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Asset Surveillance— Case Study

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***Abstract*—** *Over the years, the occurrences of vandalism against the school have increased, according to data from APEOESP. Scarce monitoring environments provide acts of vandalism, sexual harassment, bullying , physical aggression, theft, among others that are becoming increasingly routine in school environments. Schools should not only provide quality education, have good teachers and a variety of extracurricular activities, but also provide security and peace of mind for students. In this context, the dissemination of security services has increasingly attracted the attention of society and subject matter experts in recent years. Thus, cameras are installed to maintain the feeling of security and confidence for the population, and this surveillance is expanded on the streets, in condominiums, hospitals, residential facilities, prisons, among others. The security system needs to adopt a systematic set of processes in order to create value through alignment before actually starting the technical process. For this, it is necessary to review several pre and post monitoring steps, so that it runs successfully. This study aims to analyze the types and different monitoring systems, their surveillance and control technologies. In addition to presenting a budget analysis of cost-benefit investments for the acquisition and installation of security camera equipment, in the control of environments for care, in the use of modern and high-tech equipment. In addition, finding solutions for more accessible and effective security, which actually prevents and protects the environment with real-time actions in an investment analysis with the help of digital surveillance.*

I. INTRODUCTION

Violence and crime are not recent issues, nor a contemporary brand, it is a social problem as old as society itself, but, at each time, it manifests itself in different ways and circumstances (PEREIRA, DA SILVA, 2019).

In view of the insecure and violent times, private security has been considered an essential service for property and personal security in organizations. It has grown linearly in Brazil since its inception, having its greatest growth since the 1990s, noted by the number of surveillance companies, street guards, and the dissemination of technologies aimed at the electronic security industry.

In many organizations, the use of organic surveillance services, starting to directly hire, within their functional framework, professionals to meet the demands of their corporate or residential property, bearing all the bureaucracy of registration with the competent bodies as

well as all the continuous process of training and recycling of the desired professional, as well as the use of technologies and equipment of permitted use (ALBUQUERQUE, 2013).

However, physical resources have limitations, risk analysis and the technologies used to be implemented and guidance for employees are essential measures that must be analyzed by managers, in addition to the purchase of all accessories and work tools, such as bullets, batons, communication radios, among others.

With this, a technology has stood out and gained strength when it comes to knowledge and control of spaces, it is monitoring by cameras, where security has had more robust ways to protect heritage assets, as well as offering a security system for individuals. .

In the area of security, it is essential that the company works with cutting-edge technologies, especially if it offers electronic surveillance services. Private security stands out in the installation and sale of security equipment, especially those related to monitoring (LOURENÇO, 2019).

In the school environment, security cameras are increasingly present, they have been used as behavioral inspectors. Acts of vandalism, sexual harassment and violence, exposure of or to nudity, bullying , physical aggression, theft and others are becoming more and more routine, generating a feeling of unease in students and teachers, harming the development of their educational activities. routine.

According to Anísio Teixeira, school education is necessary, constituting a public problem, a public interest, a right of each individual and a duty of politically organized society. It is not an advantage or individual success, but a condition for the functioning of society itself (TEIXEIRA, 2009, p. 44-48).

Since the first internal circuit was created by the German company Siemens to monitor the launch of rockets during the war in 1942, closed circuit television cameras have been disseminated throughout the world.

At first it was not possible to record the images, but only to monitor live what was happening next to the cameras, years later, in the 1970s, analog tape recorders (video cassettes) began to become popular and began to be used in CCTV systems. Since then, closed-circuit television cameras - CCTV, also known by the acronym in English closed-circuit television (CCTV), have spread to several cities around the world. In Brazil, cameras began to be part of landscapes in the 1980s, initially as a strategy for monitoring traffic (Balbim , 2003), later being used for security purposes. The first to employ camera surveillance as a security tool were banks. The oldest record in Brazilian legislation of this type of monitoring appears, in 1983, in Law 7,102 (Kanashiro, 2008) which provides for the operating rules for banking establishments.

In the book “1984” by George Orwell, the author highlights that all people are under constant surveillance by the authorities, mainly by telescreens . Even though it was written in 1949, all the forms of surveillance described are present in everyday life, sometimes in a veiled way. Technology has increasingly contributed to increasing citizen control and there is a loss of privacy. The use of surveillance cameras has been proliferating in various environments aiming at security.

