Automation of tickets : the solution isn't only in technologies ! Main reasons for the unsucceeded programs for implantation of the automation of fare collection

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ABSTRACT:

INTRODUCTION

Brazil is about to complete nearly two decades presenting Programs for automation of fare collection in public transportation. The discussion and the announcement of implantation of automation of fare collection systems were all over the country, very quickly. Firms from other countries were eager to dominate a market of over one hundred million of everyday users using a fleet with more than 60 thousand buses. Some prophets started announcing good news about public transportation, where the automation of the tickets and other functions might solve most of the problems that let the public institutions, employers and users very worried, by that time. Many of them believed that they had found the miraculous solution and took the technological procedures but they really got disappointed.

It's known that the automation fare collection would never be what the technologies salespersons used to say about it, however they certainly would be able to provide not only a better control of the fare collection processes leading to some more favorable financial conditions for the systems, almost putting an end to a crisis which has been faced, but they could also offer real profits to the users since they can provide integrations without terminals and the possibility of moving from one place to another paying just one ticket, what improves their mobility.

Disappointed with the frustrating results of the projects all over the country, the largest international firms in this trend have already left the country. Nowadays there are only two big systems of automation of fare collection really functioning in our country: Campinas and Goiânia. What happened with the great number of projects that were announced and were expected to cover most of our largest cities?

OBJECTIVE

This article intends to analyze the main reasons for the failure of some projects for the automation of tickets. It tries to check what hasn't been done properly and what should have been done to make this kind of project improve the quality of the service offered by our public transportation.

METHODOLOGY

Firstly it is presented an approach of the plan, what for us is more appropriate to the implantation of a project for electronic fare collection. Subsequently it's described the main characteristics of two Brazilian experiences without any success: one in São Paulo and other in Belém-PA. By analyzing these experiences and confronting their processes with the proposed one, we could identify their main differences and which of them can be responsible for the failure of the projects.

THE CORRECT APPROACH

The process of implantation of the electronic fare collecttion in a System of Public Transportation for the Users usually is an action of the Government, however the Private Institutions can also do it, when the Government does not get involved. This kind of project has, most of the time, the following goals:

- to reduce the evasion of money caused by frauds in the systems for concession of gratuitousness and reductions;

- to rationalize, control and speed the process of commercialization, utilization and rescue of the tickets, avoiding their use as a parallel currency.

- to provide a tariff policy which allows the users to move around without the payment of a new ticket.

- to speed the process users to get into the vehicles, reducing the problems concerned to change.

- to reduce the risk of robberies in buses, by ending the use of the money itself inside the vehicles.

- to control all the information related to the demand of users in their different categories: those who do not pay, students, users with tickets and people who use money to pay.

- to control the circulation of the buses, by recording the take off of each journey from the terminals and the return points, besides the recording of irregularities with breaking downs, robberies, etc.

- to control the activities of the operating personal, specially the collector, and

- to feed the managerial information system of the transit public agency's, the employers' trade-union and the operating companies.

The main actors involved directly in the subject are:

- the Government, by their public agency that manages the Transit System;

- the operating companies;

- the entities of employers in the buses area;

- the entities of works of the transportation system;

- the users;

- the representative entities of users, among them the students Federation, middle level and universities; entities of different categories of users who have the benefits of the gratuity;

- other companies, entities, public and private institutions of several productive sectors and service that give tickets to their subordinates;

- the firms that provide technology and those ones that integrate the projects of tickets; and

- All the others that provide goods and service and are involved in the process.

We can still enumerate as actors the politicians and the population in general.

It is clear in the description above the great number of actors and interests involved in the process of implantation of an electronic fare collection project. And sometimes these interests are opposed, as for example:

- the Agency wants to control the demand transported to have a more precise notion of the system's earnings, while the employers of the collective transportation area understand that by releasing this information they will be vulnerable.

- the employers of the collective transportation area and the agencies want the elimination of the collectors, aiming the reduction of costs, while the operators and their entities fight for the preservation of the working stations and

- the Agency intends to put an end to the use of tickets as a parallel currency, however the owners of vehicles used in the irregular transportation and some employers in the regular transportation area, who get profits with the incorrect commercialization of the tickets, do not want that.

