

Using the Organizational Diagram for the Study of Digital Cities Management

Gaspar Collet Pereira*

Federal University of Santa Catarina, Rua Nicolau Vorobi 244, Curitiba Paraná, Brazil

Abstract

This article intends to make a proposal to implement the organizational model applied to digital cities. It uses a model proposed by the author which was used as content in four of his published books, covering the main areas of the administration in a systemic way. Allows the study of areas composing the management of a city, separately assessing their characteristics, composition and interconnection. After this study the Manager will be able to assess the entire system and seek to optimize the application in a systemic manner. His contribution is to allow a breakthrough in the study of the integration between the parts making up the functioning of the city.

Keywords: Organizational model; Digital cities; Urban management

Introduction

A digital city tends to have a high degree of complexity, being subdivided into several parts, but a model is necessary to show the assembling of these various parts in an organized way. That is the reason for the proposal of this applied organizational model.

Problems

There is little literature focused on demonstrating the parts involved in a digital city, the interdependencies of each part and the interaction of the activities.

a. Question-problem

What are the main variables involved in the composition of a digital city?

Hypothesis: the study of the various parts of a city separately enables an understanding of the city's operating system.

The general objective of this research is to study the various parts that make up the organizational model applied to digital cities, seeking to show the relationships and interdependence among them.

Specific objectives:

-Proposing methodological procedures to study the organizational model;

-Evaluate the main variables involved in the organizational model;

-Document qualitative and quantitative analyses;

This proposal is justified because it allows a detailing of each part of the organizational model applied to digital cities allowing the researcher to have systemic view of its operation.

In the background the researcher should have "What", "how" and the benefits that this research will bring [1].

Theoretical Foundation

The theoretical foundation covers concepts on digital cities, digital services and market that will be base the evaluation work of digital strategic services evaluation.

Digital cities

A Digital city can be seen as an interactive environment, where people have their activities and can exchange information including municipal managers. Another component of the digital city is the

cyberspace, which is a physical environment that can house some elements as radio waves and TV signal and Internet [2]. Digital city goes beyond the use of information services as it allows the integration of this information with everyday situations of the user of these services. The deployment of digital strategic services, requires the inclusion in the municipal strategic planning (EMP) and in the planning of information technology (PTI), covering the forecast of human, financial and material resources (Raj 2012).

In the implementation of a digital city 's system , apart from the physical and structural aspects, it is important the study of how it will be used and evaluated by the user of the system, which is the financial supporter of all expenses throughout their contributions through taxes and fees [3].

Organizational model

It is important to understand the Organizational Model, which is a proposal to divide the various functions and resources needed for the operation of an organization and study them separately. This analysis allows systemic vision and the vision of each of its separated parts. This model was developed by the author on the grounds of the doctoral thesis and subsequently applied in other situations.

The activity of the functions and the use of resources, should originate the goods and services produced by the digital city, generating well-being for the taxpayer. This reasoning applies to small and large organizations [4].

The Manager's challenge is to bring together all these elements and combine them in the best possible way. Usually he has affinity with one of the areas and difficulties with the others, making their management as weak as the weakest links of the organizational diagram [5].

It may be that the Manager had a great idea, proposed a service that will meet an important need and ends up giving emphasis on an end activity, but has a hard time to see the digital city as a whole and its

*Corresponding author: Pereira GC, Federal University of Santa Catarina, Rua Nicolau Vorobi 244, Curitiba Paraná, Brazil, Tel: +55 41-9989-2740; E-mail: gasparcp@hotmail.com

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project that attends a certain area ends up failing because it has trouble interacting with other areas and to use the resources.

Functions

Mentioned in Figure 1.

Resources

Source: PEREIRA, Gaspar Collét, 2016, Plano de negócio e o modelo organizacional, Curitiba: Editora Universidade, 1a Edição (Table 1).

For a period, it is possible for a digital city to give emphasis to one of the variables, but it must have ways to evaluate the reflections of that decision and the impact on other variables (2016).

Each of the variables shown in the diagram, is connected to the others, and can be analyzed separately but without abandoning its systemic reason.

Urban management

The activities of the human being happen in the city where he lives, in his town. If the urban management is efficient and meets the major demands of the people, the tendency is to be well evaluated. The urban management is a set of variables, where different actors take part, allowing fundamental transformations, coming from a systematic debate [6].

The list of managers of a Municipality with taxpayers occurs primarily through the provision of services. Some of these services can be considered as essential and routine and others may be considered as strategic, usually representing a chance for a better relationship with the taxpayer and the possibility of management differentiation.

Detail Model Organizational

In this part of the work every one of the variables of the organizational model will be studied.

Administration and control: Although, the public Manager uses information from all the areas, it is in administration and control that guidelines to guide the progress of the activities are set. It is important to survey the opportunities and threats. The Organization has a broad vision of its planning, identifying the various involved factors. The internal review should be compared with the mission and values of the organization [7].

