36 Service-Centered Operation Methodology (MOCA) Application Supported by Computer Science to Improve Continuously Care Quality in Public Services

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Abstract

The proposal of a Corporate Governance Model called Service-Focused Operation Methodology (MOCA) was carried out, applied in Public and Private Partnerships (PPP) to improve services quality offered by the Brazilian states. This PPP model enabled several Service Center (in portuguese *Central de Atendimento*—CA) implementation projects supported by several multidisciplinary knowledge areas that involve projects and governments. However, this article explored an aspect of how a MOCA's use with new technologies embedded in projects provide continuous improvements in results. In this case, for example, a demand study was applied to Planning and Control of Operations (PCO) in a use of Research and Development (R&D) to enable Artificial Intelligence algorithms for Planning Optimization in service production lines, aiming at improve citizen service aspects. In this CA PCO environment, a project outcomes set have been consolidated to demonstrate an impact that MOCA's use with new computational technologies can bring to society. The effective integration results for this R&D; MOCA applied in PCO; obtained from stabilized proof of concepts; providing data collection and more accurate performance information in each CA, collected directly by an ERP used. From these data, the design of service production lines was performed using the following methodologies: (1) Descriptive Statistics, (2) Temporal Series and (3) Temporal Underground Neural Networks (ANNT). A Temporal Neural Networks (ANNT) was obtained, using recursive corrections in demand balancing by attendant performance. Using these technologies, a more accurate performance forecast to estimates attendants work was achieved in order to obtain a more realistic operational planning.

Keywords

PPP · Public services · Corporate governance · IT approach

36.1 Introduction

Throughout its existence, Shopping do Cidadão (SC) has organized and developed around the following guidelines: (1) Constantly refined corporate governance; (2) Reduction of operating expenses through the efficiency of standardized and certified procedures; (3) Management based on quantitative and qualitative controls through service level indicators; (4) Reduction of deadlines and costs in an implantation and management of new plants; (5) Productivity optimization in the business operation; (6) Search for customer satisfaction [1], using his own methodology.

Therefore, it enabled the staff reallocation calculations and attendants exchange between service lines dynamically. As a side effect, these optimization calculations use an Installed Capacity identification of service rendering in the CA production lines, providing a smaller deviation between plans and realizations. In practice, with the same small number of people, using these methodologies, the same

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S. Latifi (ed.), *Information Technology – New Generations*, Advances in Intelligent Systems and Computing 738,
https://doi.org/10.1007/978-3-319-77028-4_36

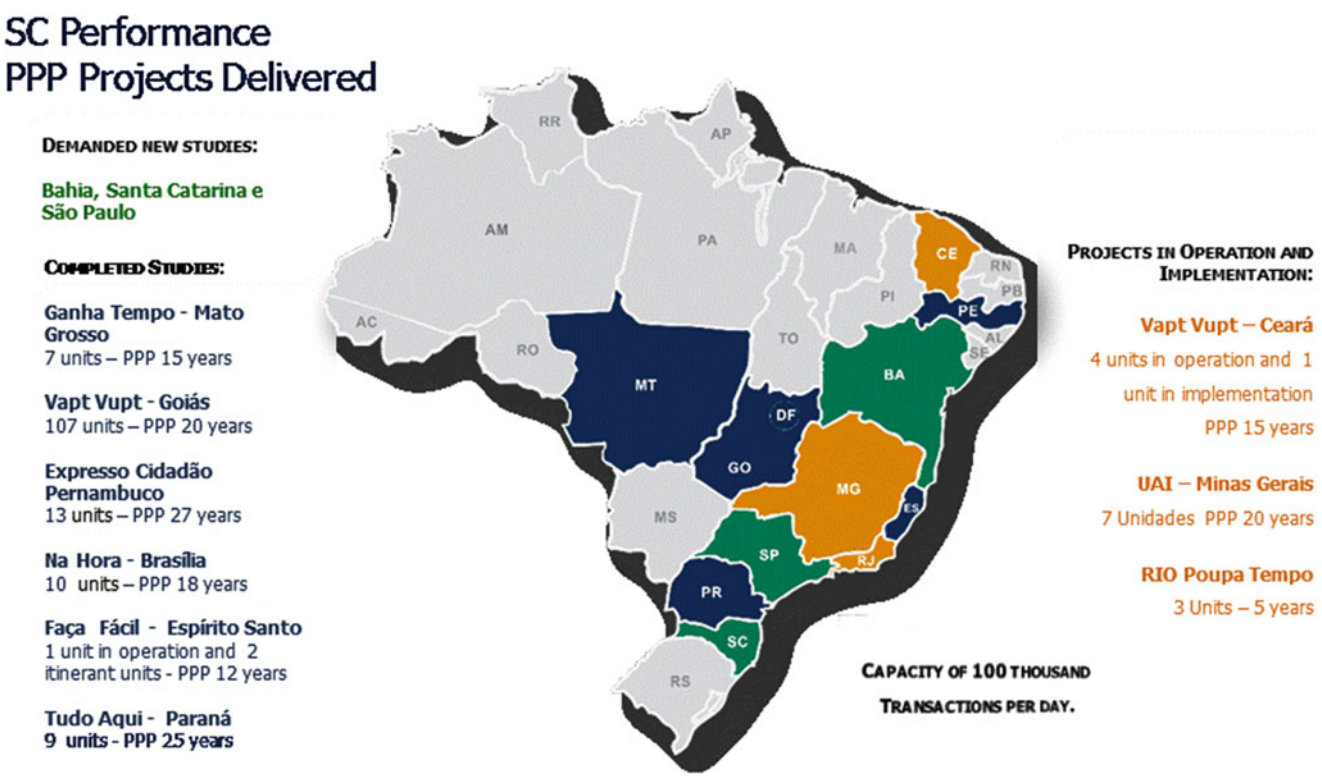


Fig. 36.1 The company performance map operating in a Brazil national territory [1]

demand decreasing was accomplished with a less Average Wait Time (TME) and Average Service Time (TMA) over operation than previous years. Therefore, a MOCA robustness by Shopping do Cidadão (SC) was verified through results achieved by PCO Optimization in CAs over last years.

