



Let's build a smarter planet

Porto Alegre: A smarter city that keeps its citizens moving

Accelerating essential road maintenance response time by 50 percent with help from IBM and Procempa

Smart is...

Analyzing data from citizens, government departments and contractors to create a more efficient city.

With 1.5 million citizens, Porto Alegre is the capital city of Brazil's southernmost state, Rio Grande do Sul. For more than 30 years, the city has used IT innovation to drive continual improvements to public services. As part of this long-standing commitment, Porto Alegre's municipal government founded its own IT company—Procempa—in 1977. Today, Procempa employs 500 people and hosts over 300 operational-management, asset-management and line-of-business applications for Porto Alegre's local government.

Growth challenges

Thanks to its status as a leading cultural, political and economic center, Porto Alegre's population is growing rapidly. With a greater number of citizens using basic utilities, and a growing middle class putting more cars on the city's roads, Porto Alegre needed to take action to ensure that it could continue to provide an excellent standard of living for future generations.

As Flávio Perreira Presser, Director-General at Porto Alegre Municipal Water and Sanitation Department (DMAE), explains: "Growth presents a lot of opportunities for Porto Alegre, but keeping everything running smoothly was a challenge. Higher water usage and private car ownership create additional wear on supporting infrastructure like roads and underground water pipes—and more wear means more maintenance. In the past, maintenance required us to close roads for extended periods, creating significant disruption that threatened to reduce quality of life for our citizens."





Solution components

Hardware

- IBM® System z10® Business Class
- IBM XIV® Storage System

Software

- IBM DB2® for Linux on System z®
- IBM InfoSphere® Data Architect
- IBM Maximo® Asset Management
- IBM Security AppScan® Standard
- IBM Rational® Software Architect
- IBM Rational Team Concert™
- IBM Tivoli® OMEGAMON® DE on z/OS®
- IBM Tivoli OMEGAMON XE
- IBM Tivoli Storage Manager for Databases
- IBM WebSphere® Application Server
- IBM z/OS
- IBM z/VM®

IBM Business Partner: Esri

- ArcGIS

Porto Alegre wanted to keep its growing population moving. To achieve this objective, it needed to optimize maintenance processes for some 80,000 fixed assets across the city.

“In the past, we performed maintenance reactively,” continues Mr. Presser. “When one of our employees or citizens made a repair request, it would be written down on an index card, and then recorded in a spreadsheet. A city employee would travel out to the site to make an inspection, calculate the materials and labor required to complete the repair, and engage a contractor to carry out the work. Managing this complex process with spreadsheets made it nearly impossible for us to accurately track how long it took to respond to and fix problems.”

Eduardo Costa Machado, Head of IT at DMAE, adds: “Because there was no way to view the work history for each site, it was difficult to identify recurring issues and ensure that we were getting value from our suppliers. Responding to issues reactively also made it difficult to ensure that maintenance was completed quickly—increasing costs and heightening the risk of disruption for road-users.”

Porto Alegre engaged expert consultants from Procempa to find a solution. Procempa determined that an integrated approach to information management would help the city to plan repair work in a smarter way—decreasing repair times and costs significantly.

Eberli Riella, Technology and Services Manager at Procempa, says: “Previously, the departments responsible for water, sanitation and highways used disconnected spreadsheet-based systems for asset management. We realized that by integrating information from

Smarter cities:

Improving efficiency with collaborative asset management



Instrumented

Data from maintenance schedules, online repair tickets from citizens and reports from field employees using mobile devices is combined in IBM Maximo Asset Management software.



Interconnected

Superimposes geo-referencing information on maintenance tasks on a map of the city—providing a secure, centralized solution for three key city departments to collaboratively manage assets.



Intelligent

Offers a single, unified view of maintenance activities across Porto Alegre. This enables city departments to pool their resources—cutting repair times and driving cost efficiencies.



“By consolidating our distributed asset management systems into a private cloud, we benefit from reduced IT operational costs as well as increased security—which is especially important for our mobile Maximo applications.”

—Walfrido Goulart, Data center manager,
Procempa

all three departments in the city's existing mainframe private cloud environment, we could enable them to pool their resources, cut repair times and drive cost efficiencies.”

As part of a cost-benefit analysis during the planning phase, Procempa projected that a cloud solution based on IBM® Maximo® Asset Management software could achieve a 50 percent reduction in response times, a 30 percent reduction in work order backlogs, and a 60 percent reduction in total cost of ownership.

Journey to Smarter Computing

To integrate the city's maintenance data, Procempa deployed IBM Maximo Asset Management solutions on Red Hat Enterprise Linux for IBM System z. Maximo for Utilities helps the city to manage assets associated with its supporting infrastructure. Combined with ArcGIS interactive mapping technology from Esri, an IBM Business Partner®, IBM Maximo Spatial Asset Management gives city officials the geospatial location of assets, work orders, and service requests. In addition, IBM Maximo Mobile Work Manager enables city employees to access asset management data on the move through tablets and smartphones.

Porto Alegre's data is held in an IBM DB2® database, with the underlying data architecture provided by IBM InfoSphere® Data Architect. To ensure fast, effective recovery in the event of a disaster scenario, Procempa installed IBM Tivoli® Storage Manager for Databases.

Walfrido Goulart, Data center manager at Procempa says: “By implementing the solution on our existing IBM System z10® platform, we ensure that Maximo benefits from high security, performance and availability. We have been using System z® as a secure cloud for our data for many years, and in all that time the system has never skipped a beat.

“By consolidating our asset management systems into a private cloud, we benefit from reduced IT operational costs as well as increased security—which is especially important for our mobile Maximo applications. What's more, our private cloud on System z enables the flexibility and agility we need to rapidly provision IT resources to support new data-driven initiatives for the city.”



Using an online customer service center powered by IBM WebSphere®, citizens now open repair tickets that are automatically routed to the correct government department. Maximo combines these requests with data on assets across the city—delivering the insights that the city's departments need to plan maintenance effectively.

Maximo keeps traffic flowing

Today, Porto Alegre's water, sanitation and highways departments see a single source of information, and co-ordinate maintenance as a team—preventing the same stretch of road being worked on consecutively by multiple departments.

“We have now consolidated our maintenance departments into a city-wide command center,” says Mr Riella. “Good communication is important to get work done quickly and effectively. Because the city's departments have a single source of asset management information, they can co-ordinate their responses as a team—streamlining the decision-making process and minimizing duplication of effort.”

Mapping the city into different layers, the solution provides a near real-time view of assets and work teams. It indicates the different types of service orders and service requests, enabling managers to filter and prioritize services according to urgency, and dispatch the closest available service teams.

“Our employees in the field can now use mobile devices such as tablets or smartphones to enter repair assessments directly into Maximo, which increases the efficiency of maintenance processes dramatically,” says Mr. Machado. “Because all of our assets, repair assessments and materials management processes are managed in a single system, we have total traceability of all work performed by third parties—ensuring that we get value from our suppliers.”

By taking a smarter approach to asset management, Porto Alegre enables its departments to avoid time-consuming micro management, and focus on high-value strategic planning—delivering a better result for citizens.



Let's build a smarter planet

“A smart city is a city that manages its information effectively; thanks to IBM Maximo on System z, that’s exactly what we have achieved,” concludes Mr. Machado. “The IBM solution helps city departments to work together to perform maintenance work quickly—supporting our aim to improve quality of life across the city.”

For more information

- To learn more about Procempa, visit: www.procempa.com.br
- To learn more about Esri, visit: www.esri.com
- To learn more about IBM solutions, contact your IBM sales representative or visit: ibm.com/software/systemz



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