Social technical political processes like this require in its plan much more than a simple description of the reality. This description must be read and understood by actors, using their interests and goals. Each actor sees and understands this reality according to his point of view, so the described problem is related to those who declare it. It can be a problem to an actor but the others can see it as a threat, success or opportunity. The "others" cannot be ignorated, because they can be enemies or partners in this social game where our problems are put in. This kind of problem usually is treated in a wrong way by the traditional planners, because they see it as a deterministic system where everything we plan can make predictions with total security, that is, he thinks he manipulates things incapable to think and also incapable to do something against their goals That is, the circumstances out of control don't exist or they are constant. It is a plan that considers only one actor and many agents, and for this actor having only one plan is enough. This makes him unable of facing the uncertainties and surprises that certainly will come up on the way.

The correct approach to these kinds of sociotechnical and political problems, as the one concerned to the implantation of an Electronic Fare Collection Project, is that one developed by Prof. Carlos Matus (Huertas, 1993), which is called "Situational Strategic Plan – SSP". It denominates this kind of system as representative of the matter treated as "Hard Uncertainty Systems" because they deal with "hardly structured problems", due the fact that they present the following characteristics:

- only some variables are precise and enumerable;

- only some relation among the variables are precise and enumerable, never all of them;

- the solution is situational, that is, each actor understands it according to his interests and goals, and so it will always be questioned.

In this model the result does not depend only on my plan, it depends on the circumstances that I do not control or predict. I have to make use of the scenario techniques and the elaboration of a plan for each proposed scenario (positive, tendencies and negative). The plan has its reliability tested in advance and the surprises are faced with contingential plans. In this model the plan becomes a "bet against the uncertainty".

The challenge of building up a plan and reach their goals is a political problem that takes us to a deep analysis about its feasibility. We must understand that the technical actions imply political consequences and vice-verse. Therefore, the interested actor must participate actively since the very beginning of the plan and there must be a permanent interaction between the technician and the politician, that is to say, the plan must be situated in the leader's mind, not only in the technicians'.

Another important characteristic of the plan in the context of the SSP is to explicit its duality. It distinguishes what is under the actor's management, who declares the problem, and what depends on the cooperation of other actors. Doing this, not only an Action Plan composed by operations that are under his control, but he also prepares a Demand and Denounce Plan, which will deal with the operations that will depend on the cooperation of the other actors. The denounces will appear in case of no cooperation. The SSP focuses the problems, the opportunities and the threats, what allows the exploration of the political feasibility of the plan.

The mention of feasibility takes us to the concept of strategy which in the SSP is understood as the technique of acting when the social game rules are not based on equality, when they are diffuse and the players' possibilities of acting are not finite or numerable and when we deal with an "hardly structured "problem. It is taken an advice, which is similar to that famous Prussian strategist Clausewitz, who used to affirm: "tactics is the use of force to combat and strategy is the use of combat to reach the war goals". Translating to the SSP language, it is possible to affirm: tactics is the use of resources that are lacking to produce a situational change and strategy is the use of the situational change to reach a goal-situation.

I have to make use of the strategy to guarantee the plan feasibility, and to do so I have to make possible three things: the decision to execute the plan, the transitory operation of this decision and the stable operation of this decision in a previsible future. These elements of my strategy must be considered as distinct games, but generally to get my plan feasibility I have to get those three elements above.

My plan feasibility happens through the realization of a group of planned operations. These operations will act over the key elements of my situational description of my problem, named "critical nodes". They will cause positive impacts to solve the problem and make the plan feasible.

Each operation will need resources that will produce products that will provide results. At the first step, resource-product, I am dealing with efficiency, at the second, product-resource, I am concerning the efficacy.

The political feasibility of my plan will depend on:

- the actors' position or interest about the operations: support, rejection , pure indifference, tactical indifference or indifference because of ignorance;

- the consensual and conflictuous operations;

- the importance (interest) on value the actors give to the operations. The sum of the interest and the value given reveals the motivation the actor has for that specific operation.

This way, all the operations that do not have motivation or rejection are feasible, except if they are the target of the opposition. When, however, there is some opposition related to the feasibility the motivation alone isn't enough to explain the feasibility of an operation.

We must use the concept of "force", that is, the force that the actor uses to reject, to give support or to be indifferent. Therefore, the initial feasibility of an operation will depend on the relation among the pressures, which unchain over the forces of each actor involved in the situation.

The SSP denominates the resources that the actors may use to execute or to difficult the actions possible to be done in an actual game, according the motivation of those who participate in the game of "Vector of Critical Resources" – VCR. Thus, the force of an actor is the level of control that he has over the VCR. The description of this control is called Vector of Weight an actor has over an operation.

