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## RELEVANCE OF INFORMATION TECHNOLOGY IN MODERN MANAGEMENT

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**Abstract.** In recent years, managers of both private and public organizations in developing countries have been struggling to double production and improve service delivery in their organizations. Successful organizations in the western world were, however, identified with the use of Information Technology (IT). The paper examined the magnitude of IT and its application in human resource management. Four organizations from private and public sectors were selected from all. Two organizations from each sector, members of staff, Human Resource (HR) professionals and managers of these organizations were targeted. A structured questionnaire was used to collect data from the staff and unstructured interviews were designed to gather data from the HR practitioners and managers of these organizations. Staff motivation, wage and salaries, strategic management and organizational leadership were mentioned as factors when put together with IT would augment productivity in any given economy.

Key words: managerial innovation, HRM, e-government, Information Technology Management, risk management, administrative requirements, enhancing management, effective recruiting, data management, cost-reduction and efficiency, career development and human capital management, automation of HR processes, advanced candidate search

**抽象的。**近年来，发展中国家私营和公共组织的管理者一直在努力将其组织的产量翻倍并改善服务交付。然而，西方世界的成功组织被识别为使用信息技术 (IT)。该论文研究了 IT 的重要性及其在人力资源管理中的应用。共有四个来自私营和公共部门的组织被选中。每个部门的两个组织、工作人员、人力资源 (HR) 专业人员和这些组织的管理人员成为目标。结构化问卷用于从员工那里收集数据，非结构化访谈旨在从这些组织的人力资源从业者和经理那里收集数据。员工的积极性、工资和薪水、战略管理和组织领导力被认为是与 IT 结合在一起可以提高任何特定经济体的生产力的因素。

**关键词：**管理创新，人力资源管理，电子政务，信息技术管理，风险管理，行政要求，加强管理，有效招聘，数据管理，降低成本和效率，职业发展和人力资本管理，人力资源流程自动化，先进候选人搜索

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**Introduction.** Information technology (IT) is a broad competence concerned with all aspects of technology, information processing and management, especially in large organizations, through dealing with computer software and electronic computers for the purpose of transfer, storage, protection, processing, transfer and retrieval of information. Information technology emerged in the 1990s when computers became the basic tools of work at all levels and fields to meet the demands of everyday life, business or various practical activities in institutions, as well as with students, so specialists had to develop technology and lay the foundations for its infrastructure (Azam, 2015).

Nowadays, entrepreneurs with business acumen have acknowledged the power of information technology (IT) tools for reaching business targets. It not only helps achieve the business goals but also optimizes the work processes. Human Resource Management (HRM) includes activities such as recruiting, training, developing and rewarding people in the organization. HRM must aim at achieving competitiveness in the field of HR by providing constant educational and training programs for the personal and professional development of the employees of the organization. It has been conventionally proved that Information and Communication Technology (ICT), such as the Internet, mobile communication, new media, and such in HR can greatly contribute to the fulfillment of personnel policies of the organization. Technological advancement can have a huge impact on the HR department of an organization. It allows the company to improve its internal processes, core competencies, relevant markets and organizational structure as a whole.

Human Resource must mainly be focused on the strategic objectives of the organization. These strategies must be led to incorporate an IT strategic plan for the organization. These are activities related to any development in the technological systems of the entity, such as product design (research and development) and IT systems.

It is meant to manage public transactions and services provided to citizens in the state electronically, by using computers instead of using traditional methods such as paper or moving from one department to another (Florkowski, 2018).