36.1.1 The Company Shopping Do Cidadão

Founded in 2006, SC is a company specialized in: (1) developing, (2) deployment, and (3) operating Call Centers (CAs) for public citizen's services in Brazil. The Fig. 36.1 represents a performance verification in national territory.

The company's objective is to act with Government in public services evolution, providing to population with agile and quality structures, aiming a better approximation between State and each Citizen [1]. Based on these guidelines, in order to meet the needs of a citizen, new CA projects were developed to improve the progressive management model, aiming at a continuous improvement of service delivery by governments [1].

36.1.2 Operations Strategy

The managers guided and organized their resources for the company's objectives, as well as to meet the strategies of the operation, using: (1) concepts, (2) models and (3) proven experiences in multinational companies, industry, and Brazilian third sector [1].

The feasibility and practical consistency of Planning and Control of Operations (PCO) strategy [2] was applied through a Service-Oriented Operation Methodology (MOCA) [2], being a basis for NBR ISO 9001:2008 certification [3].

The independent mechanism that verifies an implementation effectiveness of MOCA's strategic guidelines is a quality certification, for example ISO 9001:2008 [3]. This mechanism aims to identify whether contracts and agreements between the parties, for example: Public Private Partnership (PPP), are being: (1) maintained, (2) planned, (3) executed, (4) controlled, (5) corrected, and (6) adapted over time to meet customer needs [3].

36.1.3 Business Plan Templates

An adequate financial estimation is a fundamental tool, and practical application of this in administrative process determines how much each PPP can be more economical for; (1) Countries; (2) States; and (3) Cities; maintaining the same service level provided. Each PPP needs Business Plans with efficient and effective economic-financial fundamentals to enable products development or services effectively [1].

SC uses various business plan templates to support its PPP projects, containing: (1) Financial, (2) Accounting, (3) Tax, (4) Technological, (5) Management, and (6) Operational plans. These fundamentals application were integrated in their projects and it was a vital importance for an investment maintenance programs contracted by governments in short, medium, and long term [1].

36.1.4 Internal Communication Channels

The internal communication channels are the ways and means with instructions are transmitted to operation staff [3]. Each channel has its own definitions and purposes to enable a continuous alignment between PPP parts. In this context, MOCA's main internal communication channels are: (1) Internal satisfaction survey, (2) External satisfaction survey, (3) Monthly Accountability Meetings, (4) Results, and Performance Analysis meetings, (5) Ombudsman's office, (6) Internal, and (7) External Audits. The use of several communication channels makes possible a model improvement in a comprehensive and multidisciplinary way over time [1].

36.1.5 Constant New Opportunities Perceptions

Each new project has different characteristics. In each new partnership, MOCA provides support for PPPs elaboration with specific needs. In this case, this methodology was organized around some disciplines and technical projects bases, aiming to implement adjusted solutions for each new business demand [1].

With a society's evolution, each new project contains new business and technological challenges [1]. In this scenario, SC developed MOCA, content adaptive elements to meet new and more sophisticated CA demands. Therefore, this methodology is scalable and reconfigured in each new PPP project.

36.1.6 IT Tools for Operation Maintenance

Information technology (IT) is PPP management tool that incorporates new technologies, such as Enterprise Integrated Management Systems (SIGE), Enterprise Resource Planning (ERP) [2, 4]. SC's ERP provides a structured transaction logs catalog, organizing them into an information flow, making it possible to track any activity from its beginning to its completion [2].

Governance in the operation [1], transparency in operation, and evidence provision of a service rendered in ERP are a corporate governance guidelines applied foundation. However, a traceability is a normative requirement described by MOCA [1, 2]. At this point, SC used its ERP to follow the calls of attendance and make feasible a part of Corporate, shown in Fig. 36.2.

36.1.7 Maintaining a Quality Standard

A quality standard maintenance in PPP projects is envisaged by processes contained use in MOCA, as well as by experience acquired by SC in a development and CA deployment [1, 2]. In general, the MOCA macro processes for structuring new PPP projects are present in Fig. 36.2.

The quality MOCA standard has been applied successfully in several Brazilian states, such as: (1) São Paulo, (2) Rio de Janeiro, (3) Minas Gerais, and (4) Ceará. However, different solutions were developed for each of these projects.

36.1.8 R&D for Continuous Improvement

Research and Development (R&D) in Brazil exists. However, research is not widely practiced in this country because operation cost and his high tax rate, when compared with some of first world countries [5].

In this context, driven by market competition, in PPP public competitions, for this reason, a solution is a need to

Fig. 36.2 PPP Projects structuring process. Adapted from Shopping do Cidadão Company [1]

applied a continuous improvement like ISO9001: 2008 [3]. In this case, an evolutionary methodology such as CMMI [4] that was used by SC, influenced SC that progressively refined its projects, aiming to improve its governance in PPPs through MOCA [1, 2].

The main investments sources in Brazil was made by public agencies and resources, being 83.64% public versus 16.36% financed by the business sector in 2009, according to data from the Ministry of Science and Technology [5]. Even in this environment, contrary to this trend of market context, SC makes continuous improvement in its public services provision could be made by R&D projects.

36.2 Business Model

The main governance players in SC's Business Model are: (1) Shareholders; (2) Senior management; (3) Directors board; (4) Government; and (5) Corporate Governance. In a Corporate Governance case, the main SC participants are: (1) Employees; (2) Suppliers; (3) Customers; (4) Banks; (5) Creditors; and (6) Regulatory Institutions such as Brazilian Securities and (7) Exchange Commission, Central Bank, and etc. [1].

Corporate Governance in SC was organized with Business Model supported by technological solution and a corporate ERP. In this context, this governance was supported and fed through data and information collection. The infrastructure required for this management was provided by an ERP software, enabling a computerized governance operationalization system to meet the company's PCO [6].

In this context, this SC Business Model was implemented by an IT approach, using Information System (ERP) for Corporate Governance described in Fig. 36.3.

36.2.1 Corporate Governance

SC's Corporate Governance was defined and organized around a set of: (1) Processes; (2) Customs; (3) Policies; (4) Laws; (5) Regulations; and (6) Institutions. This set was created to regulate the way the company will attend to its projects [2].

