



GEOSPATIAL INFORMATION INCORPORATED TO  
DEVELOP CORPORATIVE SYSTEMS OF BELO  
HORIZONTE CITY HALL

- *Ronoel M. A. Botelho Jr.*

# PRESENTATION

❖ SCENARIO - BELO HORIZONTE CITY HALL;

❖ GEOSPATIAL CHALLENGES ;

❖ BHMAP SOLUTIONS;

❖ APPLICATION EXAMPLES USING BHMAP.

# BELO HORIZONTE CITY HALL

- ❑ OVER 20 YEARS USING GEOTECHNOLOGY

# BELO HORIZONTE CITY HALL

- ❖ OVER 350 GEOGRAPHICAL LAYERS
- ❖ 480 INTERNAL USERS WHO USE THE SPATIAL DATA DIRECTLY.

# BELO HORIZONTE CITY HALL

- OVER 80% OF BELO HORIZONTE DATA HAVE GEOGRAPHIC INFORMATION;
- MOST OF THE SYSTEMS NEED TO INTERACT WITH A SPATIAL INFORMATION!

# CHALLENGES

- GEOGRAPHIC INFORMATION SYSTEM (GIS) NEEDS SPECIFIC SKILLS AND MATURITY TO DEVELOP AND MAINTENANCE THE SPATIAL DATA INFRASTRUCTURE (SDI);
- EACH SYSTEM SEARCH THE DATA DIRECTLY FROM THE BASE TYING THE STRUCTURE OF THESE DATAS;
- SYSTEMS SUSTENTION WITH GEOGRAPHIC DATA BECOMES RESPONSIBILITY OF GEO;

# CHALLENGES

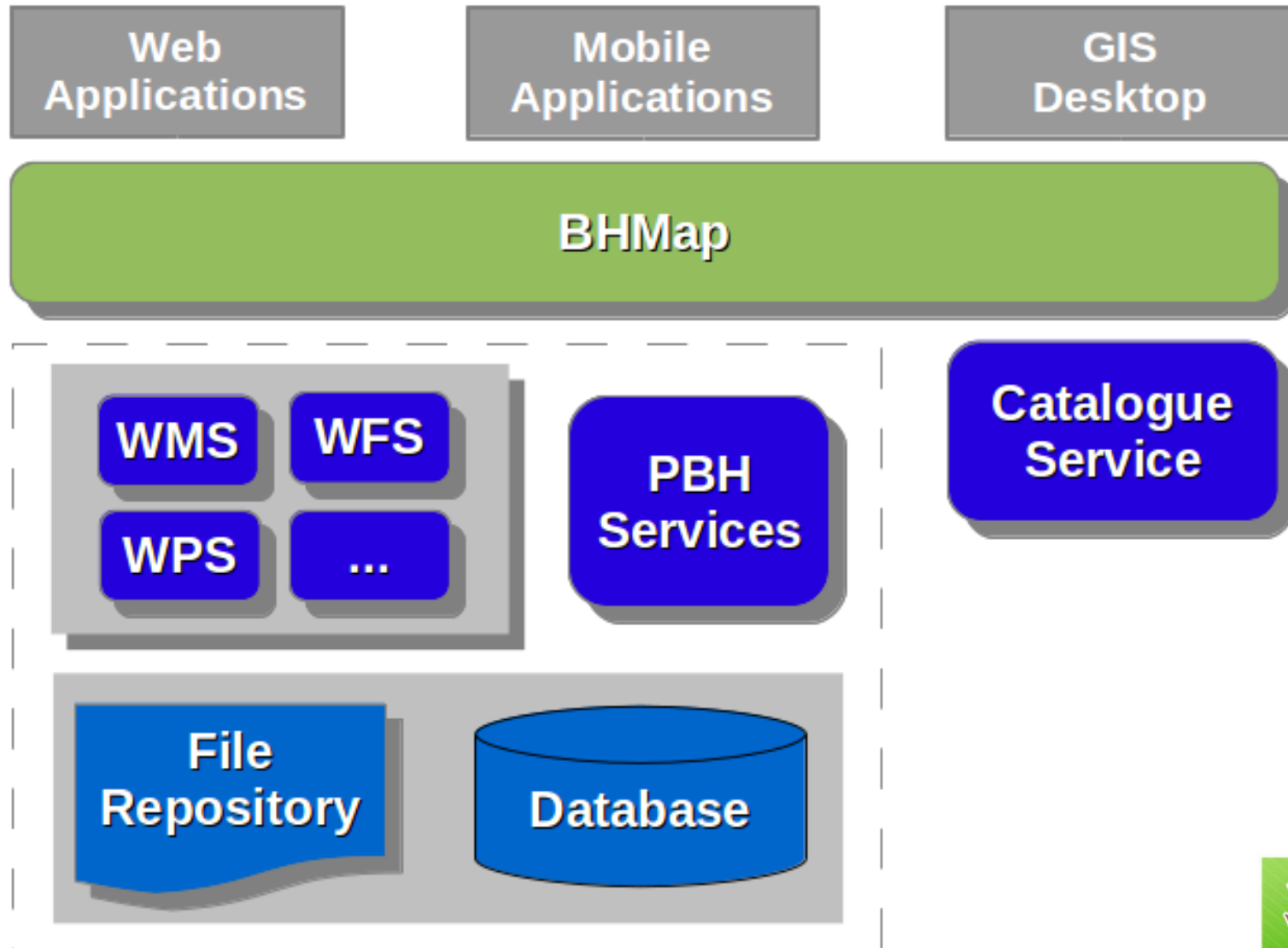
➤ DUE TO LACK OF TECHNICAL CAPACITY OR EXPENSIVE COST OF THE SOLUTIONS, THE INTEGRATION WITH GEOGRAPHIC INFORMATION IS REMOVED OF THE SYSTEMS DEVELOPMENT.