The idea of information technology within organization is among the aspects that play a significant role in defining and identifying the organizational performance within the framework of technology. With the technological advancements that the world is witnessing today there appeared to be a massive interest in gathering between technology and management in all its activities. From that point there appeared approach and programs that supports the organizational sought to reach managerial excellence in all managerial activities based on technology (Dahiya & Mathew, 2016). According to Saatçioğlu et al. (2009) technology now supports the managerial department in all its activities including decision making process. It also plays a role in identifying the points of weaknesses which an organization has to develop and points of strength which it needs to preserve and manage. From another perspective; in order to reach technological developments, there has to be a high level of innovation, and in order to get the most out of technology, innovation is also required. This was agreed on by Hassan and Lee (2019) who argued that innovation in

management, stream of thinking, approaches and skills is a key pre-requisite in order to enjoy the privileges of living among technology. When it comes to public services; it appeared that innovation has a master role in defining and establishing the whole perspective of technology in public service. Electronic government – e-government- appeared to one of the basic items in which technology appears to be supportive to (Zhao et al., 2015). As an approach to manifest the main aim here, Fig. 1 shows the proposed model established combining between dependent and independent variables of study: Dependent variables Independent Variable ITMG Requirements Business Process Improvement Business Architecture Managerial Innovation Risk Management Skills and Experience Information Technology Management - ITMG Information Technology Management – ITMG – refers to the state of managing the IT infrastructure and resources needed to plan, develop and deliver IT services and products to meet business needs.

Prepare for new or changing services, manage the change process, and maintain organizational, legal and professional standards (Al-Athmay et al., 2016). Manage the performance of systems and services in terms of their contribution to business performance, financial costs and sustainability, Purchased Services Department. Develop ongoing service improvement plans to ensure that the IT infrastructure adequately supports business needs (Mousavi & HabibyBadrAbady, 2008). Melville et al. (2004) stated that the main ore of ITMG is to develop a strategy for managing technology resources, including management communications functions, and enhances the opportunities that technology offers to the operating organization that include the potential for change and

potentially impact on the business. It allows allocation of resources for planning, development and delivery of all information systems products and services. Responsibility for IT control.

In addition to that, it approves institutional policies governing the management of change initiatives and professional behavior standards. Has an overview of how programs contribute to institutional success, not to mention that it urges innovation and flexibility in IT management and administration and develops a strategy to monitor and manage the performance of IT-related systems and services in terms of their contribution to business performance and the benefits to the business. According to Brynjolfsson and Hitt (2000) ITMG has the ability to identify and manage resources for planning, developing and providing information and services for specific communication systems (including data, voice, text, images) Affects high-level clients and project teams through change management initiatives, to ensure infrastructure management to provide agreed service levels and data integrity.

Kane and Alavi (2007) also supported the fact that ITMG is responsible for budgeting, evaluation, planning and goal setting. Plans and manages the application of processes and procedures, tools and methods to monitor and manage the performance of automated systems and services, in terms of their contribution to work performance and the benefits to the work, where measuring success depends on the achievement of business objectives / financial goals and business objectives explicitly stated. Monitors performance and takes corrective action if necessary. On the other hand, Butt et al. (2019) saw that ITMG is normally responsible for design, supply, installation, upgrade,

operation, control and maintenance (including data storage and communication, audio, text and images) and effective use of IT infrastructure components and monitors their performance. Provides technical management of the IT process and ensures that agreed service levels are met and that all relevant procedures are complied with. Also, Hamidi and Benabdeljlil, (2015) stated that ITMG establishes a schedule for all maintenance and installation and it ensures that all operational problems are identified and resolved, while Swanepoel et al. (2001) ITMG provides a valid status report and other reports for professionals, users, and managers and it ensures that all operational procedures and work practices are appropriate for their purpose and contemporary. The aim of the article is to study the role of information technology in human resource management.

**Discussions.** The idea of business process improvement BPI refers to all methodologies, approaches, techniques and activities that managers adopt in an organization in order to develop the end results of internal activities in an organization. According to Adesola and Baines (2005) the first step towards achieving BPI is to identify the activity in an organization and connect it to the right employee with the right skills, this step as according to Zellner (2011) would draw the attention towards the developments and enhancements that needs to be done on employees and launch training, courses and workshops in order to develop their performance. Siha and Saad (2008) saw that in order to achieve BPI management should streamline its activities, adopt new technologies and develop employees' skills and performance. When it comes to BPI and the adoption of technology, there is a need to take extra measures in order to guarantee the ability of an

organization to interact with the technological processes and activities in a smoother way. Here appears the role of BPI in helping to embrace technological adoption in an organization and pave the way for a smoother change management as in the case of e-government.

