









4) The Service Report is made by EMURB's internal team based on the Processing Report.

In this report the pictures of the audit are inserted, side by side, with those taken in the initial inspection, so that the execution of the service may be evidenced, by the simple before/after comparison.

All these reports are made available to the professionals involved, in real time, through login and password for access.

### 3.4 Managing program

The core of the system is the managing program, which allows the integration of all elements involved, from the field and office teams up to the parties requesting the services and parties executing the services.

Such integration will be described below and its criteria were established upon the conception of the works with the main assumptions: agility; reliability; quality; and saving and rationalization of resources.

The definition of the operating areas of the field teams came from the list of all schools that would be part in the program. This list was provided by the Secretariat of Education.

The list with the name of the schools, their corresponding addresses, coordination offices, regional administrations was, then, entered in the managing program and served as base for an operating logistics.

Some conditions were established to the structuring of the managing program with the purpose of executing a safe and quality routine.

Therefore:

1) To make the coding simpler, the reports had their names abbreviated, as follows:

- Inspection Report, coded as RV;
- Processing Report, coded as RP;
- Audit Report, coded as RA;
- Service Report, coded as RS.

2) The field teams were numerically designated from 01 to 07.

3) The schools intended to each team were divided and listed in the managing program.

4) The work sequence must be linear from the Inspection Report (RV), going to the Processing Report (RP), then, the Audit Report (RA), and finally the Service Report (RS).

5) The numbering of each set of RV, RP, RA and RS reports will be the same for each school visited, that is, the works related to an inspection visit will end only upon the submission of the final report, which is the Service Report (RS). Thus, the consultation related to the services requested will be easier, as the numbering of the reports is the same; what distinguishes one report from another is the initial acronym. To exemplify, observe this sequence:

- Inspection Report → RV 00 0001
- Processing Report → RP 00 0001
- Audit Report → RA 00 0001
- Service Report → RS 00 0001

6) The numbering of the report is automatically made by the managing program itself.

The command for generating the number is always given by the field professional by entering the report into the managing program made in the place of the inspection, through a notebook connected to Internet.

Thus, the management of the data related to the services performed by the involved teams is easy to understand, as the simple association of the name of the school leads to the condition of the works performed thereon.

7) As the field professional enter the report into the program, all the data pre-implemented in this program are automatically ordered, in a manner, that contains, besides the institutional data of the school, the type of report approached, the team that made it, its date of preparation, assuring the authentication and responsibility of the party executing the service.

This also provides for the manager of the services tabulating the data for the assessment

of the productivity of each team and the service as a whole.

8) The Visit Reports (RV) and Audit Reports (RA), despite having guaranties of authenticity, are open to the manipulation of the data by the EMURB's internal team and generate the Processing Report (RP) and Service Report (RS). The latter, after generated and entered in the system, cannot no longer be manipulated, but only consulted.

Even the manipulation of the RV and RA reports are only possible by professionals authorized to perform these services and such authorization was defined by access levels that are not released through login and password.

Whenever a report has its content manipulated, the hour, date and professional who performed this manipulation are immediately registered. In no case, can a report be manipulated without such data being registered in the system, assuring the responsibility network of the system.

The manipulation of the data will always be made in an environment outside the managing program, and only after its ending, can the entry occur.

9) A list was established of the professionals of the several areas involved that would have access to the program, that is, EMURB, SME and SIURB. All of them received login and password for access that automatically define the level of details that can be seen by each one.

For the preparation of the managing program, the sequence of all activities involved was discussed, and a flowchart was created, that allowed a summarized analysis of all acts involved and served as a basis for its first version.

#### **4 Content of the Reports**

The execution of the works has the following order:

The field team leaves for inspection, according to logistics established in a manner

that the schools visited on such day allow the minimum distance to be reached.

At the school, the professional inspects the five areas covered by the program: toilets, pantry and kitchen, electrical installation, roof, and asset safety.

Based on this inspection, he describes, in his notebook, the services required and also generates a photographic file of any abnormality found.

After this step, he enters this report in the managing program, originating the sequence already mentioned, thus, he can go to a new visit in another school.

