the importance of having leadership from diverse sources. This owes to the multiplicity of expertise that is needed for the success of IT. Notably, the empowerment of

leadership's connexion with team performance is moderated by experience and task ambiguity. Here, high experience and high task uncertainty contribute to the positive impacts in the empowerment of experience implying the need for guidance among younger technical team members prior to being imparted with autonomy. It is hence crucial for organizations to keep producing their green IT employees considering that the education they had received in the classroom is not sufficient in the completion of their development.

## V. Developing IT leadership capabilities

Studies on IT leadership development is still very few and this implies the dearth of examination on the overall development of leadership. On the other hand, the significance of transformational and transactional leadership behaviours for IT has been detailed. Hence, the identification of the methods that can effectively develop such leadership behaviours would be the ensuing step.

Just like the situation with IT, it is crucial that the development of leadership is aligned with overall strategy. From the executed meta-analysis, the impacts of interventions in the developments of diverse types of leadership skills differ according to the applied outcome variables. Having the knowledge concerning the exact leadership behaviours that impact certain follower outcomes is hence crucial. The purpose of leadership development is for the betterment of followers which in turn would increase the performance of group and organization on the whole. Effective leaders notably enhance the outcomes of both follower and team. As such, in order to assure the effectiveness of the leadership development, it is crucial to recognise the specific follower behaviours that need improvement.

For a lot of organizations, leadership development based on the recent popular leadership propositions has led to wastage of resources, particularly money. This is because for

the most part, these propositions were for short-term and do not take into account the emergent organizational challenges. Also, in leadership development, the costliest component is formal training, while concerning the development of TL skills, there appears to be limited amount of formal training. However, in the context of technology sourcing, the application of the most current leadership trend signifies a common mistake, as the solution is acquired but the business problem is not ascertained. For IT leaders, they have to deal with multifaceted and vague organizational problems, while multifaceted business problems need long-term leadership development processes.

Mentorship is among the methods employed in the propagation of the prevailing effective leadership. When mentorship is ineffective, comprehensive efforts of leadership development could not be executed. However, through the improvement of commitment of IT employees to the organization, effective relationships of mentoring can become a sustained source of competitive advantage. In the context of LMX, mentoring is an integral portion as it is significantly linked to TL. Accordingly, as a component of TL, individualized consideration includes mentoring followers. Mentorship needs formalization. Otherwise, negative effects include nepotism in mentoring selection may result. In leadership development, formal mentoring is regarded as a cost-effective beginning stage:

Stage 1: IT units with formal programs of mentorship are more appropriate in filling the positions of leadership comprising internal candidates.

In general, countless members of organization would rely on the decisions, competencies, and vision of their leaders. In the context of IT particularly, followers and many stakeholders of the organization appear to be impacted by IT leadership behaviours. It is hence important to

identify the inadequacies in leader behaviour through feedbacks, and 360° feedback can increase the self-awareness of leader. Indeed, in the determination of development and coaching needs, organizations that show superior performance in leadership development employ such type of feedback. In order to assure the effectiveness of the feedback, there has to be documentation and the ascertainment of competencies which would be addressed by coaching and plans of development, expanding the feedback beyond 360°-720° which would include the family and personal viewpoints to assure holistic development while preserving the mental and physical health of the developing leader. The awareness of leader and the succeeding development can be improved through feedback:

Stage 2: Programs of leadership development with the application of robust feedback, as exemplified in the use of 360° feedback, and the linking of the feedback to development and plans of coaching will lead to superior outcomes of program.

The formation of leaders requires numerous types of development. As such, distinct and sporadic training programs would not be sufficient for leadership development. Furthermore, within the IT context, among the efforts made for long-term leadership development are time and money investments, with the purpose of cross-fertilizing the skills of IT employee through the provision of business training and interdisciplinary job assignments. Correspondingly, a comprehensive understanding towards leadership development requires lifetime longitudinal research. Notably, over their lifetime, it is impossible for organizations to scrutinize individual development. Still, it is possible for organizations to study the development of individual leadership competences from the hiring date. It is important to treat the development of leadership in the IT context as the fundamental

processes of organization that are integral for success in the long-term, just like the supply chain management or Lean Six Sigma –:

Stage3: Treating leadership development as a basic business process as opposed to a series of separated events will lead to superior outcomes of program.

## VI. Conclusion

In the domain of IT, the subject of leadership development has not generally been examined as much. Among the proposed leadership styles, TL appears to be the mostly popularly explored among scholars in the context of IT. In this context, TL has generated encouraging follower outcomes, not only in regards to the subordinates, but also with the non-IT employees as well, as both groups were experiencing change associated with IT. Somehow, it should be noted that in the IT context, studies on leadership have been mostly cross-sectional and this has limited the progression in the field. Accordingly, a long-term process, programs associated with formal mentorship, and vigorous feedbacks appear to be the three propositions presented in the current study which can arguably improve the outcomes of leadership development program that are also in agreement with the deductions made in Day (2021). The identification of IT units with programs of leadership development and the longitudinal comparison of the programs are the following research steps. Equally, the findings generated in this study can be perused by training professionals in determining whether their organizations are making the systematic efforts in the generation of a leadership pipeline which is crucial for the long-term success (considering the common dearth of diversity in the IT sector, particularly in terms of leadership levels). As IT allows unruly start-ups to come into industries, its importance is increasing. Hence, organizations that fail in utilizing IT as a resource may

become outdated. Effective IT leadership is hence crucial for the organization's success and survival.

## ACKNOWLEDGEMENT

This research was supported by foundation from Universiti Sultan Zainal Abidin (UniSZA), therefore we thank our Universiti Sultan Zainal Abidin (UniSZA) that provided insight and expertise that greatly assisted the research.