The concept of business architecture of BA refers to the formal description of the way an organization employs its competences in order to achieve its goals and aims based on its strategic plans and objectives (Missah, 2015). Callegård and Händling (2011) on the other hand saw that BA is the gathering of business concepts which in total formulates the ideas of constructive, operative and decorative streams which in its turn can deliver the business to the state of full ability to achieve its objectives if followed in a good coherent approach. Møller (2007) also added that looking at business architecture is more like looking at departments, processes and images of an organization that are in all formulates the overall image of an organization. Business architecture is important in the field of e-government. The description of an organization manifests the role of each department in helping the smooth transition from conventional methods to electronic ones leading to more coherent process of adoption and better end results (Fjeldstad & Snow, 2018).

Risk management is a process of measuring and assessing risks and developing strategies for managing them. These strategies include transferring risks, avoiding them, minimizing their negative impacts, accepting some or all of their consequences, and preparing plans to deal with risks that must occur (Kuczmariski, 2000). It can also be defined as an administrative activity that aims to control risks and reduce them to acceptable levels. More precisely, it is the process of identifying, measuring, controlling

and reducing the risks faced by a company, organization or project (Craig & Edbury, 2015). Risk management is one of the most influential factors that have the ability to influence the streamlining of e-government projects.

There is deep need to build the whole projects on bases that gathers between excellence and risk management in order to protect the project from any cyber-attacks especially with the increasing fragility of the network encompassing the ongoing developments of human skills in the field of hacking and decoding (Dillerup et al., 2018). Risk management must be integrated with the corporate culture and with effective policy and programs of senior management. Risk management should translate strategies into practical and tactical goals and assign responsibilities across the organization to each manager and risk management officer as part of their job description (Ma Prieto and Pilar Perez-Santana, 2014).

Skills and experiences are very important when it comes to managing an organization in an innovative approach. As a start, employees must be more aware of what innovation means and how innovation can be a part of the managerial process (Cingula et al., 2013).

They must be aware of what an innovative management aims at and how to deal with a management that is seeking to be innovative. Bollinger (2019) stated that in order to support innovative management employees must be innovative themselves; author argues that one can't deal in logic with a person who lacks mental stability and the same goes in eh dilemma of being innovative as a management (Chung et al., 2008).

As organizations and institutions have become complex and intertwined with a lot of administrative uncertainty, innovative

management became a requirement to raise the mission of the organization and bring it to good performance (Lazzarotti et al., 2017). The culture of the organization or institution is no less important than the availability of financial resources and technological capabilities of the institution. The movement of the organization is an innovative management that accommodates the variables of the times and is familiar with the modern methods of innovative management, which need to be applied 2486 in organizations' basic requirements, to contribute to improve the quality of administrative and internal processes work (Muzamil Naqshbandi and Kaur, 2014). There are a number of administrative requirements that must be met in the regulatory environment of innovative management, summarized in the following as according to (Salehi et al., 2018):

- support and commitment of senior management;
- reformulate the administrative strategy of organizations;
- good planning with clear objectives, standards, and measurable results;
- harmonization of business process re-activities with business objectives;
- adopting an institutional system based on power sharing and decision-making.

As for the obstacles of adopting managerial innovation Shang et al., (2010) argued that among the obstacles that hinders the adoption of managerial innovation is the idea of top management not being convinced of the importance of change so it won't encourage new creative ideas .

On the other hand, McIntyre-Bhatty et al. (2014) stated that the acceptance of stereotypes and traditional management might hinder the adoption of innovative management in addition

to the absence of an annual plan by the organization. José Rodríguez and Guzmán (2013) saw that managerial innovation might be a dream for those organizations which believe in the methods of central management, bureaucracy and rigid administrative in addition to the difficulty of amendment of regulations and regulations, and fear of the risks and consequences of amendment.

Technology development is an important activity for the innovation process within the business, and may include acquired knowledge. In the context, all activities may have some technical content, and results in greater technological advancement.

Information Technology may have a greater impact on organizations that exist in a dynamic environment. This will lead to greater efficiency and effectiveness of the Human Resources. Hence, utilizing IT application for database management and advances recruitment system will increase the efficiency of the business.

