



## Research Article

# THE IMPACT OF THE TECHNOLOGICAL PROGRESS ON THE INDUSTRY OF THE PUBLIC SERVICE

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### ABSTRACT

It is undoubtedly recognized that the current world witnesses rapid and deep changes at various levels (economics, politics, science...). This situation has altered the ways of how the ideas are conceived as inputs and how are treated in such a way to generate the efficient and profitable outputs. The information technology and especially the using of internet is not the exception. It remolded both the design of the information treated (input) and the processing of that information. Besides, this electronization transformed the platforms of interactions between employee within an organization or a public service (intra-industry effect) or between the service and its clients (industry-client approach). This paper tries to highlight the channels through which the electronic using process impacts the progress and the efficiency of the public administrations taken as an example.

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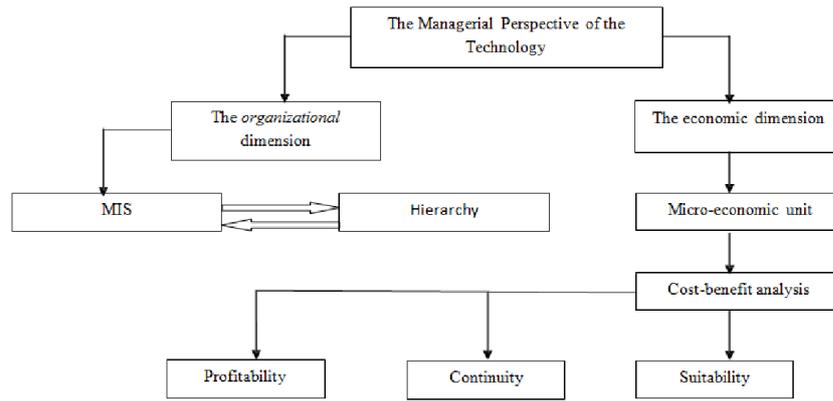
## INTRODUCTION

The adoption of technology in service presentation entities (administrations, public and private services...) belongs to the management of the information systems paradigm (MIS). The latter focuses on how to implement the right technology to be exploited and how to get the desired goals from this usage. This debate has been subject to two approaches: the organizational approach and the economical one. The former tries to explain the impact of integrating the technology as a whole process to deal with. This assertion means that the organization builds its behaviour by taking into account this new input which is technology viewed as a whole process to manage (the acceptance or refusal of the new technology and in case of acceptance the following problems remain on how to apply its composites *vis-à-vis* the targets designed). In addition, the technology has another role in transforming to a big or less extent the hierarchy of the organization and the interrelation between its employees (the communication aspect of the technology usage). The second approach of the technology exploitation stresses on cost-benefit analysis. This theory redefines the position of the technology not just as a process to manipulate but as an independent input having its own properties (costs, benefits).

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In this sense, the economic literature has mainly discussed the position of the technology as a bolster of the firm's growth in various models and try to give more technical appropriation of this input in line with the classical ones (capital, labor). This alternative aspect looks at the following dimensions: the intensity and the efficiency dimensions. The first perspective stands on both the sophistication and spread of the technology adopted. This issue raises some problems like the correlation of this high technology and what the firms want to achieve i.e. Is the technology adopted able to come up with what the firm looks for? Here, it is important to check another multidimensional view considering the firm as a dependent entity to its environment. This argument has been emphasized by the emergence of the firms' network analysis in relation with the social, economic and political conditions. The chart below shows the position of the technology as a managerial process:

The second dimension of the technology lies on the three basic criteria: suitability, continuity and profitability. The suitability consideration refers to the magnitude of the correlation between what is assessed in public and private firm as targets (short, medium or long run objectives) and the right technology to adopt so as the entity gets the first advantage ( $t=0$ ) and the potential one ( $t=n$ ) to achieve what it looks for with low risks and costs. This process depends on the aptitude to accept and modify the new input whenever it is needed.



Source: the researcher

**Fig.1. The managerial perspective of the technology**

The second criterion is concerned essentially by the good analogy between the external environment and the internal one of the firm. This argument explains why the firms innovate and appreciate comprehensively the new operations and characters of the organization. This assumption puts a focus on the significant need and the exploitation continuity of the technology to maintain the overall operations in terms of the assigned objectives. According to the third dimension, the technology should be used in terms of the cost-benefit analysis. This definition considers the technology as an independent input that works at creating the value added and has initial and prospective costs to acquire it.

### The impact of the information technology systems in redesigning the public administration

With the advancement of the information technology system, the public administration is facing a big challenge concerned by regulation and redesigning. The cited challenge stems primarily from both the need to be in compatibility with what is going on in the other economical entities and the desire to reach the efficiency and cost-effectiveness in delivering services to the public. For this purpose, the public administration takes a specific shape according to the prerequisites of the new informational era inside and outside in an attempt to make the information technology a facilitator not a damper on the realization of any strategy.