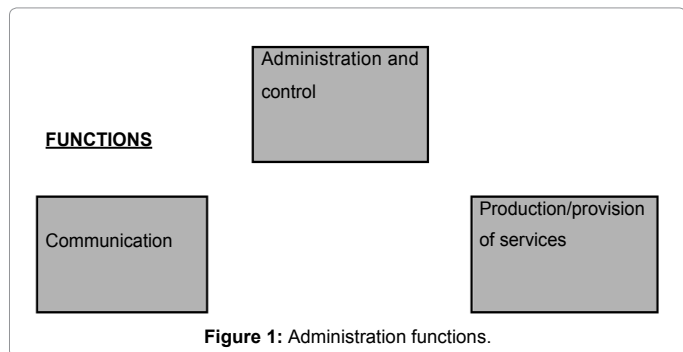


Figure 1: Administration functions.

Humans	Finances	Materials
Science and Technology		
Goods/services	Well Being	Results

Table 1: Resources.

Planning steps

It tends to be a relationship between mission, vision, values and goals with the Organization's strategy. The organizational model can be used for drawing up the i006Eternal analysis and compared with the information of external analysis Mcdonald (2004).

The organizational strategy allows you to answer questions such as:

Where we want to go;

How is the external environment?

Team potential;

What should we do?

Planning levels

The division of strategic planning by levels allows the study and implementation on each of its stages.

Starts at the strategic, where the General guidelines are created by the directors. At tactical level, the strategic management defines how it can be applied in the departments. Finally, in operational the policies and guidelines outlined in the strategic are deployed.

Internal analysis

Strength: the points that the digital city has as a differential must be analysed and how it can be used as a form of design management.

Weaknesses: Identify the weaknesses, and neutralize them and even transform into strengths.

External analysis

Opportunity: Identify each point that can be used in favour of digital city.

Threats: Identify factors that may compromise the digital city's progress.

Evaluating these items in the management of a digital city in Table 2.

Service composite

A public agency differs from a private organization is it sells directly its products. It must communicate their activities in order to account for their activities. Both in private companies or public, the compound must generate a competitive advantage for the Organization (Gautam et al. 2008).

The term and the structure of the market was originally used and disclosed by McCarthy and the definition of the goals should be made according to the positioning of the company strategy, because the definition of the attributes will be linked to those goals. The greater the consistency between the application of resources and the philosophy of the Organization, the greater the return (Kotler Armstrong, 1993).

Internal analysis	
Forces	Weaknesses
Staff available to meet the functions	Lack of experience
Relationship with internal planning	Employees Resistance
Need for staff reallocation	
External analysis	
Opportunities	Threats
Security-based disclosure	Criticism of the opposition
Publicity generated by the deployment of the system	Commitment to security Trouble shooter

Table 2: Internal and External analysis.

Through the study of the market compound, an organization can study the market needs and guide the relationship guidelines with customers (Fortes, 2001).

An error that frequently occurs in organizations is the emphasis on only one of the variables, to the detriment of the other, ending on an imbalance in the Marketing effort. This error makes all the efforts to be focused on one variable which will not give a satisfactory return or that could be better used. There is a tendency that the organization is as weak as the weakest of the four variables. For a period, it is possible for the Organization to focus on one of the variables, but it must have ways to evaluate the reflections of that decision and the impact on other variables. From the moment the consolidation and the impact assessment of applications is done, the chances of waste are reduced. However, to obtain this consolidation each of the variables and attributes must be studied separately (2011).

Composite variables and attributes

They were created to facilitate the study. They should make a summary of the main aspects of the market compound. Linked to each of the variables are the attributes. The variables are fixed and common to practically all the different organizations of the attributes that are specific, and can be changed according to the stage the organization is going through or the objectives of the research. The score is related to each attribute and the sum of the origin to the variable score.

The determination of the attributes can be done by applying a qualitative research with people who are affected by the variables, asking what are the other factors are associated with the variables. Those items that arise with greater frequency are analysed and if relevant, are listed as attributes. Another way is to query the subject matter experts, or employees of the organization who are involved with prices, product launches, advertising spending decision or definition of the form of distribution, requesting them to point significant items for each of the variables. Or even, it can be replaced by specialists of the institution or researcher.

In a public company, as in the case of a municipality, the identification of these variables is not as clear as in private companies, but they are present.

Product/Service

The service can be a good or benefit and is the *raison d'être* of a digital city. If the sum of inputs is less than recognition of well-being on the part of the taxpayer the project tends to go ahead, otherwise it may derail.

In the case of digital cities, services such as systematic payments services databases and registration information are provided

It is observed that the service quality and customer satisfaction are different, and that the services can be defined by its characteristics of intangibility, indivisibility, variability and precebilidade [8].