The surveillance society is experiencing a considerable increase and new products are created and sold in the global market. Gradually, parks, homes, offices, hospitals, schools, universities and other institutions – including families – start to use technological systems focused on electronic surveillance. This growth includes the different types of closed circuit television (analog, digital, network or IP), biometric systems (digital, retinal, iris, voice and facial recognition), radar systems (connected through satellites) and geolocators .

The State of Mato Grosso do Sul enacted Law nº 3,946/2010, authorizing the installation of a security system based on monitoring by video cameras in public and private schools of that entity of the federation, with the objective of preventing and investigating the authorship of acts criminal or harmful to the safety of the school community and to preserve the school's property. The law allows the installation of cameras in places of internal or external circulation of schools, with the exception, however, of changing rooms, bathrooms, teachers' rooms and classrooms. Although it is considered by many to be a great alternative in the repression and prevention of crimes, even though it is already part of the routine of Brazilians, the adoption of Electronic Monitoring receives very pertinent criticisms, disturbing the private life and violating the privacy of the people being observed (BRAZIL). , 2010).

1.1 POSSIBILITY OF INSTALLATION - IMPORTANCE OF PRIVACY

In opinion 15426/2010, the State Public Domain Attorney of Rio Grande do Sul, Dr , Andrea Trachtemberg Campos, clarifies in her opinion that there is no fence for installing cameras in places where there is no reservation of privacy, as there is no if talking about violation of private life – 'intimacy and image – in a public environment with movement of people, that is, in certain areas in schools, such as patios, corridors, sports courts, strategic points outside schools and next to turnstiles

entrance and exit from schools, provided that the equipment is used strictly for the surveillance and safety of students and teachers in a moderate, generalized and impersonal way.

The prosecutor reports that it is legitimate to install cameras to reduce violence and vandalism, as long as the images are not disclosed and there are signs of their existence in places that are easy to see.

It is concluded that it is not possible to install cameras in places where privacy is reserved, such as, for example, in bathrooms, classrooms, teachers' rooms, environments for the private use of workers, work rooms or offices, changing rooms, among others. others. He warns that "In these spaces, the intimacy and image of students and servers must be preserved".

It is noted that the issue involving monitoring is not new, but it constantly returns to public debate, precisely because it does not find unanimity among authors or in the legal sphere itself.

Fig1: Monitoring Equipment Model

Source: Google photos, 2021.

Fig.2 - Monitoring Room Model

II. THEORETICAL FRAMEWORK

2.1 SAFETY IN BRAZIL

Article 144 of the CRFB/88 is a reference on Public Security and presents the exhaustive list of bodies that compose it: federal police, federal highway police, federal railway police, civil police, military police and military fire brigades, in addition to the possibility of municipalities to constitute municipal guards, intended to protect their goods, services and facilities, as provided for by the Law (BRASIL, 1988).

The National Public Security Policy began with the implementation of the Single Public Security System (Susp) for the period from 2018 to 2028, approved by the National Congress, after years of study. According to data from the National Public Security Plan (PNSP), states, with fiscal crises for decades, in 2016 paid 85% of spending in the area, in contrast to 9% for the federal government. In 2018, pursuant to Provisional Measure nº 841, of 2018, public security will have permanent, predictable and growing resources, with funds from lotteries managed by Caixa Econômica Federal (CEF), estimated at 1 billion reais. For the year 2022, the projected figure could reach 4.3 billion for investment and funding for states and municipalities – preferably through objective, public and verifiable indicators. (BRAZIL, 2018).

In a position of complementarity, private security activities end up meeting the emerging demand for security, also resulting from moments of crisis and growing and organized crime, which is not exclusive to Brazil.

A study of private security activity comprises a characterization of its social and economic context and the development of concepts and relationships. For Sapori (2007) the mechanisms of social control are diversified, as the creation of the need for public order is part of the process of emergence of conceptions of crime recognized and categorized by public authorities and professional specialists. It follows the administrative expansion of the State and its gradual acquisition of the effective monopoly of force.

Valente (2017) considers security as a collective need provided regularly and continuously by public bodies and servants under the terms established by law,

Using the theory of collective needs as a basis for public interest

[...], we consider that security is one of those collective needs, the regular and continuous satisfaction of which must be provided by the typical activity of Public Administration bodies and individuals, under the terms established by the applicable legislation, and for that purpose they must obtain the resources most appropriate and use the most convenient forms, either under the direction or supervision of the political and executive power, or under the control of the courts.