In PPP environment, Corporate Governance is concerned with studying relationships among various actors involved. The SC's objectives and way in which these institutions work together to follow their guidelines and carry out their PCO [6].

36.2.2 Operation Model

The MOCA was inserted in an operation model, represented in Fig. 36.3, which defines for SC main decision operational points. These points required by MOCA were necessary to allow the operation dimensioning most precise, through the production lines of its service applications [1].

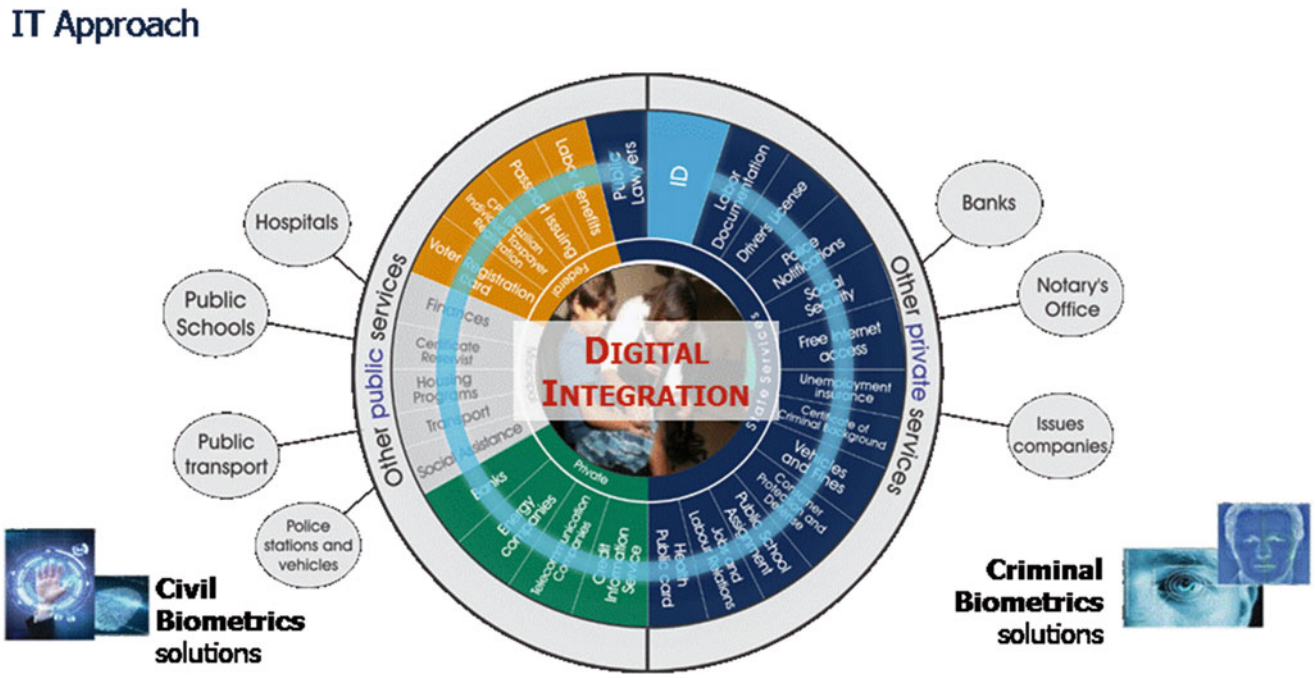


Fig. 36.3 Technological infrastructure to enable a PCO Governance implementation. Adapted from the Shopping do Cidadão [1]

In this case, the use of MOCA approach provides elements like (1) Statistical use for an Average data Time of Attendance (TMA), (2) Data classification by Artificial Neural Networks (ANNs) and (3) Time Series Analysis.

This set provides a daily sizing and a more precise for service units [1]. CA managers should calibrate configurations on their service production lines regularly to optimize their planning according to these more accurate scales.

36.2.2.1 Planning

O MOCA foi inserido em um Modelo de Operação, representado na Figura 3, que define um planejamento de demanda principal de SC. Esse planejamento é uma rotina mensal realizada por gerentes de unidade de cada CA [1]. This planning serves to prepare resources as (1) Inputs, (2) People, (3) Machines, (4) Equipment, (5) Processes, and (6) Service schedules to planning the CA operation to provide organized public services [1].

36.2.2.2 Sizing of Operational Demands

The monthly planning phase finalization work routines occurs from a daily sizing demand. Each sizing demand comes from each governmental service department in each CA. This dimensioning phase uses quantitative methods, containing those obtained by descriptive statistics, in order to establish means to enable estimated daily demands calculations for each CA [1].

36.2.2.3 MOCA Operational Control

Operational Control provides production data use from ERP databases. This use of data was fundamental for Indicators Time of Attendance (TMA) accounting and Average Time of Wait (TME).

In this case, these indicators were foreseen in contract and need to be monitored monthly in order to render accounts for the Federal Government [1].

36.2.3 MOCA Information Structure

A MOCA information structure is an ERP called Management Information Systems (SIGA) that provides information for databases supply and feeds PCO process [1].

36.2.4 MOCA

The Service-Focused Operation Methodology (MOCA) is a set of processes that relate the activities required to enable the Quality Management System (QMS), as recommended by ISO9001: 2008 [3]. The MOCA serves to make Operation Model feasible [2]. In this context, the relationships between MOCA processes was present in Fig. 36.4.

36.3 PCO Optimization

The SC defines Operational Planning and Control Optimization (PCO) in CA service production lines as identification for the best employee's composition, using human performance indicators obtained during the activities execution. Therefore, some errors between planned and realized of its activities converged to zero.

36.3.1 PCO Strategy for Customers Services

The OCP strategy was developed to apply demand PPP requirements for services through specialized computational algorithm implementation. From this point, data and information collection was performed to provide the calculations and estimates, using data stored in their ERP. These usage estimates served to provide a smaller deviation, between planned and realized, being identified at the end of this PCO estimation process [4]. In practice, this process serves to identify smaller error in people allocation versus daily services needs [1].

36.3.2 Methodology Developed

The research methodology developed in the SC was a systematic case studies application, reapplied in each new service production line. An application for this research methodology protocol needs was restarted in each new case study [4].