The winner will be known depending on the pressure done by each one and this pressure depends on:

- the value or strength of each element considering the game;

- the expertise of each actor by using the elements which control, the tactical expertise;

- the elements each actor opposes to the elements the other controls, and

- the intensity of motivation that the actors use during the confrontation. It will depend on the value they give to the operations and the pressure they make to one another.

This means that if we want to make feasible those operations that are not feasible at the present we must change the motivation types or change the actors' vector of weight and the expertise they use. This will require a struggle with the other important actors of the game, it is necessary to apply strategic means and manage these three current variables: actors, operations and strategic means. I still have to understand that the sequence of current operations is a vital point for the strategy because here the order of the factors can change the results.

Another fundamental characteristic of the SSP – and fundamental to reach the goals intended – is the need of studying the important actors of the game in which we are involved. We need to know the place where each actor is considering what has been already declared and known. For that we have the following means: interest, value, motivation, vector of weight, and matrix of affinity among the actors. However, this isn't enough; we need to know the position each action they will take when they will face an unknown and uncertain situation; it is important to know how they will react. To know that it is necessary to consider the concept of "actor's operational code", that is, a vector that relates the characteristics that do not vary and determine their actions. Matus says that a good strategist does not have a stable behavior, but he does not change his conduct. A good example of this kind of vector can be COA1 (tough, autoritary, soberb, self-seeking, smart, imaginative, etc.). When this code is revealed it is possible to predict his possible actions and it is provided the base to found the strategic bets.

Finally, it is important to say that what was presented above was a try to summarize some elements of the great work of Prof. Carlos Matus, aiming to have a theoretical reference that allows us to analyses the unsucceeded experiences in the implantation of the electronic fare collection in Brazil.

Unsucceeded experiences in the implantation of the electronic fare collection for collective transportation in Brazil

In the following lines there is a description of the experiences lived by some Brazilian cities (São Paulo and Belém), with projects to implant the Electronic fare collection for the Collective Transportation.

São Paulo

In São Paulo city each day 6.5 million of people are transported in a fleet of 12.000 buses and 1.200 lines operated by 50 companies.

FIRST TRY

In 1993 the CMTC (Companhia Municipal de Transportes Coletivos) – a public institution, operate and also responsible for the public transportation system in São Paulo, by that time, proposes a project of automation of the fare collection in the collective transportation system. They define the Edmonson electronic card as the technology to be used, which was already being used by the subway transportation – they just improved its memory to 128 bits. The justification for choosing that technology was that they came to know, using surveys, that 35% of the users were used to pay the transportation with only one ticket and those tickets really have low costs. The CMTC would be responsible for the tickets emission.

The CMTC would do a bidding to contract a company that would be committed to all the process of commercialization through sales points and the development of all the necessary programs to manage the operation.

The equipments placed in buses to control the access of users using the Edmonson tickets, the validating ones, would be acquired and implanted by the bus companies, and they also had to develop the programs explaining how to deal with the information collected by the equipments. The expenses with these items would be included in the tariff plan. The project, however, did not succeed.

Second Try

In 1995 the CMTC did not exist any more, and it was replaced by SPTRANS – São Paulo Transportes – which would be committed to the coordination of the Municipal System of Collective Transportation, since the operating part had been entirely transfer to the private institutions.

Then, the SPTRANS decided to take up the Project for Automation of Fare Collection of the Municipal System of Collective Transportation in São Paulo. In this new project they opted for a more modern technology, the smart card without contact, but they maintain the need of acceptance of the Edmonson ticket, that is, a hybrid technology. They decided to create a laboratory to test the technologies existent in the Market, those ones that could meet their

specifications. In this process the SPTRANS tested and enabled the following companies: Cegelec Engineering S. A.- CGA (France), Cezario Felfeli Industry and Commerce Ltda. – Indra (Spain), Control S.A Industrial – Pro Data (Belgic), Digicom S.A. Digicom (Brazil), PEM Engineering S. A – Monétel (France) and Mectron Engineering Industry and Commerce Ltda – Mectron (Brazil).

They kept the previous idea of having a bidding to contract a company to be in charge of all the commercialization of the common tickets. Among the requirements the chosen company had to create 6 thousand sales points in São Paulo City and other 10 shops where all the SPTRANS and other transportation entities' tickets (Metrô, CPTM, etc.) would be commercialized. It would be also committed to the creation of programs to control this system and to the data transmission (SPTRANS 96).

The SPTRANS would continue being responsible for the emission of tickets and cards. They would keep on doing the commercialization to the public institutions and they had to do the follow up and control of the hired company responsible for the tickets commercialization. The company predicted the maintenance of the permissionaries that were commercializing tickets.