2.2 ELECTRONIC SECURITY

According to Cubas (2002), the expansion of electronic security benefits both from the cheaper equipment and from the intense technological evolution in this type of service. The replacement of men by machines, however, is limited by the need for interaction with visitors and the judgment of occurrences by workers.

When we enable the use of monitoring systems in place of access restrictions, electronic security can promote efficiency in surveillance related to the correction of deviations through a rigorous and repetitive routine of exercises, as was peculiar to a “disciplinary regime”.

The installation of cameras in places where people circulate leads the person being watched to believe that they are always being watched. Therefore, the mere presence of a surveillance camera generates intimidation to any conduct, whether the offender or the questioner, after all, the electronic gaze does not differentiate the internal intention of those being watched. In this sense, with reference to this surveillance model, the State starts to monitor the population at all times, preventing criminal actions through the monitoring system, ensuring that its sovereignty is maintained and respected (PITZER, 2009).

Investment in security is something essential in people's lives, thus, Lordello (2021), justifies;“It is important to emphasize that the so-called security cameras have several benefits: a) Psychological factor of deterrence, because the criminal knows he is being watched and his images are stored. b) inhibits the action of invaders, predators, taggers and malicious people. c) facilitates prompt response work (police and private surveillance) by providing details of the crime that is taking place. d) Integration with alarm systems. e) Access to images via the internet” .

Corroborating this information, a survey carried out by the Instituto Locomotiva Pesquisa e Estratégia, commissioned by Apeoesp (Sindicato dos Professores do Ensino Oficial do Estado de São Paulo), with students and teachers from the state public school system, found that 79% of the population of São Paulo was aware of any recent case of violence in schools in São Paulo in 2019 — nationally, the rate was 77%. Occurrences of bullying , discrimination and vandalism were the most noted in the past year.

Bullying was the type of violence most suffered by students in the last school year (22%), while verbal aggression was the main abuse reported by educators (48%). There were also reports of physical aggression, theft and robberies inside school premises in the State of São Paulo (SACHETO, 2020).

According to the research, violence in schools implies a safety problem for both teachers and students, severely impacting the learning process.

However, the implementation of an efficient system for monitoring and asset management has a fluctuating cost, due to new technologies and depreciation of current equipment, which must be considered for a feasibility analysis of implementing electronic security systems.

2.3 STRATEGIC COST MANAGEMENT

A long time ago, the origin of costing systems may have originated in man's need to count and identify his survival needs, and over time they were improved according to economic and financial growth.

With the growth of companies and the consequent increase in the complexity of the production system, it was found that the information provided by cost accounting was potentially useful to management assistance, extrapolating the mere accounting determination of the result for the period. (BORNIA, 2010, p. 12).

It is necessary for companies to identify and interpret this information through the management system to face the current competitive environment.

[..] the cost system must be in line with the management system, so that the information generated produces good results. In other words, the cost system must adapt to the needs of the management system in order for managers to be able to fully utilize the information provided. (BORNIA, 2010, p. 32).

The correct treatment of information enables the planning of new investments, development of new products and control of expenses, and that through applied strategies can direct competitiveness.

Decisions based on reliable data make it easier for the administrator to develop these strategies.

The strategy can be treated as project elaboration, to reach an objective, but for the company to be able to invest, a financial disbursement is necessary, and it is at this moment that the need for strategic cost management arises, contributing to consumption. control of this financial capital without it being wasted, and that it is used where it is really needed.

According to Souza and Clemente (2008) investment decisions are at the base of strategic cost management because they largely define the agenda and magnitude of costs and expenses.

Strategic cost management can be seen as a strategy tool that aims to identify the types of costs, and direct them in order to reduce them to the maximum, increasing the organization's competitiveness in the macroeconomic

scenario, without minimizing the profitability, and that the company has the ability to invest in new projects.

The decision to invest is only possible when it arises through a successful strategy. The feasibility and consequently the return must be initially evaluated through concrete indicators that allow the administrator a detailed view of where the capital will be applied and if the company has sufficient capacity and own resources for the investment project. When the organization establishes itself in a level of profitability, it is possible to identify that the interaction between the cost system, the strategic management, and the return of the investments, are the factors that propitiate this positioning.

