

An Investment Management Approach for Establishing A Physiokinotherapy Compartment in a Hospital

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Abstract – In the paper is presented the reengineering of the medical recover process through phisiokinotherapy with the aim to increase the performance of the specialty, streamlining using resources, thus: quality improvement through increasing number of medical personnel and endowment with new devices; increasing number of the patients, increasing addressability; improving performance, increasing hospital income.

Keywords: Investment management, efficiency-based decision, organization development

I. INTRODUCTION

Investment activity is a priority to support the implementation of research-development projects that meant to align organization to actual progresses of technology (Popa, 2008). Even for a public or profit-oriented organization, investment activity is a priority for top management (considered also as a managerial function) required to ensure business processes support in a competitive environment (Draghici & Dobrea, 2010; Mgxaji et al., 2016).

Micro- and macroenvironment determines the risk levels and complexity of the investment projects realization. Generally, investors – private individuals, corporations or investment funds – are concerned on how to use current resources to gain the maximum benefits from the investments (after the implementation of the project). Thus, each investor considers the problems of alternative projects selection, investment resources allocation, maintenance and enhancement (Litterman, 2004).

Furthermore, evaluation of investment project is very vital part of any project undertaken by an organization. Aim is to determine the project's efficiency, effectiveness, development and sustainability. Various methods and techniques can be used to determine projects progress and evaluate either project is worth considering. According to the literature, careful consideration should be given before commencing the evaluation of project as there are many methods can be used but results might differ from

each other. So, it is important to understand the reason of evaluation before commencing and how the process should be designed and what outcomes are expected (Shyriaieva & Hussain, 2018).

This paper consists of the analysis, debate and substantiation of the investment decision regarding the accomplishment of the physiokinotherapy department at the Hospital. The main synthesized and analyzed issues are:

- Presentation of the priority issue addressed;
- Presentation and argumentation of the proposed solution;
- Sources of financing identified for implementing the solution;
- Dynamic vision of assessing the economic efficiency of investments;
- Determining the indicators of the effects of the immobilization of funds.

Thus, the indicators of the economic efficiency of the investment projects (based on the information from the hospital unit and some estimations) have been described and calculated as the basis for substantiating the decision to choose the optimal project variant.

II. PRESENTATION OF THE PRIORITY ISSUE ADDRESSED AND IDENTIFY THE PROBLEM

Preparing for the improvement of hospital services, within this project show the development of hospital capacity to improve medical recovery.

Under this management plan, it was decided to establish a Physiokinotherapy Compartment (located in Timisoara and as a unit in an existed hospital). The identification of this object of the project was made by the complex analysis of the projects proposed by different providers (companies), the financial analysis of the existing medical recovery services, the increased addressability of this medical specialty due to the existence of the Department of Orthopedic Traumatology, General Surgery Section, the existence of a well-trained physiotherapist, known in the field

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and with addressability increased and the decision of the Board of Directors

The purpose of this article is to detail the sizing and implementation of the improvements outlined above to help increase the hospital's competitiveness.

III. GENERATING CAUSE

At the West Region of Romania, in the hospital's area of responsibility, there were at the end of 2018 several adults with disabilities (94,779 persons).

Relevant indicators characterizing the West Region situation are shown in Table 1 and Table 2.

The physiokinotherapy unit is extremely necessary because it meets the needs of this highly disadvantaged category. The project is in line with the National Strategy on Social Protection and Social Integration of People with Disabilities (Ministry of Labor, Family, Social Protection and Elderly, 2014). The objectives of the program aim at locomotion rehabilitation on different areas of development or disability: medical recovery, psychological counseling and therapeutic activities.