**Main Author:** Yousef A. Baker El-Ebiary,

**Corresponding Author:** M. Hafiz Yusoff

**Co-Authors:** Waheeb Abu-Ulbeh, Ahmed Hassan Hassan, Seita Almandeel, Bishwajeet Pandey

## REFERENCES

- [1] Katz, R.N. and Salaway, G. (2004), "Information technology leadership in higher education: the condition of the community", white paper, EDUCAUSE Center for Applied Research, Louisville, Colorado, available at: <https://library.educause.edu/~media/files/library/2004/2/ekf0401-pdf.pdf> (accessed February 15, 2017).
- [2] Lewis, M.W., Adriopoulos, C. and Smith, W.K. (2014), "Paradoxical leadership to enable strategic agility", *California Management Review*, Vol. 56 No. 3, pp. 58-77, doi: 10.1525/cmr.2014.56.3.58.
- [3] Top, M., Akdere, M. and Tarcan, M. (2015), "Transformational leadership, job satisfaction, organizational commitment, organizational trust in Turkish public hospitals: public servants versus private sector employees", *International Journal of Human Resource Management*, Vol. 26 No. 9, pp. 1259-82.
- [4] White, L.P., Lafayette, C.M. and Wang, R. (2013), "Key characteristics of a successful IS manager: empowerment, leadership and personality", *Pacific Asia Journal of the Association for Information Systems*, Vol. 4 No. 4, pp. 1-20.
- [5] Windeler, J.B. and Riemenschneider, C.K. (2016), "The influence of ethnicity on organizational commitment and merit pay of IT workers: the role of leader support", *Information Systems Journal*, Vol. 26 No. 1, pp. 157-90, doi: 10.1111/isj.12058.
- [6] Patrick, H. A. (2018). Impact of leadership strategies of managers on employees in information technology organizations. *Journal of Contemporary Management Research*, 12(1), 1-13.

- [7] Dutta, S., Geiger, T., & Lanvin, B. (2019). The global information technology report 2019. In World Economic Forum (Vol. 2, No. 1, pp. P70-76).
- [8] El-Ebiary, Y. A. B., Al-Sammarraie, N. A., Al Moaiad, Y., & Alzubi, M. M. S. (2016, October). The impact of Management Information System in educational organizations processes. In 2016 IEEE Conference on e-Learning, e-Management and e-Services (IC3e) (pp. 166-169). IEEE.
- [9] El-Ebiary, Y. A. B., Najam, I. S. M., & Abu-Ulbeh, W. (2018). The Influence of Management Information System (MIS) in Malaysian's Organisational Processes—Education Sector. *Advanced Science Letters*, 24(6), 4129-4131.
- [10] El-Ebiary, Y. A. B., Al-Sammarraie, N. A. & Saany, S. I. A. (2019). Analysis of Management Information Systems Reports for Decision-Making. (*IJRTE*), 8(IC2), pp. 1150-1153.
- [11] Yassin M., & El-Ebiary, Y. (2018). Electronic Enterprise Future for IT and Business Environments. *International Journal of Contemporary Computer Research*, 2(1), 10-14.
- [12] Cohen, G. (2019). Principals' leadership behaviours that shaped teachers' motivation to implement an educational ICT reform imposed by state authorities in Israel. *Israel Affairs*, 1-17.
- [13] El-Ebiary, Y.; Najam, I.; Abu-Ulbeh, W. (2018). The Influence of Management Information System (MIS) in Malaysian's Organisational Processes—Education Sector, *Advanced Science Letters*, 24(6), pp. 4129-4131(3).
- [14] YAB EL-EBIARY (2016). Management Information Systems And Their Importance In The Decision-Making. *International Journal of Latest Engineering and Management Research (IJLEMR)*, 1(7) PP. 10-14.
- [15] ZenabAhmatOumar, Najeeb Abbas Al-Sammarraie and Yousef A.Baker El-Ebiary, (2016). Students Satisfaction Factors On E-Learning Management System at Al-Madinah International University (MEDIU). *The International Journal of Information Research and Review*. 3(11), pp3046-3052.
- [16] Yousef El-Ebiary (2015). Development of information systems in data archiving and re-called in e-government sector in the State of Indonesia. *International Journal of New Technologies in Science and Engineering (IJNTSE)*, 2(4).
- [17] Jo, N. Y., Lee, K. C., Lee, D. S., & Hahn, M. (2015). Empirical analysis of roles of perceived leadership styles and trust on team members' creativity: Evidence from Korean ICT companies. *Computers in Human Behavior*, 42, 149-156.
- [18] Bandara, W., Syed, R., Ranathunga, B., & Kulathilaka, K. S. (2018). People-centric, ICT-enabled process innovations via community, public and private sector partnership, and e-leadership: The case of the DompeeHospital in Sri Lanka. In *Business Process Management Cases* (pp. 125-148). Springer, Cham.
- [19] Yusuf, B., Sailin, S. N., & Mohamed, A. H. (2019). Embracing Successful ICT Integration Through MIC Transformational Model: Exemplary Practices of a Malaysian School Leader. In *Predictive Models for School Leadership and Practices* (pp. 193-218). IGI Global.
- [20] Gorman, C. A., & Chavez Reyes, D. (2018). Full Range Focus: How Regulatory Focus Influences the Relationship between Leader Behavior and Subordinate Outcomes. *ARBS 2018 PROCEEDINGS*, 1, 36.
- [21] Karahanna, E. and Watson, R.T. (2006), "Information systems leadership", *IEEE Transactions on Engineering Management*, Vol. 53 No. 2, pp. 171-6, doi: 10.1109/TEM.2006.872247.