# SOLUTION

SEPARATING THE DEVELOPMENT AND  
MAINTENANCE OF SYSTEMS FROM THE  
COMPLEXITY OF SPATIAL DATA  
INFRASTRUCTURE (SDI).



# ARCHITECTURE



# BHMap - FEATURES

- CENTRALIZE THE ACCESS TO SDI;

# BHMap - FEATURES

➤ THE ACCESS TO APPLICATION IS DONE BY A COMPONENT ( THE AVAIABLE COMPONENT THROUGH SERVICE, BRINGS SPECIFICS FUNCTIONS ACCORDING TO THE PARAMETERS OF THE REQUEST);

# BHMap - FEATURES

- THE ACCESS TO GIS DESKTOP IS DONE WITH THE USE OF THE PLUGIN;

# BHMap - FEATURES

➤ INTEGRATE AND SIMPLIFY THE ACCESS TO RESOURCES OF SPATIAL DATA INFRASTRUCTURE;

# BHMap - FEATURES

➤ APPLICATIONS INDEPENDENT OF THE DATABASE STRUCTURE;

# BHMap - FEATURES

- CONTROL OF THE ACCESS TO THE DATA;

# BHMap - FEATURES

➤ EVOLUTION OF THE SPATIAL DATA INFRASTRUCTURE IS TRANSPARENT TO APPLICATION CUSTOMERS OF BHMAP;