However, innovation in Human Resource Management can manifest itself in a number of ways:

1. To identify solutions quickly and flexibly during a negotiation
2. To identify new ideas for products and services
3. To identify new markets

Innovations such as these are supplemented with Information Technology to create a positive impact in HR. Rosabeth Moss Kanter, one of the leading management theorists of her time, argued that the re-birth and success of business organizations will depend upon innovation (developing new products, introducing new services, and operating methods), entrepreneurship (taking business risks)

and inclusive management (encouraging all employees to participate in making decisions about work).

Information and Communication Technology (ICT) can make the following major impacts in Human Resource Management.

1. Better services to line managers. Both HR and line managers primary interest is the success of the business. The human resource's main function is to support the workforce needs of the organization. Strategic planning between HR and line managers is important for reviewing projections concerning future business demands to determine whether to train current employees, to prepare them for promotion or to recruit candidates with the higher level of skills to supplement the current employee knowledge database. Training and developing the line managers in IT tools will, therefore, prepare the line managers for a number of leadership tasks.

2. Enhancing management. Human Resource IT tools that can supplement management and enhance efficiency and effectiveness, which can lead to the success of the organization as a whole. For example, currently, SuccessFactors Solutions has developed an HR IT tool of talent management for Hilton Worldwide, which had a worldwide operational capacity.

3. Effective recruiting. Nowadays, organizations have realized that effective recruiting cannot be done without the use of IT. Organizations now use job portals on the internet to search for the best candidates for the position. The process has been made effective with the use of the internet as many people come to know of the offer and hence increases the probability of hiring efficient employees. Employers can present all necessary information related to job, careers and personal development of each employee on portals online. This is a great promotional tool for the

organization. Currently, Envoy has developed Asana, an IT tool for recruiting that analyzes details down to where a potential candidate's high priority values are. The HR IT tools not only help hire the best potential but also retain it.

4. Data management and critical analysis. Data management becomes easier when IT is used and it becomes paper-free. Many of the monotonous work is no longer manual. This increases the efficiency of the work and the effectiveness of it. Employee's performance data can be critically analyzed by the HR IT tools more often if it's online and becomes readily accessible to everyone. For instance, Zenefits has recently developed an HR IT tool, which has made Passport completely paperless. The tool is further hierarchy sensitive and pings the manager for approval once it is submitted. Thus letting an individual get rid of the hassle of filling the paperwork. Thus by developing this HR IT tool, Zenefits has helped Passport radically simplify and manage its HR internal processes.

5. Cost-reduction and efficiency. Considerable benefit can be obtained as various reports can be made using IT tools. Xero wanted to save its resources and make them easier to manage. Xero then implemented PlanSource's benefits system and ACA compliance technology with their payroll provider and now all their benefits are in one place and easy to access. This lead to cost reduction and efficient and work processes.

6. Career development and human capital management. The career planning tool is a learning and knowledge-based system that helps successful businessman around the world to manage their personal development and career paths along with those of their employees. One of the major processes of HR is the Human Resource Development core process. This HR

tool provides all information about the employee's succession planning, evaluation of overall performance and the review of individual potential including the employee's detailed profile. It also includes an agreement between the individual and the supervisor on business targets over a period of time periodically. Thus leading to a continuous development of the employee's career. The great advantage of this tool is that data once entered into the system is stored in the database and can be attained in the future. This leads to considerable cost saving as well. Recently, Standard Life Group provided HR resource cost optimization tool to Oracle Human Capital Management Solutions. It is further contributing to the strategic transformation of the company by building the empowered workforce. Employees need feedback about their performance.

7. Automation of HR processes. Human resource management is an incredibly complex domain that involves many processes. And it often happens that HR specialists spend too much of their precious time on mundane, monotonous activities instead of focusing on more serious issues. The implementation of technology into the HR workflow frees the professionals from a great amount of routine work. The automation of processes eliminates paperwork, speeds up the execution of many tasks, and contributes to more efficient HR performance. The advancement of technology means companies can use the latest innovations, such as machine learning to screen resumes and augmented reality to onboard new employees. It is important to remember though that the whole HRM domain is impossible without people. A lot depends on the empathy and experience of an HR specialist, but the deployment of technology can significantly improve the quality of work of a single specialist.