Table 1 The number and rate of persons with disabilities in the West Region of Romania, by counties (values declared at 31 December 2018)

County	Total number of people with disabilities	Of which women
Arad	15,228	8,033
Caras-Severin	12,917	6,894
Hunedoara	20,766	11,364
Timis	25,360	13,366
Bihor	20,508	11,496
Total	94,779	51,153

Table 2 Persons with disabilities, by degrees of disability, in the West Region of Romania, by counties (31 December 2018)

County	Total no.	Serious handicap	Highly handicap	Medium handicap	Easy handicap
Arad	15,228	6,906	6,612	1,586	124
Caras-Severin	12,917	4,989	6,789	1,079	60
Hunedoara	20,766	8,419	10,220	1,970	157
Timis	25,360	9,982	12,779	2,358	241
Bihor	20,508	8,166	11,010	1,245	87

In accordance with the guidelines of the National Strategy for the Protection, Integration and Social Inclusion of People with Disabilities (Disability), which stipulates that the person with disabilities is as important and valuable as any other person, we appreciate that services provided through a specialized healthcare department and physiokinotherapy recovery will allow support for the process of social and professional integration of this category of people.

At the level of the accountability area, the high number of potential beneficiaries of physiokinotherapy recovery services within a specialized compartment place priority on the creation of such a center.

Persons who face problems associated with disabilities (disability), unable to perform their everyday activities, become into a state of addiction, marginalization, lose their autonomy and need the support of others. These facts have multiple and complex consequences (as mention and align with the (Ministry of Labor, Family, Social Protection and Elderly, 2014)):

- *At an economic level:* the income of adults with disabilities / disabilities is sometimes non-existent and / or very low. The Department of Specialized Nursing and Physical Therapy Recovery will provide

rehabilitation and recovery services for resuming work and organizing activities.

- *At the social level:* communication difficulties and / or those within human relationships increase the degree of marginalization of people with disabilities
- *From the financial point of view:* the cost of medication and interdisciplinary therapeutic treatment for the treatment of diseases are high and, most of the time, not integrated into the social insurance system
- *At family level:* Families and family members are often unable to provide care that meets their needs.

From the point of view of urgency and opportunity, we can state that for the moment an efficient recovery process can only be carried out in a specialized framework in which specialized healthcare and physiokinotherapy services can be provided.

In addition, in this segment are people who have undergone orthopedic surgery or who have suffered accidents and require medical recovery by physiokinotherapy.

Due to the large number of people who have requested specialized services for rehabilitation, we consider it necessary to invest in this compartment. At present, adults with physical rehabilitation needs

appeal to insufficient hospital services and are not always able to provide long-term recovery for these people. They come back into the family environment and appeal only to critical circumstance to circumstantial services to reduce stigma and disease but fail to complete a long-term recovery program.

IV. THE IMPACT OF THIS PROBLEM

The project supports the recovery of people with disabilities, a category deeply affected by legislative changes, people's mentality, lack of knowledge in the field, ignorance, other emergencies and priorities, thus (Ha et al., 2016):

- Facilitates the access of disabled people to specialized medical recovery services;
- Responds to the specific interests of people with disabilities, related to the complexity of disability-related needs;
- Promotes the principle of equal opportunities, respect for confidentiality, respect for people;
- Is based on the permanent evaluation of the beneficiaries, wants to modernize these evaluation systems adapted to the requirements of the legislation in force.
- Promote early intervention through appropriate assessment and individual recovery plans tailored to the needs of each patient;
- Provides a secure environment with specialized personnel as well as adequate equipment for the short- or long-term implementation of recovery strategies;
- People with disabilities will benefit from adequate recovery, specialized intervention, with maximum safety and with specialized equipment.

The impact of the project on the local community and local authorities are:

- Increasing work performance;
- Encouraging the promotion of physical therapist and physiokinotherapy in Romania;
- Increasing the quality of services offered to people with disabilities;
- Increase understanding of the needs of the community and the availability of the experience of other institutions to ensure the necessary diversity;
- Increase the credibility of community recovery centers;
- Developing consultative mechanisms with other social actors.