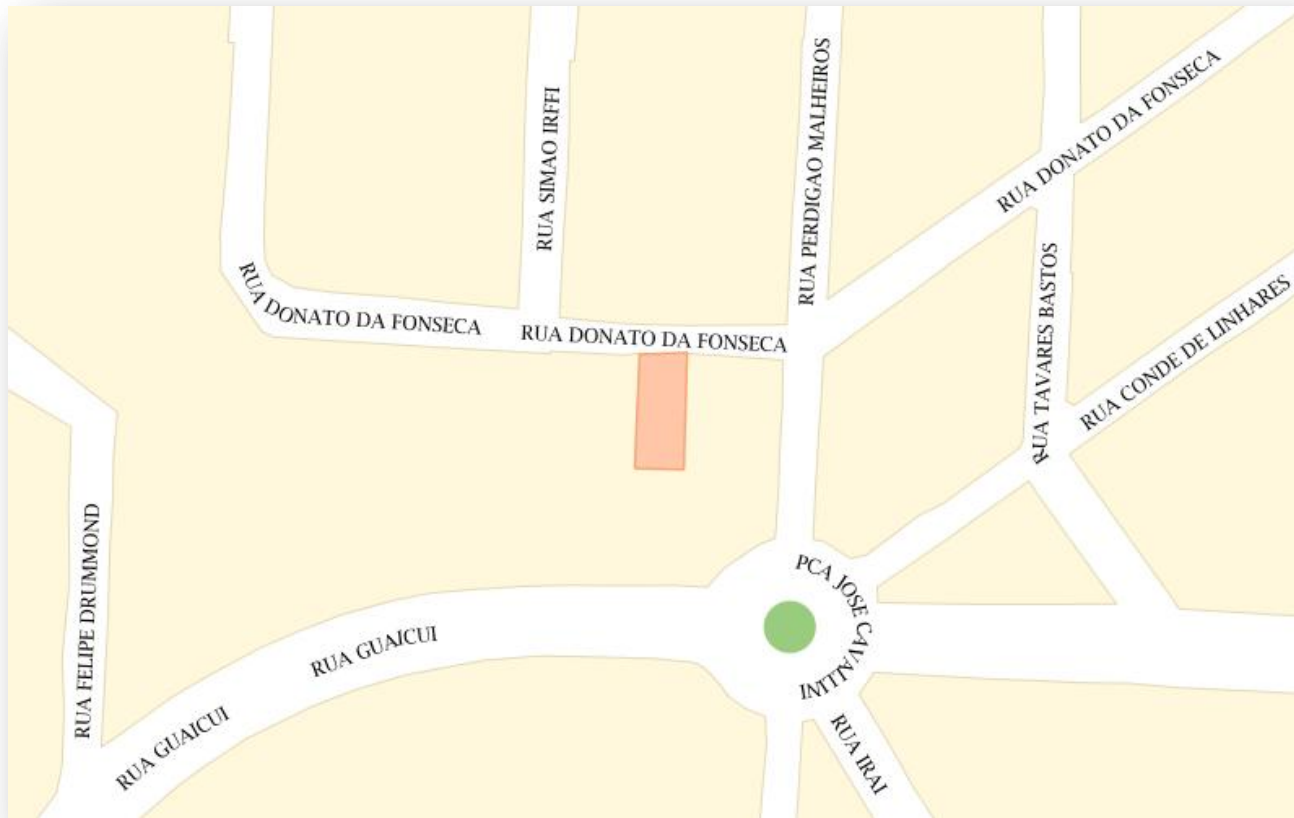


# BHMap - FEATURES

- BUILT ON OPEN SOURCE TECHNOLOGIES;

# BHMap - EXAMPLES

❖ SIATU:



# BHMap - EXAMPLES

## ❖ SGBI:

**SGBI**  
**Sistema de Gestão de Bens Imóveis**

**PREFEITURA BELO HORIZONTE**

Cadastro de Bens Imóveis | Tabelas Auxiliares | Administração | Consultas / Relatórios | Listagem

Ajuda

Cancelar

**Visualização de Mapas**



**Tema selecionado**

**Tipo**

**Tipo de Visualização**

Mapa  Satélite

**Legenda**

- Area invadida
- Arranha Céu
- Bosque
- Edifício
- Embaixada
- Favela
- 999999
- Loja
- Lote
- LOTE COM BENFEITORIA
- LOTE COMERCIAL
- LOTE VAGO
- Loteamento
- Parque
- Patrimônio Público
- Prefeitura
- Shopping
- teste si

# BHMap - EXAMPLES

❖ SAC Web:



# BHMap - EXAMPLES

## ❖ GeoPORTAL:

**GeoPORTAL**

PREFEITURA BELO HORIZONTE  
SMGO / PRODABEL

### Página Inicial

Serviços Públicos	Desenvolvedores
<b>Catálogo de dados</b> Lista dos Dados espaciais, metadados e imagens.	<b>APIs do Geo portal</b> Bibliotecas, Bibliografias e conceitos.
<b>Visualizador de dados espaciais</b> Visualiza Dados espaciais.	<b>Noticias</b> Noticias e informações.
<b>Mapas compartilhados</b> Mapas temáticos compartilhados.	
<b>Fale conosco</b> Comunicação com o gestor e administradores.	

**Serviços Públicos**

- ▶ Apresentação
- ▶ **Página inicial**
- ▶ Catálogo de serviço
- ▶ Catálogo de imagem
- ▶ Mapas compartilhados
- ▶ Visualizador de dados
- ▶ Acesso aos dados

**Desenvolvedores**

- ▶ APIs do Geo portal

Prefeitura Municipal de Belo Horizonte - Geocorporativo / Prodabel  
Centro | CEP:31130-000 | Belo Horizonte - MG - Brasil.