From scenario changes, the following goals need to be solved with each new round for success of this sizing protocol. Therefore, the following steps need to be redone:

1. Choose an application domain to be studied;
2. Restrict an action scope;
3. Choose some reference models for a domain;
4. Algorithmize a scope for chosen activities;
5. Standardize and stabilize development environment variables;
6. Formalize an Information System;
7. Develop a computational model for Planning Optimization;
8. Make an estimate based on the business system;
9. Perform simulations and tests.

36.3.2.1 PCO Algorithm

In order to systematize planning and control activities, the PCO area of the SC developed a PCO algorithm to perform these activities that each manager usually had to do in their daily life [4].

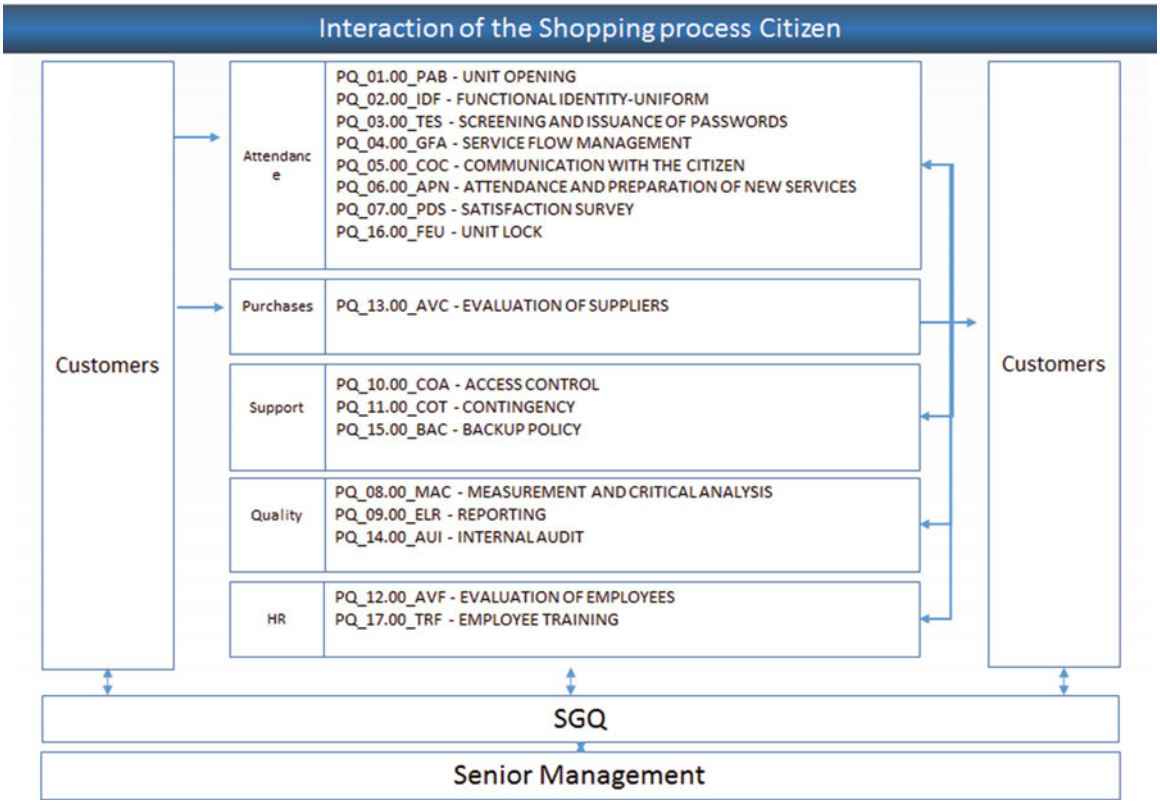


Fig. 36.4 The QMS processes relationship in MOCA, according to ISO9001:2008 criteria. Adapted from MOCA [2]

In this case, this PCO SC algorithm consists in performing activities set, being proposed as follows: (1) ERP parameterization in each government representative; (2) Data collection; (3) Tabulation; (4) Descriptive Statistics calculation; (5) SPC card calculation; (6) Time Series Neural Network to estimate demand for the period, (7) Services demand sizing; (8) Service production line sizing; (9) People allocation; (10) Adequacy the planning verification and validation; and (11) Correction. When deviation is greater than expected, this process must be restarted and resized.

36.3.3 New Concepts in PPP Projects Applications

New concepts and technologies application for PPP projects are a progressive way to use innovations and to improve citizens accessibility, satisfaction or citizen support [1]. For example, SC company in technological innovation dimension can use several quantitative methods to address this situation [2].

Quantitative methods are a fundamental part for knowledge acquisition process in large information volume database. In this context, a reality understanding was provided by data translation into information, and this methodology was supported by the descriptive statistics [7], possible to be applied in SC's ERP software in a production environment.

MOCA aims to structure its processes to provide new Technologies' use, such as quantitative methods; to improve calculations and statistical reports, containing some studied phenomena results [5].