For a long-term impact of the project it will:

- a) Ensure optimal physical conditions for the implementation of effective rehabilitation programs;
- b) Ensuring sustainability through financial support and human resource;

- c) Providing long-term interdisciplinary support for the patients of the structure to ensure the premises of an effective recovery;
- d) Communication with all the social actors who can support through expertise the intervention within the specialized medical care department and physiokinotherapy recovery;
- e) Ensuring an internal evaluation methodology to ensure a performance management of the compartment;
- f) Providing programs for the continuous training of the specialized personnel.

Reduction until elimination the possibility of a risk of service incapacity due to a lack of medical recovery services. Establishment in the hospital of a specialized health care and physiokinotherapy. rehabilitation department for people with disabilities and people with medical need. Several advantages or positive implications of the proposed investments are:

- Development of specialized medical physiokinotherapy recovery services in favor of rehabilitation of persons with locomotor disabilities;
- Developing an organizational structure of recovery services for people with disabilities and people with recovery needs on a European-accepted good practice model;
- Providing specialized recovery services corresponding to the assessed needs of people with disabilities and people with recovery needs;
- Developing the hospital by providing physiokinotherapy recovery services for people with medical recovery needs.

It is proposed to establish a physiokinotherapy compartment, for which the following main objectives are identified:

- a) Endowment with high performance medical apparatus;
- b) Staff insurance against mal praxis;
- c) Develop procedures and protocols, update existing procedures, ROF, ROI, structure;
- d) Space planning and change destination
- e) Secondary Goals:
- f) Provision of medical recovery services with insurance house;
- g) Specialized collaboration with other institutions.

It is desirable to redesign the process of medical recovery through physiokinotherapy within the hospital in order to increase the performance of the specialty, using resources more efficient considering the following aspects:

- Increasing quality by increasing the number of medical staff and endowing with new devices;
- Increasing the number of patients, increasing of addressability;
- Performance improvement;
- Increasing hospital income.

V. SOURCES OF FUNDING IDENTIFIED FOR IMPLEMENTING THE SOLUTION

A. Preliminary aspect of the investment process

Funding the establishment of a physiokinotherapy department can be done from the own incomes, subsidies from the principal loan manager or sponsorships. Considering the need for physical medical recovery, the hospital management agrees with the investment for which reason the investment list of 2018 (period of the investment project development and the decision-making process) and that will include:

- Feasibility study to support investment;
- Approval documentation of the intervention works.

After the completion of these documents, the necessary steps will be taken to the Ministry for the allocation of the necessary amounts for the rehabilitation of the space and the allocation of the own revenues for the purchase of the medical equipment.

Given the necessity of the investment, the success of the funding consists of the substantiation of the request, which can be done based on a well-documented and correctly elaborated study.

B. The decision-making process for choosing the optimum investment project (simplify method)

In generally, the decision-making process will be based on the “most powerful” indicators for economic efficiency. In the following they are presented.

- The return of investment, ROI which is the duration for the total investment (Inv) recovery from the benefits created by exploiting the created medical unit (B):

$$ROI = Inv/B \quad (1)$$

Where Inv ins the volume of the capital invested;
B - benefit achieved

- The coefficient of economic efficiency of investments e :

$$e = 1/ROI \quad (2)$$

- The monthly/annual profit generated (P):

$$P = V - C \quad (3)$$

Where V is the monthly/annual income;
C - the monthly/annual costs

- The economic yield R :

$$R = P * i/Inv - 1 \quad (4)$$

Where P is the annual profit;

i – the effective exploitation time.

For public medical units, in Romania the investment processes are conducted through auctions (similar with the considerations of (Dabla-Norris et al., 2012)). Thus, in the present case were presented three companies that offered complex solutions regarding the arrangement of the space and the equipping with equipment, but each proposed project was differentiated by the technical and economic parameters. The decision regarding the optimum project variant was based on a detailed analysis of the technical parameters and a calculation regarding the economic efficiency of each investment variant. It must be said that, in the case of public organizations, the decision of investments and acquisitions is made on the criterion of "the minimum price", but the chosen variant (declared the winner of the public auction) must ensure the level of performance and quality desired.