However, the rational exploitation of the IT does not come solely from the features of the IT used in its own right but from also the ground on which it is used. This leads to think about a new reengineering of the organizational form of the public administration in a way that ensures the benefits gained from the technology. This redesigning is called Business Process Reengineering (BPR) and it is described as a process giving the entity more flexibility towards the innovation base implemented (how to well position the information systems in the entity and how to reap the benefits from its using by taking into account the impact of the external environment). This set up gives more capability to use efficiently the resources available even when they are declining (high degree of economies of scale). For instance, the economic literature has abundantly stressed on the intricacies between the other inputs and technology in various models.

As an example, the following function in which three variables taking different parameters are interrelated:

$$Y = L^{\alpha} . K^{\beta} . T^{\gamma}$$

The above function demonstrates clearly in its basic form the reengineering of the firm following what is available as inputs and what is attended as outputs. This design is explained by the mathematical support of the function (the multiplication of each variable by the others) and efficiency is clearly shown by the parameters. Consequently, this function argues that in order to overcome the complexities posed by the social and economic environment (the technology and information systems are not the exception), the firm must undertake a suitable support for this change. The public administration as an independent entity has to overcome this complexity to its favor by applying specific supports, for example: Decision Support System (DSS), Group DSS (GDSS) and Executive Information System (EIS). These supports are considered as the automation core of the public administration and the way through which the implementation and planning processes are held. However, even these platforms are used, their integration in decision making process is lesser than what is going on in the pure economic entities (Island of Automation).

The new design of the public administration entity involves advantages like the true appointment of the technology used at every stage of the planning process and the suitable tasks that the information system can do in order to achieve the targets of the general policy. The table below gives a clear demonstration of the following tasks delivered by technology according to the three basic activities' levels held by the public administration:

**Table 1. Tien and McClure's framework**

Activity level	Technological solution
Transaction Processing Tactical (Operations Level)	<ul style="list-style-type: none"> <li>Real-time file adapting</li> <li>Database Management System (DBMS)</li> </ul>
Strategic level	<ul style="list-style-type: none"> <li>Real-time systems, operating systems</li> <li>Extended DBMS-based applications</li> </ul>
Policy level	<ul style="list-style-type: none"> <li>Extended DBMS-based application, including analytic and simulation tools</li> </ul>

## Information Technology (IT) and public service delivery

The Information Technology (IT) has a crucial role in transforming the relation administration- citizen at three distinctive processes:

- Improving Government Process (e-administration)
- Connecting Citizens (e-citizen and e-service)
- Building External Interaction (e-society)

The first process refers to the implementation of the informational technology system through an appropriate redesign (institutional challenge), while the second consists of delivering the service by respecting both the quality of the services delivered and the good relations with the consumers (marketing challenge). The last process aims at catching up the positive spillovers of the IT using in public administration.

Here, we give much emphasis on the marketing challenge approach i.e. how the IT ensures the client satisfaction.

### The marketing approach of the IT

The information technology by its right interactivity improves the quality of services delivered through various dimensions:

#### Time dimension

This new communication base ensures the flexibility of services delivery and shortens the time span in which the service is done. This advantage comes from the interactive spaces between the consumer and the deliverer as the former can be served at any time (night or day) and from any place. Indeed, this application requires a platform that combines strong databases of the services delivered and efficient informational network.

#### Transparency

IT promotes transparency by reducing the unnecessary intervention and helps in defining accurately the conditions of the service to deliver and the prerequisites of the person of the service demander. This interaction is possible through the electronic databases.

#### Flexibility

IT by its networks and electronic databases prevents the public administrations –the consumers crowding effect. This is generally due to:

- The heavy administrative procedure (documents, reports, certificates) demanded from the consumer.
- The limitation in the employee ability to maintain and satisfy all the employees' need.
- The time working of the public administrations this is limited by official clauses.

#### Quality

This term embodies all the above advantages derived from using IT in delivering service processes. While the service is presented at the appropriate time, from any place of the consumer and does not need any kind of intervention (the corruption curbing), then the IT helps in facilitating the

involvement of the customer in the process of delivering in one hand and at the other, promotes the efficiency of the public administration by increasing the threshold of the client satisfaction.

### Conclusion

This review indicates that the information technology becomes pervasive in current and dynamic evolutionary processes of the business environment. Instead of this, it is increasingly important to think about the implementation of these informational systems by creating the favorable ground to gain the benefits of IT in short, medium and long terms.

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