2.4 MULTI-INDEX METHODOLOGY

Multi-Index Methodology is based on the use of indicators and variables which allow the analysis of investment projects, and the reasoning of the decision-making process regarding its acceptance or rejection. According to Souza and Clemente (2008) "The decision to make a capital investment is part of a process that involves the generation and evaluation of several alternatives that meet the technical specifications of the investments".

This methodology consists of, from the discounted cash flow and the analysis of the context, generating two groups of indicators.

The first group is used to assess the perception of return and is composed of the PV (present value); NPV (net present value); VPLa (annualized net present value); IBC (benefit/cost ratio) and ROIA (additional return on investment).

The second group is used to improve the perception of risk, it is composed of the TMA/IRR (minimum rate of attractiveness/minimum rate of return); Pay-back /N (investment payback period / project horizon in periods); Degree of revenue commitment (GCR); management risk and business risk. In this methodology, risk is not incorporated as a spread over the discount rate and, therefore, must be analyzed separately through other indicators.

developed investment projects provides the company with a stream of future benefits, hence the importance of having the multi - index methodology as a basis. According to Souza and Clemente "The investment project, in a broad sense, can be interpreted as an effort to raise the level of information (knowledge) about all the implications, both desirable and undesirable, to reduce the level of risk".

The prior analysis of investments allows a better measurement of capital resources, administrators must determine the company's objectives in relation to the investment decision, and which variables will influence this process.

Painting I -Multi-Index Methodology

	Indicadores	Descrição
Indicadores de Retorno	VP (VALOR PRESENTE)	Considera a soma de todos os fluxos de caixa na data zero.
	VPL (VALOR PRESENTE LÍQUIDO)	O Valor Presente Líquido, como o próprio nome indica, nada mais é do que a concentração de todos os valores esperados de um fluxo caixa na data zero.
	VPLa (VALOR PRESENTE LÍQUIDO anualizado)	No VPLa o fluxo de caixa representativo do projeto de investimento é transformado em uma série uniforme.
	IBC (ÍNDICE BENEFICIO/CUSTO)	O IBC é uma medida de quanto se ganha por unidade de capital investido.
	ROIA (RETORNO ADICIONAL DECORRENTE DO INVESTIMENTO)	O ROIA é a melhor estimativa da rentabilidade para um projeto de investimento representa em termos percentuais a riqueza gerada pelo projeto.
Indicadores de Risco	TAXA MÍNIMA DE ATRATIVIDADE/TAXA MÍNIMA DE RETORNO	TMA é a taxa a partir da qual o investidor considera que está obtendo ganhos financeiros, e para que um novo investimento seja atrativo deve render no mínimo, a taxa de juros equivalente a rentabilidade das aplicações correntes e de pouco risco. TIR calcula a taxa de juros para a qual manter o dinheiro investido seria o equivalente a utilizá-lo em um novo projeto.
	PAYBACK/N (PERIODO DE RECUPERAÇÃO DO INVESTIMENTO HORIZONTE DO PROJETO EM PERIODOS)	É o período de tempo necessário para que as entradas de caixa do projeto se igualem ao valor a ser investido, ou seja, o tempo de recuperação do investimento realizado.
	GCR (GRAU DE COMPROMETIMENTO DA RECEITA	É usado para avaliar o risco operacional, isto é, para avaliar o percentual da receita máxima que está comprometida com o pagamento dos custos e despesas.
	RISCO DE GESTÃO E RISCO DE NEGÓCIO	O Risco de Gestão é usado para avaliar o grau de competência do grupo gestor para realizar com sucesso o empreendimento. O Risco de negócio é usado para quantificar, mesmo que subjetivamente, as análises clássicas PEST, 5 forças de Porter e SWOT.

Source: Adapted from Souza and Clemente (2008)..

III. INDENTATIONS AND EQUATIONS

The research regarding its degree of application reveals itself as applied research, presenting a descriptive character, as it aims to describe, interpret and analyze data on the impact of technology in the analysis of an investment project in an electronic surveillance system. According to Gil (1999), research of this type has as its primary objective the description of the characteristics of a certain population or phenomenon or the establishment of relationships between variables.

As for the approach to the problem under study, this work was configured as a quantitative research, as it is characterized by the use of statistical instruments, in the collection and processing of data.

Richardson (1999 apud BEUREN, 2006, p. 92) states that the quantitative approach:[...] is characterized by the use of quantification both in the modalities of information collection, and in the treatment of them through statistical techniques, from the simplest such as percentage, average, standard deviation, to the most complex, such as correlation coefficient , regression analysis, etc.