Table 3 includes the initial data and information about the three investment projects that has been considered in the decision-making process. Table 4 presents a synthesis of the calculations results of the indicators for economic efficiency together with the comparison of the three investment projects. The calculations are developed in a static vision and the comparison has been consider the individual scores achieved by each investment project for each calculated indicator (score 1 – optimal solution).

Table 3 Results of the economic efficient indicators – static vision

Preliminary data	Symbol	Unit	Variant 1	Variant 2	Variant 3
Indicator					
Total volume of the investment	Inv	kRON	2.50	2.50	3.00
Annual services provide (estimations)	Q	Pc./year	30,000	20,000	20,000
Unitary cost (average value)	c	lei/pc.	20	20	25
Tarif of a service (average value)	p	lei/pc.	120	120	120
The duration for the investment project implementation	d	years	1	1	1
The duration of efficient exploitation	De	years	5	5	5

Table 3 Results of the economic efficient indicators – static vision

Decision-making indicators	Symbol	Unit	Variant 1	Variant 2	Variant 3	Count V1	Count V2	Count V3
Total volume of the investment	Inv	kRON	2.50	2.50	3.00	1	1	0
The duration for the investment project implementation	d	years	1	1	1	1	1	1
The duration of efficient exploitation	De	years	5	5	5	1	1	1
Specific investment	s	lei/pc.	83.33	125.00	150.00	1	0	0
Investment productivity	Iwi=1/s	pc./RON	12000.00	8000.00	6666.67	1	0	0
Annual Income	Vh	kRON	4.20	4.20	4.20	0	0	0
Annual Cost	Ch	kRON	0.60	0.40	0.50	0	0	0
Annual Profit	Ph	kRON	3.60	3.80	3.70	0	1	0
ROI	Ti	years	0.69	0.66	0.81	0	1	0
The coefficient of economic efficiency	ei=1/T	-	1.44	1.52	1.23	0	1	0
Economic efficiency	Ri	-	6.20	6.60	5.17	0	1	0
Total equivalent expenditures	Ki	kRON	5.50	4.50	5.50	0	1	0
Annual equivalent expenditures	ka=Ki/De	kRON /year	1.10	0.90	1.10	0	1	0
Specific equivalent expenditures	ksi=Ki/Q	kRON /year	36.67	45.00	55.00	1	0	0
Total scores result						6	9	2

It can be seen from the tables above, based on the score obtained, that the hospital unit will choose as the optimum variant of investment project to be implemented, the V2 variant (the optimum variant). As a result, the volume of capital invested for implementing the project is 2.5 kRON.

VI. CONCLUSIONS. EXPECTED RESULTS

Following the implementation of the project, important results are expected through the assurance of the services for interested persons, against payment or by settlement of the insurance house. The created unit for medical services will provide an alternative for the local population through the development of the following capacity:

- One physiotherapeutic rehabilitation compartment for people with disabilities / handicap offering recovery and rehabilitation services;
- Minimum 2 appearances in the local and central press;

- Create a recovery model in line with European standards;
- We do not expect each beneficiary to have a better quality of life due to recovery;
- Reducing long-term hospitalization among people with disabilities by facilitating access to medical recovery services;
- The project comes to respond to the specific interests of people with disabilities, related to the complexity of disability-related needs
- The principle of equal opportunities, respect for confidentiality, respect for people will be promoted;
- Promoting early intervention through proper assessment and individual recovery plans tailored to the needs of each patient;
- Disabled people will benefit from adequate recovery, specialized intervention with maximum safety and specialty equipment.

Indicators will be evaluated quarterly. The head of the department and the medical director are responsible for the assessment of the indicators. Depending on the evolution observed, they may request the meeting of

the Steering Committee at any time, in addition to the quarterly evaluation, to eliminate the identified risks or to solve unforeseen problems:

1. Providing services at the hospital level in two laps;
2. It will be aimed at eliminating the referral of patients to other centers;
3. Contracting of medical recovery services.

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