The employers involved with the Collective Transportation Sector still had the responsibility of acquiring and implantation of the equipments in buses. These equipments had to control the access of the users in buses, and these expenses were supposed to be later included in the tariff plan.

The great news about this project was the remotion of the collector, and it had the aim of reducing the system costs, what by that time was demanding from the Government agencies magnificent and increasing subsidies.

This try did not succeed, either. The employer's responsible for public transportation alleged that the tickets commercialization would be theirs, and it should not be given to a hired company.

Third Try

This try starts with the signature of a contract between SPTRANS and TRANSURB - Sindicato das Empresas de Transporte Coletivo Urbano da Cidade de São Paulo, aiming to try to solve the problem, which made the last try, unsucceeded. The TRANSURB, through a contractual addition, would coordinate the system of magnetic tickets distribution, using a net of agents' credentiated and shops. The bus companies would took the responsibility of acquiring all the necessary equipments and programs, according to SPTRANS specifications.

The SPTRANS still had the responsibility of commercializing to the public institutions and the already existent permissionaries to sell the tickets. They would develop programs and would manage the distribution system, would acquire the tickets confection and would define the codification to be used. They also would be committed to the emission of credits in tickets, which they would repass to TRANSURB.

The TRANSURB came to mediate the commercialization of electronic credits through the distribution channels. The Social Card Company was committed to the sales points to commercialize the Edmonson tickets and the VB Serviços would establish the shops that would sell all kinds of tickets expected by SPTRANS. They came to have 1.700 sales points that commercialized tickets for students, tickets for users and common tickets, all unitary type Edmonson, but the SPTRANS was responsible for the emission of credits that the TRANSURB used to commercialize.

As the equipments for the validation of the tickets were being established in buses the collectors were being removed.

One of the goals of the project was to reduce the collect costs (acquisition, distribution, sales and the tickets retention), what meant 27% of the costs in the system and it would be decreased around 7,4%, by the project.

They came to produce 478.000 contact less cards, which allowed students to acquire their fare with a discount of 50%, respecting the quote of 50 fares each month. These cards were sold to the students in a value equivalent to 15 fares. Their function was simply credentialed them to buy the unitary Edmonson tickets.

The system started running but not all the buses had the equipments for validation, there was not a complete net of commercialization of the tickets. The result couldn't be another: the population had problems to get the tickets, and without the collector everything can use the bus without payment, was really a nightmare. The process had to be stopped, and the companies had to face one more unsucceeded try.

Belém

In Belém city each day 1.2 million of people are transported in a fleet of 1.860 buses and 131 lines operated by 25 companies.

In April/1997 the Companhia de Transportes do Município de Belém - CTBel Directors proposed the implantation of a system of tickets to the students, by using Smart Card cards. According to them this

system would provide the control of de demand and the level of the service offered by the companies of collective transportation, besides the subsidies of the tariff calculus using data collected in equipments put in buses. It also would set the goal of running the system in 1998.

By this time they created a commission formed by CTBel and the Sindicato das Empresas de Transporte de Passageiros de Belém – SETRANSBEL (the entities representative of the Bus companies) to elaborate the reference document, and in 15 days the card would be defined and in 30 days it would be ready a proposal to the system.

In the beginning of May a technical specification already existed and it had an EPROM memory with access logic (secure password); capacity of minimum memory of 400 bits, allowing optical reading and recording; resistant plastic material PVC and it allowed the personalization and print photos; it should accept the ISSO 7816-2 and ISSO 7816-3.

It was determined that the Data Base would be CTBel's ownership with authorization to access SETRANSBEL.

The SETRANSBEL contract the firm BRAP Engenharia to implement the system in the same month (May/97). The CTBel takes part of this contract as intervenient in the function of monitoring its implantation. Its initial value was R$ 1.800,00, corresponding to the acquisition of 400 thousand smart cards and the payment of 48 monthly payments corresponding to the equipments rental; the tax of R$215,00 for each bus, what would include the maintenance, technical assistance and system operation. The contract had to be changed soon after the signature because the SETRANSBEL showed the intention of transform the equipments rental in acquisition. The supplier of the technology was the company SHULMBEGER.

This Decision from the Directors was formalized by a Resolution of the Administration Counsel of CTBel, creating a Unified System to Control the Demand, Collect and Tickets Commercialization for Collective Transportation by Buses and regularized the process. It's interesting to note that the authoritarian character of the decision that was not negotiated with the Bus Companies, because it affirms in the first article: "The companies that operate the system of collective transportation by buses have the obligation of implanting an automatic system to control the demand, fare collection and commercialization of the tariffs."

