

Digital City



Vehicle, asset, person & pet monitoring & controlling



Agriculture automation



Energy consumption



Security & surveillance



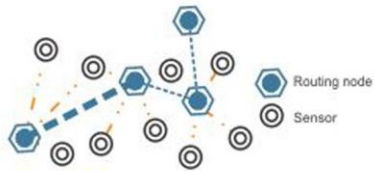
Building management



Embedded Mobile

Internet of things

Everyday things get connected  for smarter tomorrow



M2M & wireless sensor network



Everyday things



Smart homes & cities



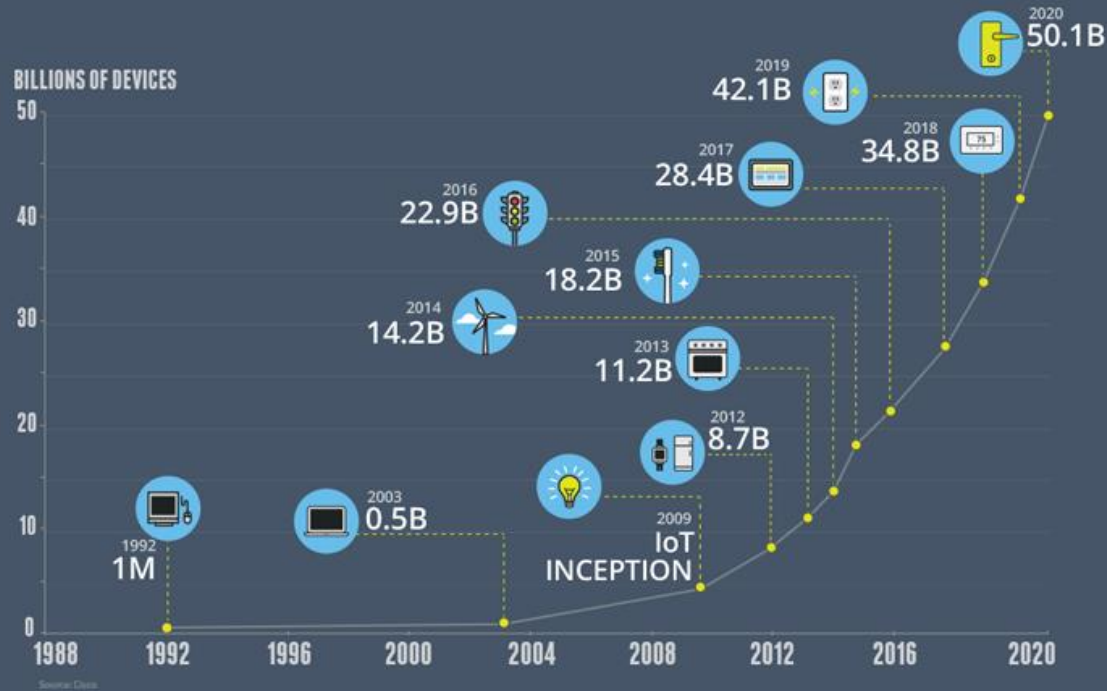
Telemedicine & healthcare

Digital City



GROWTH IN THE INTERNET OF THINGS

THE NUMBER OF CONNECTED DEVICES WILL EXCEED **50 BILLION** BY 2020



UBER

Informação do seu
ônibus na hora certa!



CittaMobi

Smart and Human Cities



Technology as a tool

- Connect citizens
- Manager data
- Real time facts
- To broaden the vision of a problem



...because sometimes our cities need more than technology

Brazilian reality



Territorial occupation - IBGE 2010

23,8 km² Brasil

17 km² Finland

1º Southeast = 67.77 km²

2º South = 38.38 km²

3º Northeast = 27.33 km²

4º Midwest = 5,86 km²

5º North = 2,66 km²

São Paulo City 7.300 km²

Most of North Cities less than 10 km²

Continental differences

- Climate
- Territorial occupation
- Access to technology
- Social and economic development
- Relief
- Different forms of local management



23/12/2015 13h11 - Atualizado em 23/12/2015 13h11

Oito municípios declaram situação de emergência após chuvas no RS

Ao todo, 25 localidades das Regiões Norte e Noroeste tiveram danos. As cidades de Uruguaiana e Quaraí já sinalizaram possibilidade de decreto.