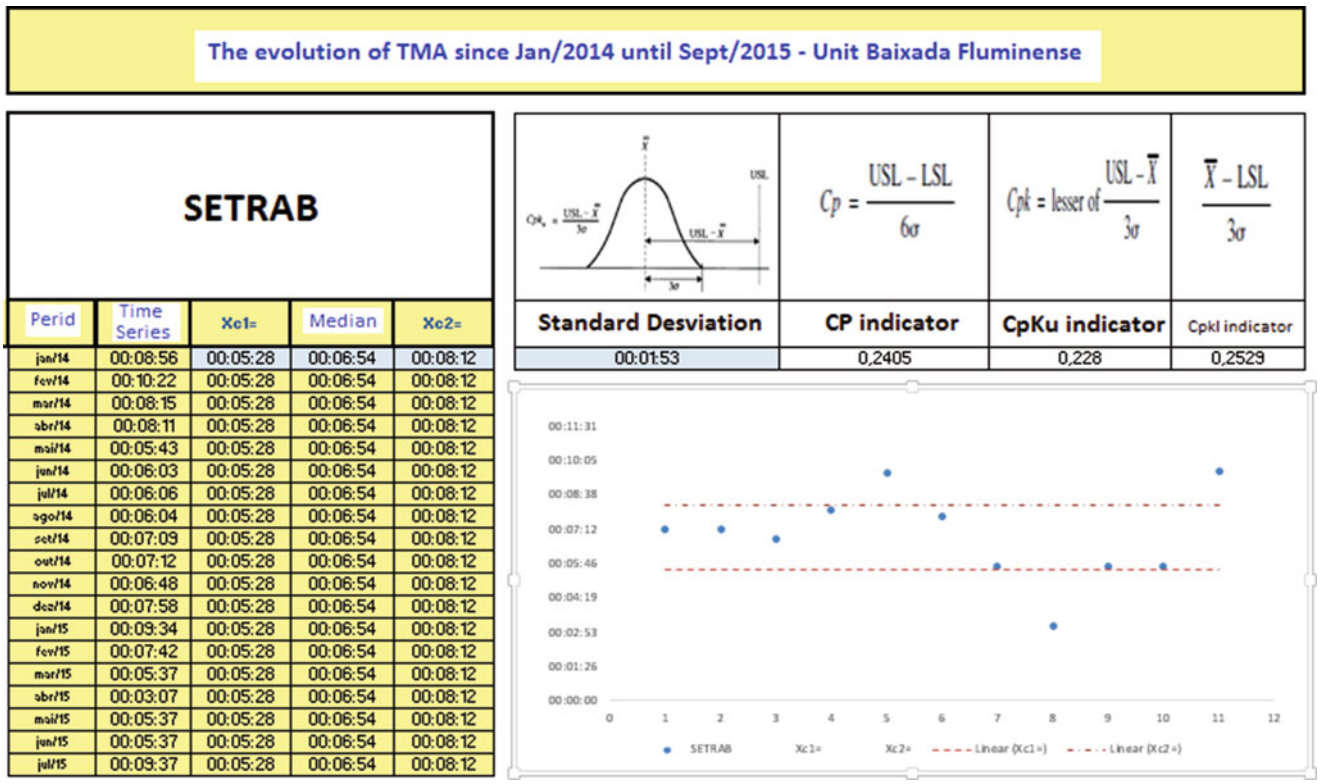
36.3.3.1 Quantitative Methods

Quantitative methods provide analyzes numerical, such as descriptive statistics of data performed, being frequently used during service rendering production. It happens using sampled or population data to present behavior patterns. At this point, managerial decisions about operation control can be made [2, 5].

36.3.3.2 Statistical Process Control

Statistical Process Control (SPC) provides an understanding in more structured and defined way than subjective impression [3]. Therefore, by graphical representations, the data consolidations and information provided by statistics facilitate understanding [5]. A Control Chart use example was done, and this analysis are present in Fig. 36.5.

Figure 36.5 shows SPC analysis where defined for each parameterized ERP server indicator, to enable that historical were collected in a central office, using following data parameters: (1) State; (2) City; (3) Customer Service Center;



Perid	Time Series	Xc1=	Median	Xc2=
jan/14	00:08:56	00:05:28	00:06:54	00:08:12
fev/14	00:10:22	00:05:28	00:06:54	00:08:12
mar/14	00:08:15	00:05:28	00:06:54	00:08:12
abr/14	00:08:11	00:05:28	00:06:54	00:08:12
mai/14	00:05:43	00:05:28	00:06:54	00:08:12
jun/14	00:06:03	00:05:28	00:06:54	00:08:12
jul/14	00:06:06	00:05:28	00:06:54	00:08:12
ago/14	00:06:04	00:05:28	00:06:54	00:08:12
set/14	00:07:09	00:05:28	00:06:54	00:08:12
out/14	00:07:12	00:05:28	00:06:54	00:08:12
nov/14	00:06:48	00:05:28	00:06:54	00:08:12
dez/14	00:07:58	00:05:28	00:06:54	00:08:12
jan/15	00:09:34	00:05:28	00:06:54	00:08:12
fev/15	00:07:42	00:05:28	00:06:54	00:08:12
mar/15	00:05:37	00:05:28	00:06:54	00:08:12
abr/15	00:03:07	00:05:28	00:06:54	00:08:12
mai/15	00:05:37	00:05:28	00:06:54	00:08:12
jun/15	00:05:37	00:05:28	00:06:54	00:08:12
jul/15	00:09:37	00:05:28	00:06:54	00:08:12

Fig. 36.5 CEP Chart for Attendance Time (TMA) from SETRAB Public Organ—Jan./14 to Sept./15—Baixada Fluminense Unit [1]

(4) Time period; (5) Indicators [1]. In this context, SC uses ERP data to supply the following TMA and TME indicators provided in contract [1] aiming to follow indicators oscillations [5].

The SPC needs Control Chart to make sense of the average data usage of all CA attendants who worked on that service [1]. According to Fig. 36.5, the parameters used to exemplify and illustrated in SPC Chart were: (1) Attendance Time Indicator (TMA); (2) SETRAB body; (3) Period Jan./14 to Sep./15; (4) Fluminense Baixada unit [1].

36.3.3.3 Times Series

The time series is realizations (observations) sequence for variable over time. Thus, this series are point's sequence (numerical data) in successive order, occurring generally at uniform intervals [7].

The SC has in its ERP several Times Series models for various governmental service department, containing many set of data sequences that were collected at regular intervals for several periods.

Therefore, Time Series techniques can be applied systematically and parameterized in automated classification and identification process [7], Therefore, these properties are presented in Fig. 36.6.

The data, sampled from this governmental service department in ERP, submitted to statistical analysis to identify automatically: (1) SPC Control Chart; (2) Limits calculation; and (3) Database preparation for Time Series algorithms, in order to identify which series will return lowest Mean Absolute Deviation (MAD).

However, it is critical to see data behavior by example way. Figure 36.7 shows earlier selection Temporal Series phase example, containing TMA indicator for SETRAB public organ in Baixada Fluminense unit [1].

A ANN Times Series (ANNT) system has been developed, containing observations sequences over time for TMA indicator, being collected in uniform intervals over time series period. This system developed to find time series model that best fit phenomenon in question [8].