As for its temporality, it can be characterized as a transversal nature, as the information considered a period of time, limited to the scope of the research.

The methodology used in this study has the typology of a case study, as it gathers several important information, facts and values being numerous and detailed with the objective of informing the researcher about the totality of a situation. According to the author ,

"The case study is an empirical study that investigates a current phenomenon within its context of reality, when the boundaries between the phenomenon and the context

are not clearly defined and in which various sources of evidence are used." (GIL, 1999, p. 73).

The choice and selection of the topic to be studied took place according to the criteria of the needs of the organization considered to monitor its physical assets in a more efficient way and through the analysis of investment projects, providing the unfolding of the calculations, allowing the reader to understand the expected from this study. After selecting the electronic surveillance equipment, the technologies necessary for its proper implementation were consulted.

Subsequently, the costs and investments necessary for the business were budgeted, while the commercialization values were obtained from a market survey, using various data sources such as catalogs, internet, commercial proposals from suppliers and others.

Electronic spreadsheets were also used, using the EXCEL software to determine and calculate the VP, NPV, VPLa , IBC, ROIA, IRR and Payback indicators . Also to compose the study, the Average Rate of Attractiveness TMA, considered for the project, was raised, totaling 12%.

After the calculations, using a Risk and Scenario Analysis spreadsheet, prepared and provided by Souza and Clemente (2008), the results presented were reached..

IV. DEVELOPMENT

Considering the concepts exposed above, in an illustrative format, a scenario of a University with 7 units was considered, where it is desired to implement electronic monitoring in order to increase property security. The institution currently has outsourced surveillance, in physical and face-to-face format, which, as presented above, has its legal and security disadvantages. Annual surveillance costs are around BRL 800,000.00 and for investment analysis purposes, an investment of BRL 900,000.00 was considered in an electronic security system that could monitor all units in real time. .Through the investment analysis, we sought to find the budget viability regarding the resources used in the project. Table 1 shows the list of materials with pricing considered for the calculation of the investment analysis

Table 1 - Equipment List: An acknowledgement section may be presented after the conclusion, if desired.

Equipment	The amount	Unitary value	Amount
Bullet Intelbras IP Camera VIP 1230b Full HD 1080p	103	390.00	40,170.00
Intelbras Dome IP Camera VIP 1230d Full HD 1080p	116	436.70	50,657.20
Camera IP Bullet Vip 1430 B 3.6mm 4mp 30m	73	550.00	40,150.00
IP Dome Vip Camera 1430 D 2.8mm 4mp 30m	59	450.00	26,550.00
NVR 64 channels - iNVD 9064 FTU	6	25,200.00	151,200.00
NVR 32 channels - iNVD 9032 PE FTU	3	14,068.84	42,206.51
10TB hard drive	31	3,200.00	99,200.00
decoder for 9 screens - 144 Cameras	two	16,964.86	33,929.72
Professional monitor 55" - MWL 7255	8	7,000.00	56,000.00
TV/Monitor Support	8	100.00	800.00
Windows 10 computer for VMS software	1	15,000.00	15,000.00
Overlay box 9.5X9.5X5	351	10.00	3,510.00
furukawa cat5e network cable box	46	700.00	32,200.00
Patch cord cat5e 50 cm	351	7.00	2,457.00
RJ 45 male	351	2.00	702.00
Patch panel 24 ports cat5e	32	250.00	8,000.00
Rack Organizer 1u x 19"	32	23.00	736.00
Rack 8U 19"	28	335.00	9,380.00
Cage nut + M5 screw for fixing racks	384	0.65	249.60
manageable POE switch	10	4,000.00	40,000.00

POE switch 16 ports manageable	22	2,450.00	53,900.00
UPS 1200va	30	1,200.00	36,000.00
VMS software license	1	20,000.00	20,000.00
Furniture for surveillance center	1	8,000.00	8,000.00
Installation materials	1	20,000.00	50,000.00
Labor for installation	1	50,000.00	80,000.00
Total			**900,998.03**

Source: Own authorship, 2022.

For effective monitoring, four employees were considered, called heritage watchmen, responsible for operating the electronic monitoring system. The salary cost of each guard for illustrative purposes was considered R$ 1,508.90 monthly, without charges. Other monthly expenses were also considered through average values based on the organization's estimate.