Novo decreto declara situação de emergência para 150 municípios

20 Set

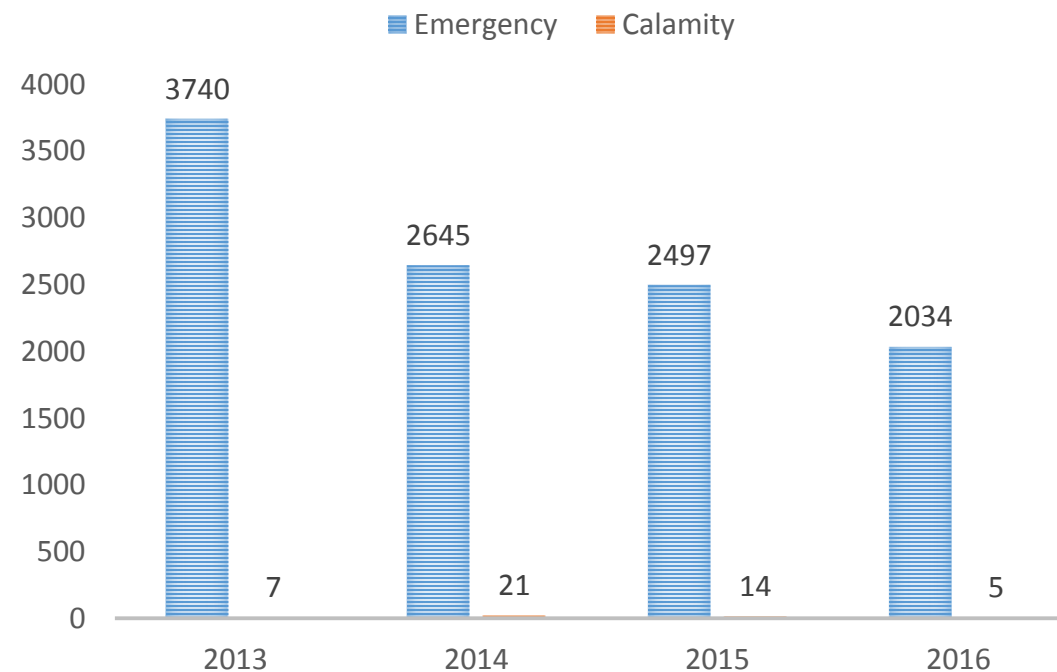
Partilhar Tweetar

O Governo do Estado publicou ontem (19) um novo decreto que declara situação de emergência para 150 municípios do Rio Grande do Norte em decorrência da seca. Esta é a terceira vez que o Executivo decreta "situação de emergência", em pouco mais de um ano, para obter mais celeridade e acesso à ajuda do governo federal. O decreto entra em vigor hoje e vale até março de 2014.

23/11/2016 17h02 - Atualizado em 23/11/2016 17h02

Ceará tem 81% dos municípios com situação de emergência reconhecida

Governo Federal reconheceu emergência em 104 cidades nesta 4ª feita. Quarenta açudes do Ceará estão completamente secos, segundo Cogerh.



Ministério Integração Nacional - 2016

National Instruments for city control – local government



Urban zones

Countryside

Zoneamento Urbano

Z. Socioeconômico-ecológico

Mobility Plan

Z. Agroecológico

Master Plan
Plano Diretor

How To Make Cities More Resilient

A Handbook For Local Government Leaders



1. Put in place organization and coordination to understand and reduce disaster risk, **based on participation of citizen groups and civil society**. Build local alliances. Ensure that all departments understand their role in disaster risk reduction and preparedness.
2. **Assign a budget** for disaster risk reduction and provide incentives for homeowners, low income families, communities, businesses and the public sector to invest in reducing the risks they face.
3. Maintain up to date data on hazards and vulnerabilities. **Prepare risk assessments and use these as the basis for urban development plans and decisions**, ensure that this information and the plans for your city's resilience are readily available to the public and fully discussed with them.
4. Invest in and maintain critical infrastructure that reduces risk, such as flood drainage, adjusted where needed to cope with climate change.
5. Assess the safety of all schools and health facilities and upgrade these as necessary.
6. Apply and enforce realistic, risk compliant building regulations and land use planning principles. Identify safe land for low income citizens and upgrade informal settlements, wherever feasible.
7. Ensure that education programmes and training on disaster risk reduction are in place in schools and local communities.
8. Protect ecosystems and natural buffers to mitigate floods, storm surges and other hazards to which your city may be vulnerable. Adapt to climate change by building on good risk reduction practices.
9. **Install early warning systems and emergency management** capacities in your city and hold regular public preparedness drills.
10. After any disaster, ensure that the needs of the affected population are placed at the centre of reconstruction, with support for them and their community organizations to design and help implement responses, including rebuilding homes and livelihoods. .