## 8. Availability of HR tools

Some time ago, HR specialists struggled with endless phone calls, emails, and paperwork. They had to keep dozens of processes and tasks in mind. Now, there are hundreds of available HR tools that are designed specifically to facilitate and optimize the work of HR specialists.

The features of the HR software include:

- Streamlining workflows;
- Organization and management of employee data;
- Creation of detailed employee records;
- Social collaboration;
- Management of payroll, vacation, and bonuses.

The transition to a digital working environment enables modern HR specialists to perform certain tasks in a faster way and thus, pay more attention to such issues as the satisfaction of the employees, optimization of the recruiting and onboarding processes, employee motivation, etc.

9. Advanced candidate search. One of the main responsibilities of an HR specialist is finding and recruiting the specialists that a company needs at the moment. IT significantly changed the way these processes are approached. First, the Internet granted HR specialists an opportunity to search for candidates worldwide. Freelance workers have now become a common thing, and collaboration with freelancers may be even more beneficial than hiring an in-house team. There are numerous benefits of working with freelancers: flexibility, affordable rates, specific skillset, and many more. In this way, HR specialists can fill the gap that their in-house team lacks and find a perfect candidate anywhere in the world. Second, HR specialists can use advanced tools (i.e. Artificial Intelligence) to screen the resumes and pay attention only to those profiles that strictly match the

requirements. This greatly speeds up the search process and helps to find the most suitable candidates. Finally, HR specialists now have access to various online platforms where they can find candidates: Stack Overflow for developers, Quora for managerial positions, etc. The availability of such resources expands the talent pool and grants HR specialists new opportunities in terms of the candidate search.

10. A new way to brand a company. Company branding is an important factor in attracting and retaining employees. Thanks to IT, companies now have an option to build strong online presence and reach numerous potential candidates with minimal effort. Thorough website branding and design, presence on major marketplaces and online communication – all these factors promote direct interaction between a candidate or employee and a company. Social media plays a huge role in the company's branding, too. Social platforms became the key source of information, and candidates are most likely to search for a company on LinkedIn than through traditional sources. Hence, companies should consider what kind of image they would like to build and what values and messages they want to transfer to the users. Finally, don't forget the mobile business applications. A mobile application is an amazing way to redesign a company's brand in accordance with the demands and interests of a target audience, and add interactivity to it. IT has greatly expanded not only the talent pool but also the way HR specialists can reach top talent and promote the company online.

11. Analytics grants access to more data. Finally, Information Technology granted HR specialists access to sophisticated analytics, taking their work to a new level. Previously, HR specialists had to rely on guesswork and intuition when

evaluating the employees, their level of motivation and satisfaction, and the efficiency of HR processes. Now, they can rely on the data and see all the processes and work results reflected in numbers. With the help of analytics, HR professionals can track down the candidate's journey and see at which point most people reject (or accept) an offer, how many people are involved in the processes, what percent of employees open their emails, and many other important events. In this way, HR specialists can make data-driven decisions and use past experience as a base to redesign and optimize current processes.

**Conclusion.** The reason for the need of managerial innovation is attributed to the fact that e-government is a project that presents civil services to individuals. It helps in managing their daily needs and requirements in accordance to the law, this is one of the sensitive activities that e-government is obliged to do and it has to be always ready to serve individuals with the best results possible. Based on results, discussion and conclusion of study the following recommendation are to be put under consideration:

- E-government controllers must have extra attention towards adopting the suitable BIP in order to guarantee the best results of application in terms of service quality, time and satisfaction.
- Business architecture are among the aspects that are most important to the internal processes of the organization so it and be managed on a lower level of attention compared to the external levels like IT and networks.
- Training courses, workshops and team work is one of the ideas that must be applied within the project of e-government in Jordan as it was revealed based on the questionnaire and launching from previous studies that there is a

lack in the training plans for employees to be a part of such nationwide projects.

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