Through Table 2 we have the income statement referring to the incident values in the project. For the purposes of equipment depreciation, a useful life of 6 years was considered.

Table 2 - Income Statement

DRE	
Savings with service replacement	69,401.59
(-) Expenses	
SALARY	6,035.60
FGTS	482.85
13TH SALARY	502.97
FGTS	40.24
VACATION	670.62
FGTS	53.65
INSS	2,076.25
OTHERS	1,479.33
Landline	15.00
Internet	0.00
Electricity	300.00
maintenance	200.00
Cleanliness and conservation	1,050.00
Equipment Maintenance and Replacement	500.00
Depreciation of equipment in 72 Months	12,513.86
	-25,920.36
Result	**43,481.24**

Source: Own authorship, 2022.

The income statement shows that the savings generated by the digitization of the surveillance service generates a monthly revenue of R$ 69,401.59, from which the operating costs and replacement of installed equipment in the amount of R$ 25,920.36 will be discounted. In this way, the project, after being fully implemented, will generate monthly cash of R$ 43,481.24 for the institution.

In this sense, the discounted cash flow was calculated, presented in Table 3, so that it is possible to visualize the evolution of cash until the moment of project payback , that is, according to the expected cash generation, in how many periods (months) we may consider the project as paid.

Table 3 - Discounted Cash Flow

Cash flow							
Month	**Investment**	**Revenue**	**Disbursement**	**Cash flow**	**Accumulated**	**Present value**	**payback**
0	-900,998.03	0.00	0.00	-900,998.03	-900,998.03	0.00	0.00
1	0.00	69,401.59	43,481.24	25,920.36	-875,077.68	25,600.35	25,600.35
two	0.00	69,401.59	43,481.24	25,920.36	-849,157.32	25,284.30	50,884.65
3	0.00	69,401.59	43,481.24	25,920.36	-823,236.96	24,972.15	75,856.80
4	0.00	69,401.59	43,481.24	25,920.36	-797,316.60	24,663.85	100,520.65

5	0.00	69,401.59	43,481.24	25,920.36	-771,396.25	24,359.36	124,880.01
6	0.00	69,401.59	43,481.24	25,920.36	-745,475.89	24,058.62	148,938.63
7	0.00	69,401.59	43,481.24	25,920.36	-719,555.53	23,761.60	172,700.24
8	0.00	69,401.59	43,481.24	25,920.36	-693,635.17	23,468.25	196,168.49
9	0.00	69,401.59	43,481.24	25,920.36	-667,714.82	23,178.52	219,347.01
10	0.00	69,401.59	43,481.24	25,920.36	-641,794.46	22,892.37	242,239.37
11	0.00	69,401.59	43,481.24	25,920.36	-615,874.10	22,609.74	264,849.12
12	0.00	69,401.59	43,481.24	25,920.36	-589,953.74	22,330.61	287,179.73
13	0.00	69,401.59	43,481.24	25,920.36	-564,033.39	22,054.92	309,234.65
14	0.00	69,401.59	43,481.24	25,920.36	-538,113.03	21,782.64	331,017.29
15	0.00	69,401.59	43,481.24	25,920.36	-512,192.67	21,513.72	352,531.01
17	0.00	69,401.59	43,481.24	25,920.36	-460,351.96	20,985.80	394,764.93
18	0.00	69,401.59	43,481.24	25,920.36	-434,431.60	20,726.71	415,491.64
19	0.00	69,401.59	43,481.24	25,920.36	-408,511.24	20,470.83	435,962.47
20	0.00	69,401.59	43,481.24	25,920.36	-382,590.88	20,218.10	456,180.57
21	0.00	69,401.59	43,481.24	25,920.36	-356,670.53	19,968.49	476,149.06
22	0.00	69,401.59	43,481.24	25,920.36	-330,750.17	19,721.97	495,871.03
23	0.00	69,401.59	43,481.24	25,920.36	-304,829.81	19,478.49	515,349.52
24	0.00	69,401.59	43,481.24	25,920.36	-278,909.45	19,238.01	534,587.53
25	0.00	69,401.59	43,481.24	25,920.36	-252,989.10	19,000.51	553,588.04
26	0.00	69,401.59	43,481.24	25,920.36	-227,068.74	18,765.93	572,353.97
27	0.00	69,401.59	43,481.24	25,920.36	-201,148.38	18,534.25	590,888.23
28	0.00	69,401.59	43,481.24	25,920.36	-175,228.02	18,305.44	609,193.66
29	0.00	69,401.59	43,481.24	25,920.36	-149,307.67	18,079.44	627,273.11
30	0.00	69,401.59	43,481.24	25,920.36	-123,387.31	17,856.24	645,129.35
31	0.00	69,401.59	43,481.24	25,920.36	-97,466.95	17,635.79	662,765.14
32	0.00	69,401.59	43,481.24	25,920.36	-71,546.59	17,418.07	680,183.21
33	0.00	69,401.59	43,481.24	25,920.36	-45,626.24	17,203.03	697,386.24
34	0.00	69,401.59	43,481.24	25,920.36	-19,705.88	16,990.65	714,376.89
35	0.00	69,401.59	43,481.24	25,920.36	6,214.48	16,780.89	731,157.77
36	0.00	69,401.59	43,481.24	25,920.36	32,134.84	16,573.71	747,731.48
37	0.00	69,401.59	43,481.24	25,920.36	58,055.20	16,369.10	764,100.58
38	0.00	69,401.59	43,481.24	25,920.36	83,975.55	16,167.01	780,267.60
39	0.00	69,401.59	43,481.24	25,920.36	109,895.91	15,967.42	796,235.02
40	0.00	69,401.59	43,481.24	25,920.36	135,816.27	15,770.29	812,005.31
41	0.00	69,401.59	43,481.24	25,920.36	161,736.63	15,575.60	827,580.90
42	0.00	69,401.59	43,481.24	25,920.36	187,656.98	15,383.30	842,964.21
43	0.00	69,401.59	43,481.24	25,920.36	213,577.34	15,193.39	858,157.60
44	0.00	69,401.59	43,481.24	25,920.36	239,497.70	15,005.81	873,163.41