The identification process for best temporal model is data sampled was used obtained from ERP, after chosen public organ parameter and submit them to this Time Series system tabulation present in Fig. 36.6.

After obtaining structured data, and temporal ANN system preparation [8], a classification containing the month that is outside the CEP limits, the ANNT system automatically identifies, among a set of available algorithms, the algorithm that returns the lowest MAD [9].

Figure 36.7 presents the ANNT interface, containing these systematized automatic selection processes consolidated analysis to identify the most appropriate time series (TMA) scenario. In that case, an identification on SETRAB

Baixada Fluminense		jan/14	fev/14	mar/14	abr/14	mai/14	jun/14	jul/14	ago/14	set/14	out/14	nov/14	dez/14	jan/15	fev/15	mar/15	abr/15	mai/15	jun/15	jul/15	Balizador
DETRAN - DIC	3	00:06:10	00:05:51	00:05:34	00:05:34	00:05:36	00:05:27	00:05:54	00:05:37	00:05:43	00:05:29	00:05:47	00:05:44	00:05:54	00:05:56	00:06:41	00:05:52	00:05:46	00:05:38	00:05:17	00:06:02
DETRAN - HAB	4	00:02:10	00:02:19	00:01:33	00:02:07	00:01:32	00:01:56	00:01:49	00:01:58	00:01:54	00:01:44	00:01:39	00:01:43	00:01:38	00:01:25	00:01:29	00:01:32	00:01:30	00:01:26	00:01:17	00:01:45
DETRAN - VEIC	5	00:03:54	00:02:52	00:02:52	00:02:41	00:03:44	00:04:04	00:03:43	00:03:57	00:04:55	00:05:03	00:04:35	00:05:17	00:03:17	00:02:57	00:03:01	00:03:07	00:04:03	00:04:14	00:04:19	00:04:41
DPGE	6	00:04:11	00:04:33	00:04:26	00:04:22	00:03:48	00:03:56	00:04:08	00:03:50	00:03:54	00:04:16	00:04:23	00:04:17	00:04:50	00:05:51	00:05:03	00:04:35	00:04:20	00:02:48	00:03:16	00:04:53
SETRAB	7	00:08:56	00:10:22	00:08:15	00:08:11	00:05:43	00:06:03	00:06:06	00:06:04	00:07:03	00:07:12	00:06:48	00:07:58	00:09:34	00:07:42	00:05:37	00:03:07	00:05:37	00:05:37	00:09:37	00:08:12

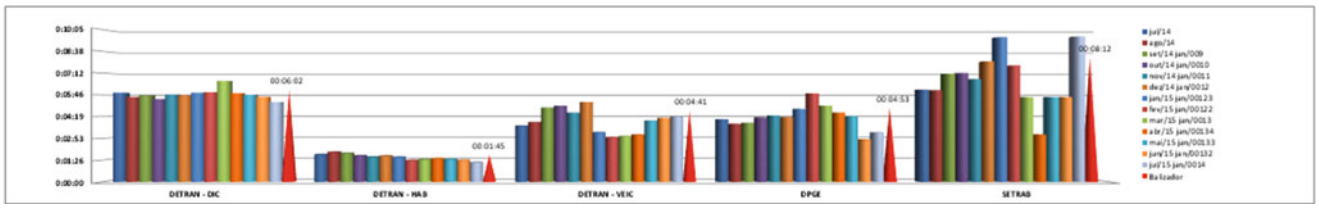


Fig. 36.6 Average Attendance Evolution (TMA) in Time Series—1/14 to 7/15—Baixada Fluminense unit. Adapted from MOCA [1]

18.7.2 Forecasting methods for time series models: no trend and no seasonality:

Trend	Seasonality	Plan	Model	MAD	Resuts
				3	
				0,000000	12 - Prediction model for Double exponential smoothing Method of H
No trend	No Seasonality	0-MMS	0 -Modelo de Média Móvel Simples (MMS)	0,000002	
No trend	No Seasonality	1-MME	1 - Enveloped moving average model (MMES)	2,239939	
No trend	No Seasonality	2-MMR	2 - Média Móvel Recorrente (MMR)	0,827068	
No trend	No Seasonality	3-MME	3 - Exponential Moving Average (MME)	0,000123	
No trend	No Seasonality	4-MMEP	4 - Pure Exponential Moving Average (MMEP)	0,015025	
No trend	No Seasonality	5-MMEV	5 - Exponential moving average with Volatility (MMEV)	0,999720	
No trend	No Seasonality	6-MMSES	6 - Moving average model with Simple Exponential Smoothing (MMSES)	0,000000	
No trend	No Seasonality	7-MMO	7 - Olympic moving average model (MMO)	0,000026	
No trend	No Seasonality	8-MMP	8 - Weighted Moving Average (MMP)	0,000002	
No trend	No Seasonality	9-MMPV	9 - Volume-Weighted moving average (MMPV)	0,000002	
No trend	No Seasonality	10-MMT	10 - Triangular Moving Average (MMT)	0,000005	
18.7.3 Forecasting methods for time series models with no trend and Seasonality					
Com trend	No Seasonality	11-MMD	11 -Forecasting model with Double moving average (MPMMD)	0,000178	
Com trend	No Seasonality	12-MPAEDMH	12 - Prediction model for Double exponential smoothing Method of Holt (MPAEDMH)	0,000000	12 - Prediction model for Double exponential smoothing Method of Holt
Com trend	No Seasonality	13-MPAEDMB	13 - Prediction model for Double exponential smoothing (Brown method)	0,000085	
18.7.4 Forecasting methods for time series models without Trend and Seasonality					
No trend	Com Seasonality	14-MMSM	14 - Moving average model with Multiplicative Seasonality (MMSM)	0,041435	
No trend	Com Seasonality	15-MPSA	15 - Forecast model with Additive Seasonal (MPSA)	100000,000000	
18.7.5 Forecasting methods for time series with Seasonality and Trend					
Com trend	Com Seasonality	16-MMMSEH	16 - Moving average Exponential Smoothing method for HoltWinters (MMMSEH)	0,172248	
Com trend	Com Seasonality	17-MMMSET	17 - Moving average Method Triple Exponential Smoothing (MMMSET)	0,000000	
Com trend	Com Seasonality	18-MMEV	18 - Média Móvel Exponencial com Volatilidade (MMEV)	0,999704	
Com trend	Com Seasonality	19-MMSM	19 - Média Móvel com Sazonalidade Multiplicativo (HoltWinters) (MMSM)	43704,921417	
Com trend	Com Seasonality	20-MSAHW	20-MSAHW 20 - Modelo de Previsão com Sazonalidade Aditiva (HoltWinters) (MSAH	0,000001	

Fig. 36.7 The most appropriate Temporal Series (TMA) selection for SETRAB public service department for Jan./14 to Sept./15-time period scenario

public organ was done, using parameters like (1) data from January/2014 to September/2015; (2) Baixada Fluminense; (3) Rio de Janeiro estate [1].