It also sets the date to start the first step of the process, May 9th , 1997. This step was supposed to implant the control of gratuitousness and students' half fare.

The Resolution sets the following steps and goals to be fulfilled under the threat that those companies that do not fulfill them will be fined (the value of the fine is 440 UFIR/vehicle/month):

- the cadastre of users who have gratuitousness and half fare must be updated until 07/01/97;

- the operating companies must acquire the cards used to identify the users, until 10/07/97;

- the cards must be personalized (the name and the photograph must be printed in it) until 01/25/97;

- the equipments for optical reading and recording of the cards must be acquired until 08/04/97;

- monthly implantation in a minimum of 300 equipments by fleet, according to the schedule that the operating companies will send to CTBel, until 10/31/1997/, and it must be implanted until 03/31/98.

The resolution also defines how the flow of collected information must be processed, that is, all original information recorded in the equipments put in buses had to be given and repassed everyday and automatically to the CTBel, in cryptography format, being the CTBel the only responsible for the des cryptography and validation of the information. This resolution is reinforced later by a Mayor Decree number 012/97, of 06/04/97.

The cost for the acquisition of the smart cards, equipments, computer programs, implantation and maintenance of the system was included in the valid tariff plan of 1997.

The process was started with the recadastrement and the capture of the students' images and the delivery of the personalized cards.

The implantation of the process had some troubles among CTBel, SETRANSBEL and BRAP, because of misunderstandings and contractual unfulfilments specially those ones related to payments. The process was stopped, and its signature of a contract of a new agreement among the parts had to be done in June/1998, and now the Empresa 1 would be included and, together with BRAP, it would be committed to elaborate the application programs necessary to run the system.

In May/1998 the employers claimed that the identification of the students printed on the card were disappearing. Moreover, it is observed a meaningful error in the process of capture and emission of cards. A lot of duplications came up and photos exchange with people's identities. The database created showed 581 thousand students,

almost the double of existent students before the process. They came to distribute around 360 thousand cards out of the 400 thousand acquired. Because of the errors there weren't enough cards to students. So, in November/98, the CTBel Directors required the Bus Companies the acquisition of one more block of 400 thousand cards, proposing the inclusion of this expense and the contract of maintenance of the system (R$125,00/bus/month) in the tariff plan.

Finally, in the end of 1998, 1.741 validators were implanted in the fleet, and only one company refused to have the equipments. But, the Bus Companies refused the acquisition of the second block of cards and started to require an audit in the production process and delivery of the first block of cards. They allegated that they couldn't afford any other expense anymore because they had already invested in the implantation of the system an amount of R$4.662.500,00. They also contested the fact that the tariff plan wasn't covering these expenses.

Due the failures presented in the dada bank and students' identification cards, the Bus Companies decided to create a new cadastrement , in January/1998, and they should emit a temporary identity card. So, they go back to the old system of students' identification.

The result of the process was tragic, 400 thousand smart cards were wasted, the validators were implanted, but they were never tested, the programs weren't implanted. The most serious thing was that a modern and efficient process for controlling was totally discredited before the population.

The final result was that all these facts turned to a Public Civil Inquest at the Public Ministery, in the State of Pará.

ANALYSING THE EXPERIENCES IN SÃO PAULO AND BELÉM

São Paulo

The plan was deterministic; actually there was an actor, the SPTRANS, and the other ones were agents in the process, considered unable to damage the process of implantation and the reach of its goals. It wasn't detected, for example, that the employers weren't ready to stop considering the fare collection itself, they didn't predict the reaction of the workers Trade-Union during the struggle for the maintenance of their jobs, and they didn't consider the users' reaction when the collector were replaced by the machines. So, it is clear that the results wouldn't depend only on the SPTRANS Plan, but they didn't notice this, and thus they were weak before the uncertainties and surprises the process would bring.

The lack of a situational description didn't allow them to see that there weren't variables that weren't SPTRANS responsibilities, such as the acquisition of the necessary equipments by each company, or an action of the Working Ministery, against the collectors' unemployment. This way, they couldn't develop operations and couldn't think about an strategy to guarantee their feasibility, mainly those ones that were rejected by the actors who were against the process, as those ones said before. The SPTRANS didn't consider their internal weaknesses to conduct the process, and they were evident during the monitoration of the process conduction, when the project was started in lines without collectors and without a net of commercialization of the tickets working properly.