# BHMap - EXAMPLES

## ❖ SHARED MANAGEMENT WEBSITE:

The screenshot displays the BHMap website interface. At the top, there is a header with the logo "GESTÃO COMPARTILHADA" and the text "Belo Horizonte". Below the header is a navigation menu with links: INÍCIO, APRESENTAÇÃO, BH EM NÚMEROS, MAPAS E ESTATÍSTICAS, ESTRUTURA TERRITORIAL, PARTICIPAÇÃO CIDADÃ, BIBLIOTECA, and LINKS. A search bar and links for "Acesso à Informação" and "Contato" are also present.

The main content area is divided into two columns. The left column contains a sidebar with the following sections:

- MAPAS E ESTATÍSTICAS**
  - MAPA INTERATIVO
  - MAPAS E DADOS ESTÁTICOS
  - CENSO 2010
- Agenda Pública**
  - JULHO DE 2012
  - Calendar grid showing days of the week (D, S, T, Q, Q, S, S) and dates from 1 to 31.
  - VENHA PARTICIPAR!

The right column features the "MAPA INTERATIVO" section, which includes a search bar, social media sharing options (Twitter, Facebook), and a map of Belo Horizonte. The map is overlaid with a grid and labeled with neighborhood names: PA. PULHA, NOROESTE, NORDESTE, OESTE, CENTRO-SUL, and OESTE. A legend titled "Equipamento Municipal" lists the following categories:

- CULTURA
- EDUCAÇÃO
- INCLUSÃO DIGITAL
- POLÍTICA SOCIAL
- SAÚDE

Below the map, there is a note: "Navegue no mapa em tela cheia" and "atualizado em 10/06/2012".

# BHMap - EXAMPLES

## ❖ WEBMAP VIEWER:

The screenshot displays the BHMap webmap viewer interface. The central map shows the city of Belo Horizonte with various data layers overlaid. The interface includes several interactive panels:

- Map Navigation:** A toolbar at the top center contains icons for zooming in (+), zooming out (-), home, information (i), and print.
- Information da camada:** A panel on the left side of the map, titled "Informação da camada", prompts the user to select a layer for information. The dropdown menu is set to "Equipamento Municipal".
- Equipamento Municipal:** A detailed information panel for a selected point of interest. The data is as follows:

<b>Nome</b>	C.D.I. ESPAÇO BH CIDADANIA COQUEIRAL
<b>Categoria</b>	Centro de Inclusão Digital
<b>Temática</b>	INCLUSAO DIGITAL
<b>Endereço</b>	RUA RAINHA DAS FLORES, 102
<b>Bairro</b>	Vila Coqueiral
<b>Território</b>	NO3
- Gerenciador de Camadas:** A panel on the right side of the map, titled "Gerenciador de Camadas", allows users to toggle different layers. The selected layers are "Equipamento Municipal" and "Centro de Saúde".
- Legenda:** A panel on the bottom left, titled "Legenda", provides a key for the map's layers. It includes a legend for "Centro de Saúde" (red square) and "Equipamento Municipal" (various colored squares: green for CULTURA, orange for EDUCAÇÃO, blue for INCLUSAO DIGITAL, yellow for POLITICA SOCIAL, and red for SAUDE).
- Camadas BHMap:** A panel on the bottom right, titled "Camadas BHMap", lists the available layers: ADE, Território de Gestão Compartilhada, Lago, Bairro, Base BH, Ortofoto 2007, IQVU 2006, and Bacia Elementar.

BHmap

# BHMap – FINAL CONSIDERATIONS

- ✓ THE SEPARATION OF THE DEVELOPMENT OF THE SYSTEMS WITH THE INTEGRATION OF SPATIAL DATA INFRASTRUCTURE, THE GEOGRAPHIC AREA CAN FOCUS ITS EFFORT TO SUPPLY AND IMPROVE THE AREA;
- ✓ IT SIMPLIFIES THE INTEGRATION OF THE APPLICATIONS WITH SDI.





**Ronoel Botelho Jr.**

[ronoel@pbh.gov.br](mailto:ronoel@pbh.gov.br)