45	0.00	69,401.59	43,481.24	25,920.36	265,418.06	14,820.56	887,983.97
46	**0.00**	**69,401.59**	**43,481.24**	**25,920.36**	**291,338.41**	**14,637.59**	**902,621.56**
47	0.00	69,401.59	43,481.24	25,920.36	317,258.77	14,456.88	917,078.44
48	0.00	69,401.59	43,481.24	25,920.36	343,179.13	14,278.40	931,356.83
49	0.00	69,401.59	43,481.24	25,920.36	369,099.49	14,102.12	945,458.95
50	0.00	69,401.59	43,481.24	25,920.36	395,019.84	13,928.02	959,386.97

Source: Own authorship, 2022.

Considering the discounted cash flow, presented in Table 3, we realize that the evolution of the project's cash generation will make it reach its payback point after 46 months.

With this information, some indicators are calculated for project feasibility analysis, such as present value (PV), considering the period of 72 months (equipment useful life), net present value (NPV), annualized net present value (NPV) , benefit/cost ratio (IBC), added return on investment (ROIA), internal rate of return (IRR), and payback .

In Table 4, we have the indicators referring to the values presented in the previous tables.

Table 4 - Calculated Indicators

VP	1,225,837.84
NPV	324,839.81
NPV	25,920.36
IBC	1.36
ROIA	0.43%
IRR	2.328%
TMA/IRR Index	0.54
P.BACK	46
Payback Index /N	0.64

Source: Own authorship, 2022.

The multi - index indicators show that the project's internal rate of return for the institution will be 2.328% per month, a total of 1.328% higher than the 1% attractiveness rate considered for this analysis. In this way, the project has budgetary feasibility for the institution, in addition to the technical and management gains that the monitoring system will allow the organization.

V. CONCLUSION

For organizations that have physical environments with high traffic of people, the risk of security incidents has increased over time, crime, harassment, theft and breakdowns are concerns that are discussed by managers.

Electronic security technology presents itself as a tool to reduce these risks, through constant monitoring, recording of images, audio and identification of faces or even sudden or non-standard movements.

However, the implementation of technology in large environments, such as the company considered for the study, has a high cost due to the amount of equipment and infrastructure necessary for the operation of the monitoring system.

In this sense, the present study sought to analyze the budgetary feasibility of implementing a monitoring system, considering 350 cameras monitored 24 hours a day through 4 employees, heritage watchmen.

Through the calculations performed, with the values considered, the feasibility of the project for the organization is concluded, a statement that is taken from the interpretation of the multi-index indicators for budget analysis of a project.

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