All this show that the SPTRANS didn't do any analyses to check the political feasibility of their plan, firstly they didn't see that the employers didn't agree with the project, they didn't identify the critical resources of the game which were involved and they didn't evaluate the actors' motivation or each actor's force. The TRANSURB – Sindicato das Empresas Operadoras – was the winner because they practically avoid the two first tries to implement the project and they brought to themselves the commercialization, at the third try. They weren't winners at all because they failed at the third try, when they had the control of the commercialization, they didn't get to implant the project in a situation of force. Now, with the change of the administration in São Paulo City Hall, this correlation of forces changed desfavorably to them. This shows that the TRANSURB didn't adopt the correct approach for planning, either.

If the process of implantation in São Paulo failed very early, of course it would be very difficult to them taking the next step for development of programs to set all the information system that has as a result the creation of a database to manage all the tickets system. The definition of the main agency of this database is a very serious technical-political matter. As that old say: "who has information has the force".

Belém

While São Paulo had a plan, even a deterministic one, Belém didn't have any. There, in Belém, they improvised, they used volunteers and they used the authoritarism.

The plan, if we can call that a plan, was required to the hired firm to implant the project. The firm listed in the document a sequence of standard technical steps, without even consider some adaptations to the local reality.

The approach was really of a childlike determinism, because the comprehension of the process was: if I want I'll get it. As in the case of São Paulo, the other actors were treated as agents without any free will or force to be against or try to impair the proposed goals.

The process showed clear signs of failure and those signs weren't understood by CTBel. The first one was presented just in the beginning of the process when the SETRANSBEL changed some items in the contract for the implantation of the Project, soon after some days it had been signed, and the CTBel wasn't told about it. Another sign was the evident lack of respect from the part of the Bus Companies in relation to the contractual payments, what made the process be paralyzed.

All this could have been prevented if the CTBel had done a situational description of the problem, identifying which elements of the problem were their responsibility and which ones weren't. If they had understood that each actor involved, the bus companies, the technology, the students, the politicians, have a different interpretation about the problem, according to their interests and goals, the CTBel would have had conditions to be prepared to face the uncertainties. In the case of the bus companies it is evident the intention of not to allow the agency to control the demand. When those ones against the project are strong enough to avoid us to reach our goals, it is another problem to be considered. If CTBel divided the causes into a flow of problems, abilities and rules, they would have conditions to identify the flows, the actors and actions that were causing the problem of escaping and the lack of control of the demand and they could propose adequate operations to eliminate or reduce them. They would see that their ability to create a project like this was far from what they needed, that is, there wasn't a technical team at CTBel who really knew about the theme, they didn't have a process for monitoring efficiently all the steps to be followed, and the great number of errors in the activities of cadastrement and emission of the cards could prove it. They would have seen that the existent rules didn't allow them to be authoritary, but traders, because their power to mulct the companies wasn't great. The companies control the returns.

By knowing all this they could have developed operations to change this picture and guarantee the technical-political feasibility of the project. To do so they should have studied at least the most important actors, SETRANSBEL, the bus companies, the company responsible for the project, the technology supplier, the students, people who had the benefit of gratuitousness, the Mayor and some politicians. It was necessary to know about their motivation for the expected operations, which vital elements necessary to the project each of them could control and analyze all these forces and pressures.

The result was tragic, the CTBel didn't get to reach all their goals, the bus companies could stop the control of the demand, the firm sold their products, but the great loser in this game was the population who invested R$4,6 million on a modern technology able to reduce frauds and to guarantee a correct tariff, and it will keep on dealing with a low level technology that neither prevent frauds of the system or offer the Agency any control of the process. The population saw surprised, all that amount of money that fade away.

CONCLUSION

The aim of this paper was, mainly, warn all those in charge of the Management of the Brazilian Public Transportation who are interested in implanting Projects for the use of Electronic fare collection that they must understand that this process is social, technical and political; so, it cannot be treated as a deterministic approach used in the traditional plans. It's necessary to consider the other, because the other can create uncertainties, which may avoid the reach of the intended goals. It is expected that the examples presented in this paper can be of great learning and the new projects can have a better chance to succeed.

It is also aimed to show the reality about some modern technologies that actually "enchant" us. As we could see by the examples above, mainly in São Paulo, where all them were tested and approved, they are necessary, but not enough to guarantee the success of a project. Troubles related to the technical-administrative ability of the agency that is coordinating the project, specially in situational strategic plan and their political ability, among other abilities, are much more relevant than the technical questions.

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