The RV entered in the managing program is released to be processed by the EMURB'S internal team, that works in a sequential manner, according to the availability of professionals.

The processing services follow a pre-established pattern. Firstly, a technician opens the RV on top of the list and carries out its ordering in the patterns in which the Processing Report (RP) will be presented.

This work is made outside the environment of the managing program; before it is inserted in the network, it is inspected by the supervisor of the team that will provide his release password.

Thus, the authenticity is assured, as all professional involved have their electronic signature printed in the report.

After the RP is entered in the managing program, it can be visited by all agents having access guaranteed through login and password. The ongoing of the works of such sequence of reports is interrupted by EMURB, and the completion of the services is under the responsibility of the Secretariat of Infrastructure and Works and is resumed, this time, as an Audit Report (RA), and finally, as a Service Report (RS).

The EMURB's internal team is comprises six technicians for processing, one full engineer for guiding the works, one senior engineer for supervising the works and interface with the field teams and, finally, the general manager of the program, who is responsible for the connection among the

entities and also for the control of the effectiveness of the teams

With this structure of internal team plus the field teams previously described, we have a total of 23 effective employees working in the program.

The managing program allows a critical analysis of the effectiveness of the teams. Its full content may only be consulted by the general manager, who has information of all activities of each employee.

The set of such information allows the preparation of follow-up charts for possible corrections. The manager has the opportunity to know which team is more or less efficient, and through monthly meetings, discusses the problems found and proposes solutions.

## 5 Difficulties Presented

Upon the creation of the flowchart of activities that would be implemented, the most part of the problems that could arise was anticipated, and a list of procedures was established to solve them as they appear.

Thus, for the selection of the teams, several technical professionals of EMURB were interviewed and those who best fitted the profile of this new challenge were chosen.

An extensive training program was implemented. The acquaintance with the managing program was one of the aspects required from the provider. Internally, the integration of the several teams according to the interfaces was sought.

After this training, lectures for disclosing the systematics of work together with professionals of other entities were carried out and guidance for the consultation of the results obtained were given.

Trials were made before the program startup with all personnel involved for the counting of time and to clarifying any possible doubt and suggesting solutions.

Even tough, unpredicted problems happened, although, most of which occurred due to the personality of the professionals and not due to technical problems of the system.

Some of them are listed below, and, although they are not of technical nature, they must be predicted in future contracts by the agent in charge.

### ➤ Network Congestion

This problem just appeared in the first month of work, as the field teams, even having been oriented as for the number of schools that should be visited per day, with no exception, did more than the expected, overloading the internal team and, thereafter, the managing program.

The solution was the interruption of the field activities and the more incisive and collective guidance to all involved.

### ➤ Difficulty of using the equipment

Such difficulty was not due to the lack of knowledge in using a notebook, but due to the refuse in using it; the technical capacity of some engineers was noticeable, as regards the pathology of the works problems; some of them have always been field engineers used to inspect and solve technical problems related to the execution of works.

As part of their works comprised the making of reports through electronic medium, their professional routine was modified, causing them to found and report the problems immediately.

This issue was solved by using Engineering, Architecture, or Technology trainees, together with these Engineers. The trainees provided the solution for the problem fast and with quality. The experience in works joined the ease of handling computing devices.

### ➤ False idea of freedom of action

The main novelty for the field teams was the freedom to develop their daily activities. Despite having been communicated that the program provided means for controlling at distance, two teams had their effectiveness far below the expected, with a practical result much lower than theoretical.

At the first meeting of analysis of the results, when their ratings were presented, they gave less-than convincing excuses.

The effectiveness was measured again at the second meeting and as the same results were kept and the same explanations were given, the solution was to discharge the professionals involved.

➤ **Difficulty of relationship with the company providing the managing program.**

With the evolution of the services, the relationship among the teams reached a very good quality level, mainly, because all employees have been employed at the EMURB's technical staff for a long time.

On the other hand, the relationship with the company providing the program started to present some difficulties, mainly with the feedback of requests made by EMURB for enhancement and corrections of trajectory, provided in the contract.