An Jan./14 to Sept./15 period scenario was defined, after an identification of the best Time Series model for SETRAB governmental service department. After this fundamental definition, a PCO algorithm an automation program was run to identify the best time series [1], using mathematical model, present in Fig. 36.7.

To have a computational solution developed like this, it's critical to correct services demands to support allocation, predict and correct demand spikes in advance, in order to correct service production line capacity CA line. The proposed model result with Time Series and lowest MAD presented in Fig. 36.8, content a computational interface prototype.

36.3.3.4 Planning Optimization

Planning optimization in the CA was performed, using an estimation obtained through an automatic classification and ANNT system selection [10], being present in Fig. 36.8.

In this optimization stage, the average TMA sector data was used to enable an agile comparison. This method estimates a demand design, using a Planning Optimization system for a services production line.

After crossing information, CA manager simulates current employee's allocation in service production line to verify if current capacity will be sufficient to meet demand projected for the CA, using specified time period parameters.

In Fig. 36.9, a performance simulation example was shown to search in a Planning Optimization for service production line, content a report and some regularly parameters used. If manager notes that an allocated staff will not be able to meet demand, then managers can internally relocate resources to meet new service demands.

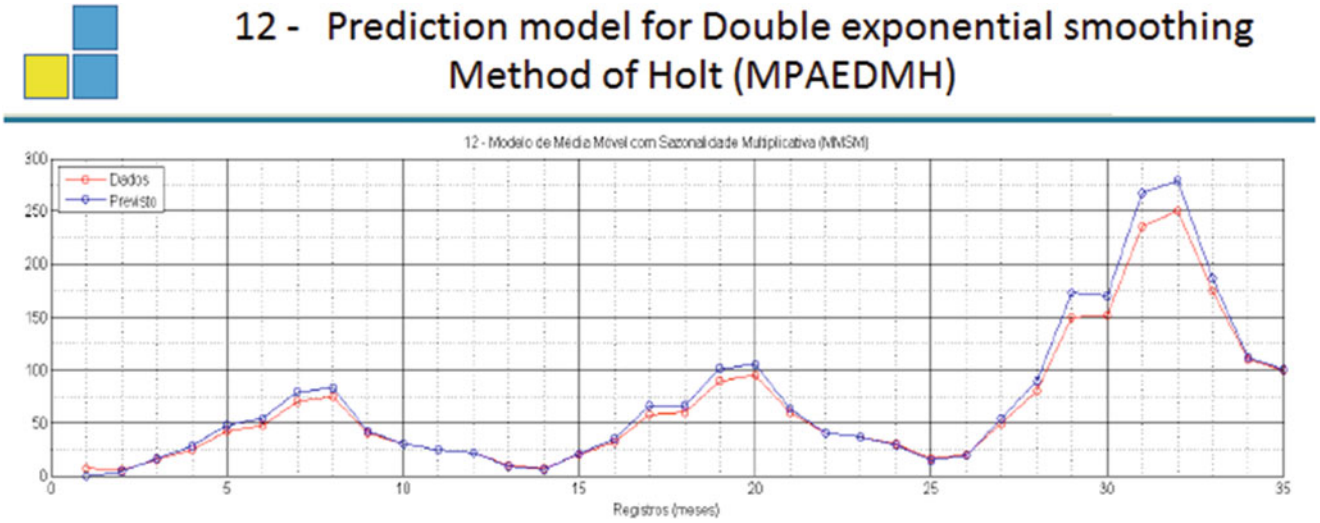


Fig. 36.8 Selection automation pilot and more appropriate automated Temporal Series (TMA) classification. Adapted from SC [1]

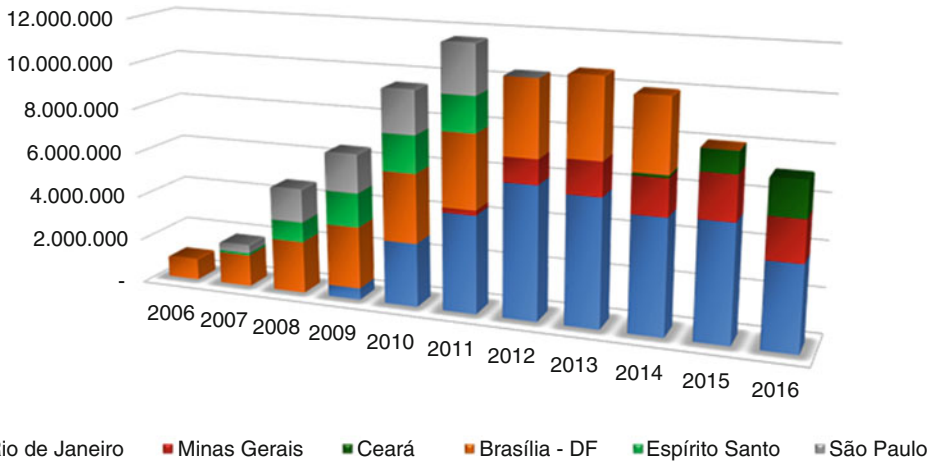


Fig. 36.9 The evolution of services managed by Shopping do Cidadão. Adapted from Shopping do Cidadão [1]

36.4 Company's Program Evaluation

After new technologies use and his potential presentation, some advantages were described in this section. For example, the use of ERP data observed in PPP projects was accomplished, comparing public services among themselves.