Price or cost benefit: It can be done through the sum of the costs and expenses used for development of services and should be compared with the taxpayer satisfaction. The customer satisfaction can be measured through surveys.

Point and distribution: It is the way the service is made viable. It can be by distribution, in which the good or service goes to the taxpayer or by a point system, where the taxpayer comes to a good or service.

In a conventional city trend is that the contributor goes to the supply of services featuring the point. In digital, on the contrary,

there is the tendency that the taxpayer has access to the scanned form services, featuring the distribution.

Promotion/communication

It tends to be the most complex of the four P's and at the same time requiring greater attention, because it is through it that digital city communicates with the public showing the existence of a good or service available, the advantages of it, the needs met and seeks to convince people to use them. There are three classical forms to achieve this goal.

Advertising: It is where the sponsor has control of how much to spend, and which public message will be conveyed. It does not have control over the management's volume generated and if the return of this management will be larger than the capital invested.

A digital city can advertise through local media, using radio, television, billboards and printed material distribution

Advertising: Different from Propaganda, it does not have a fixed amount to be invested, it may not cost anything. The big risk is that it becomes negative and have a greater impact than advertising.

The technical part of the communication can be called advertising, as a commercial character, being part of a set of resources that the company adopts to bring a product or service to the consumer and a means to communicate with the mass [9].

For each investment in the provision of digital services, the type of publicity that is generated should be evaluated.

Production model

It is the way the value is added to the inputs generating goods or services. Entry composition where the human, financial and material resources are aggregated. The process where the added value and finally the exit where the provision of the service or product delivery (Table 3).

Human resources

The HR function is at the heart of the entire process, starting by the Manager and expanding to other persons who are necessary for the development of digital city.

Must be seen widely, covering functional and administrative aspects and cultural and operational aspects [10].

The strategic capacity of an enterprise depends on the talent of its executives and its potential. Without competitive efficiency available resources become unproductive. A successful company is evaluated not only by the quality of its financial performance, as well as the skills to maneuver in the face of environmental turbulence, that is, one must analyze the quality of human resources and organizational forces, in addition to the financial and technological processes [11].

It is usually divided into three major areas. The first is recruitment, where the Manager sets the staff necessary for one or more roles and disseminates its need. This disclosure can be made through formal means using paper, internet and job agencies or informally through

Entry	Process	Output
Features	Adding value to resources	Goods or services
-Financial		
-Humans		
-Materials		

Table 3: Production model.

personal contacts of the Manager. The goal is to arrive at the knowledge of potential candidates.

This disclosure is expected to generate a series of candidates interested in the selection phase. The staff of psychology and of technology in HR has a series of tests and mechanisms to check which gives a formal character to the process and generates a sense of achievement for the selected, but the most important is the selection of the candidate that can perform the function including the critical situations of the Office and in the needs of digital city.

Finally we have the phase of training, which is a summary of the above and seeks to prepare the person to carry out the tasks and challenges and crises that may arise.

Financial resources

Financial planning has the ability to make a summary of other resources, create a work plan and serve as a reference for all the activities of the digital city as it is possible to compare the planned and carried out. By having these characteristics it is important that the Manager has an overview of how it will work and the evolution of activities [12-17].

The financial moves are typically divided into three groups. Recipes that summarize the contributions of money and must be separated from taxes through the digital city but are owned by the State. The costs, which are outputs of money, necessary for the preparation of the good or service and the expenses that are essential for the management are not linked to the good or service directly, usually are linked to administrative and commercial area.

Material resources

They are the resources necessary to perform the function. Emphasis is given to trade stocks, in the raw materials industry and facilities services.

Tends to be one of the areas that require greater initial investment and then it is necessary to do maintenance (Malik et al. 2003).

A digital city covers all physical resources necessary for the functioning of the city.

Generation of well being

The results depend on the level of welfare that the digital city has capacity to generate for the Manager, for the staff and especially for taxpayers.

For the Manager, it is of great importance the sense of accomplishment to contribute for the improvement of the sector.

For employees, in addition to the wages and benefits, the work environment matters, the sense of security, the possibility of professional growth and affinity with the function.

For the most important taxpayers is a cost benefit. How much are they paying for goods and services and the benefits that these goods and services can bring?

Considerations

After the production of this material, you can see that the study of managing a digital city can be made in parts and this allows a detailed view of it.

Preliminary rescue objectives

The study and detailing of the parties allows the understanding of related activities in the operation of digital city.

Contributions

This material brings information to be used by public managers showing how the application of resources in digital strategic services is seen by allowing users to make changes in the upcoming deployments.

Limitations

The fact of the breadth and complexity of a digital city and the deployment duration of a process description system.

Future work

As a suggestion for future work can be quoted: Each of the study areas; Interdependence of areas; Synergy between the various sectors of a digital city.

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