The solution for the problem was the preparation, through the computing team of EMURB itself, of a similar program, however, with characteristics already fitted to the needs of the project.

Such program was developed with the assumption that, when being put into practice, it would incorporate all data up to now stored in the first managing program contracted. In the executed contract, the interchange of data with future programs that could be developed by EMURB was predicted.

In fact, such thing has occurred and for thirty days the two programs worked in parallel and, from a stipulated date on, the new managing program started to work alone without any major problem.

## 6 Conclusion

The need to overcome challenges is one of the main factors that lead to the technological and administrative development.

This was demonstrated with the high result achieved by the team implemented upon

the analysis of the services at the end of the contract.

With the discharge of the professionals of two teams, as explained in the previous chapter, the works assigned to them were divided among the other five remaining teams.

Such thing was possible due to the intensive training of the professionals and the increasingly higher experience achieved throughout the process.

The rationalization of the services and the application of the knowledge achieved by the participants caused the execution of the works to be much faster, even with a lower number of teams than initially expected.

An operation level as good as two daily reports per team was achieved, which allowed for a new adjustment in the numbers, reaching a reduction of 4.25 times in relation to the time required to execute the project, if it was to be done by the traditional means.

Another major advantage was the standardization in the presentation of the results obtained.

The public manager has in the Information Technology the tools required to establish and apply parameters in the execution of the several activities of the management.

The program of the maintenance of schools of the municipality of São Paulo completed its first step in the beginning of 2009 with all schools being submitted to interventions in the five critical areas proposed.

The new step is expected to start in the first semester of 2010, with new challenges that will be addressed, now, with a management tool already totally known and enhanced.

This tool served as base for new applications in other contracts executed by the company with several clients.

The enhancement of the system is continuous and this assumption cannot be forgotten by the manager, since one program is the base for the other.

This open view is necessary so that the new challenges may be surpassed by using these modern and safe means of Information Technology, thus, meeting the demands required by the several sectors of the public



administration will be always possible, mainly, automating services systems.

In follow figures, some results of the program.



Figure 3: External Areas – Full Review –  
From Author

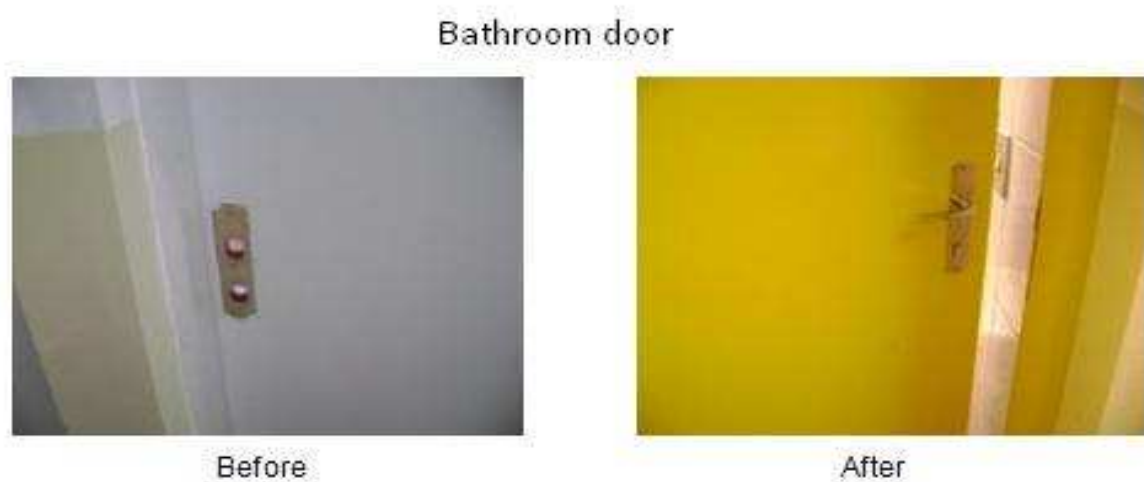


Figure 4: Internal Area. Bathroom door  
From Author

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