36.4.1 Main Advantages in MOCA Implementation

With the MOCA application use, some advantages obtained during this process was described:

(a) New technologies incorporation.
(b) Integration between Public and Private Service, performing management and operation based on services level agreement.
(c) Training and continuing services provider's education, preserving functions in which public servant is indispensable.
(d) Expansion speed: private partner has greater flexibility for demands.
(e) Longer term for investment financing.
(f) Quality service duration with a maintenance and installed resources updating.
(g) Governance conducive to Research and Development (R&D) environment applied to business operation, such as Service Planning Optimization with dynamic resource allocations, aiming to reducing fixed operation costs.

36.4.2 Customer Service

The evolution of the results of the services managed by the SC was the summary of the consolidated activities; being carried out in the last decade [1]. The graph of Fig. 36.10

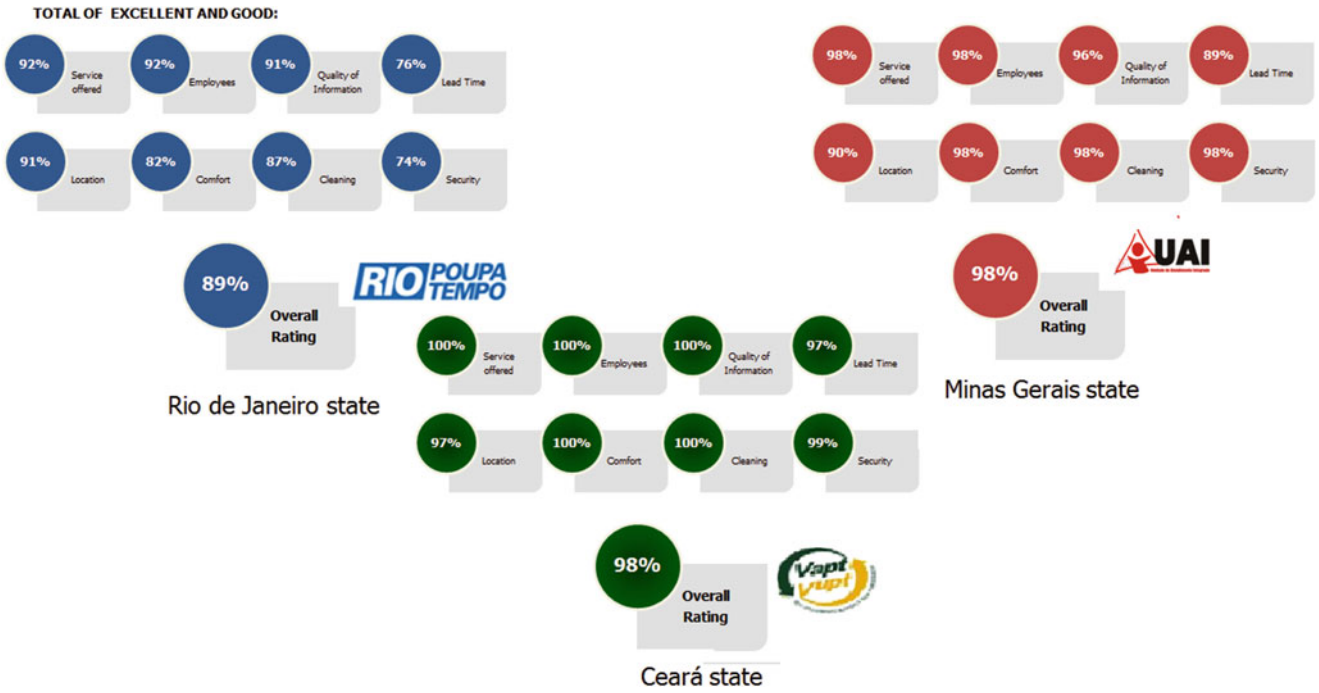


Fig. 36.10 Annual Consolidated 2016—Customer Satisfaction Survey in RJ, MG and CE states. Adapted from SC [1]

shows a volume of 81 million services performed, which demonstrates the robustness of the MOCA methodology, according to the integrated corporate solution applied.

36.4.3 Results Obtained

A way to observe quantitative results is to know the qualitative results, containing the client's vision about these services rendered. In this case, the satisfaction survey results in relation to services rendered in 2016 by the company Shopping do Cidadão are present in Fig. 36.10. This Figure presents a survey data that content consolidated result from MOCA activities and the several PPPs carried out in Brazilian national territory [1].

36.5 Conclusion

The Shopping do Cidadão company participates in more than 20 Citizen Assistance Center projects in different states with transparency, speed, and efficiency [1], providing an estimated saving for Brazilian state of 25%, maintaining a satisfaction pattern above of average for public service in general, over last 11 years.

The results obtained by MOCA use in PPP were obtained from constants results refinement for conducting its projects. A continuous effort to implement Optimization of its Planning and Operational Control occurred, being done by an internal Research and Development dedication of its teams [1].

36.5.1 Future Works

The governance of Public Service and Private Partnerships (PPP) projects use scientific and experimental research and development (R&D) to carry out Proof of concepts (PoC). Each new POC involves an integration with several technologies protocol [1] and this is a continuous movement.

However, research and development (R&D) in Brazil is still obscure matter and applied resources funding is not a well-resolved clear situation, needing to be more mature in order for the parties involved to make news quantitative and qualitative improvements leaps, as is already case in other countries.

The next development activities will follow in conception, formulation, modeling, algorithmization, Management Information Systems (IMS) prototyping, monitoring, analysis, training, deployment, evaluation, process inspection, final inspections, partnerships, project management review, and audit [4]. Even in an adverse Brazilian scenario, in order to reach continuously improve their quality standards in public and private services provision.

General Considerations Collaboration with Research institutes is an important point for foundation and continuous Research and Development (R&D) projects improvement.

Institutions and research groups such as Brazilian Technological Institute of Aeronautics, Technological Institute of Aeronautics (ITA), Brazilian Faculdade de Economia e Administração (FEA) of USP, and Fundação do Instituto de Administração (FIA) have contributed to specialized works advancement in this research field.

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