Unidade da Federação	Domicílio improvisado	Domicílio rústico	Domicílios com adensamento excessivo	Ônus excessivo com aluguel	Coabitação	Déficit habitacional *
Norte	15.436	139.484	48.125	181.682	269.786	631.586
Roraima	504	11.590	4.533	28.210	7.053	49.623
Acre	4.032	3.864	1.848	5.376	11.087	25.871
Amazonas	3.763	23.825	17.558	47.653	81.827	167.731
Roraima	190	3.040	2.850	8.746	8.744	22.810
Pará	3.592	83.635	15.943	67.137	132.326	290.991
Amapá	3.355	1.032	3.098	5.678	15.229	27.875
Tocantins	-	12.498	2.295	18.882	13.520	46.685
Nordeste	29.165	437.783	73.802	720.810	644.307	1.867.563
Maranhão	4.600	243.028	5.366	39.100	96.592	373.353
Piauí	561	23.541	3.924	10.092	48.211	85.768
Ceará	2.061	68.406	19.734	137.661	66.239	286.462
Rio Grande do Norte	-	8.096	5.398	45.876	43.176	99.847
Paraíba	-	13.075	8.098	57.302	59.789	137.018
Pernambuco	3.506	31.258	14.382	159.320	82.343	285.235
Alagoas	4.187	17.950	2.993	60.434	39.495	123.264
Sergipe	2.167	5.422	722	35.415	27.116	70.842
Bahia	12.083	27.007	13.185	175.610	181.346	405.774
Sudeste	34.072	71.617	235.144	1.670.114	637.735	2.562.117
Minas Gerais	3.082	18.830	17.679	334.151	177.730	544.609
Espírito Santo	588	3.528	4.703	72.878	34.086	113.431
Rio de Janeiro	16.187	8.428	42.118	320.351	97.795	471.919
São Paulo	14.215	40.831	170.644	942.734	328.124	1.432.158
Sul	10.263	52.430	27.662	380.222	197.871	658.360
Paraná	5.067	22.652	13.133	152.670	71.894	261.675
Santa Catarina	2.783	12.515	6.258	107.790	35.476	161.345
Rio Grande do Sul	2.413	17.263	8.271	119.762	90.501	235.340
Centro-Oeste	6.741	19.080	31.511	305.474	123.210	478.668
Mato Grosso do Sul	2.107	3.373	3.794	40.042	21.916	71.232
Mato Grosso	857	4.284	4.712	43.698	21.852	74.974
Goiás	1.337	6.238	12.027	142.138	51.694	209.870
Distrito Federal	2.440	5.185	10.978	79.596	27.748	122.592
Total	95.677	720.394	416.244	3.258.302	1.872.909	6.198.294



Nowadays: 6 million families

2024
20 million families
10 million families living with less than \$600 per month

...So we need R\$76 billion per year





Angra dos Reis/RJ

Robotized total station (ETR), geotechnical sensor

“Today around 45 thousand person lives in risk area, but just 9 thousand are registered in our alert system who send SMS messages”





CENTRO DE OPERAÇÕES
PREFEITURA DO RIO



Rio de Janeiro/RJ

2

Partnership between NEC and Rio de Janeiro City, for mudslide prevention using Bigdata and Smart meters.

“The system capture data from diferent kind of smart meters and provide analisys to inform at real time risk of mudslide for the next 3 days.

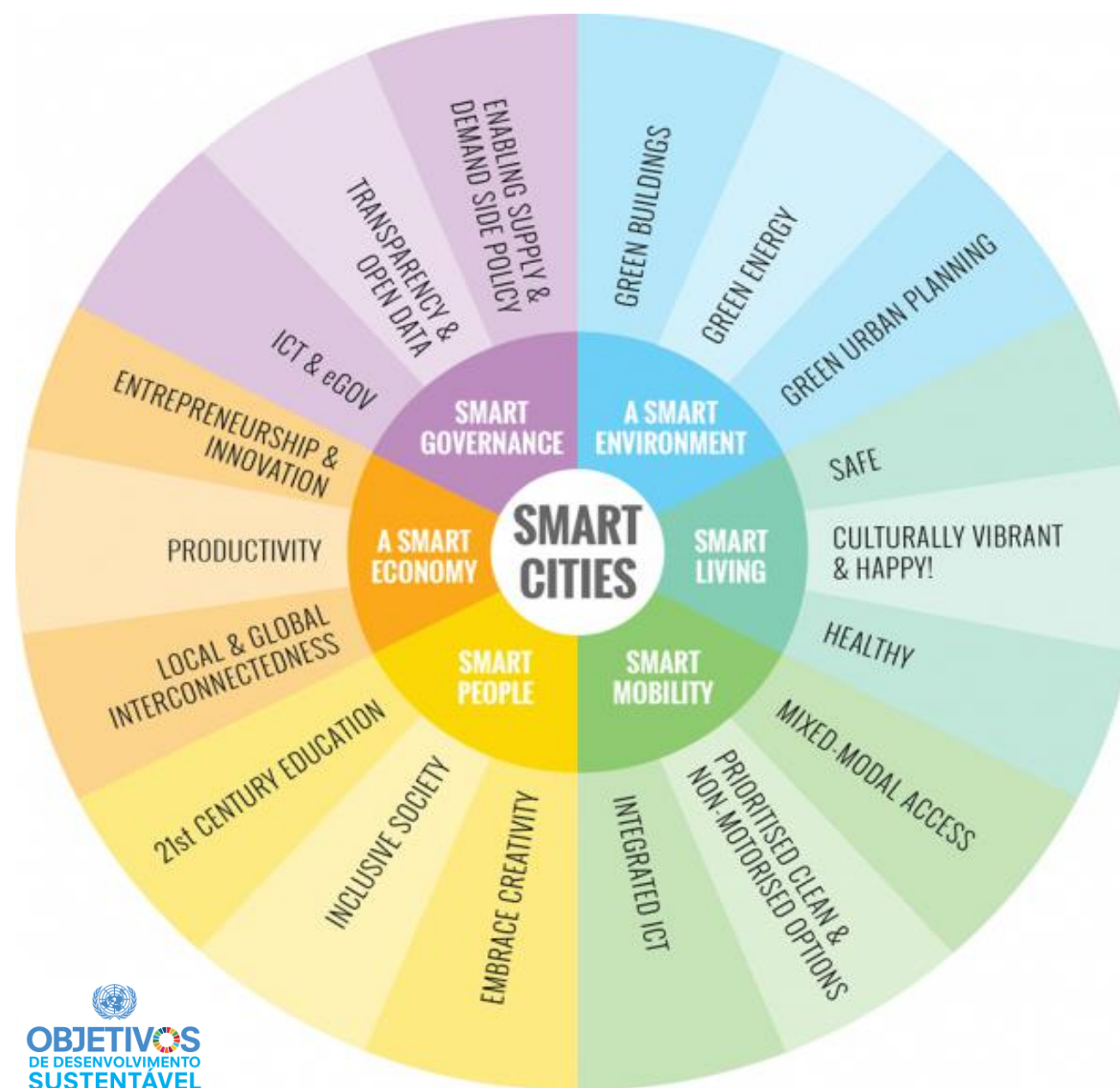
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Construction for Floods prevention, before Olympic games

<https://www.youtube.com/watch?v=6GZGlomWXhk>

Granja Marileusa - Uberlândia/MG







Filipe Rocha

Especialista em Políticas Públicas Municipais

Mestrando Políticas Públicas - UMC

Membro Cluster Smart Cities - Cecompi

Membro APL Tecnologia e Comunicação - Pq. Tecnológico

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