TRILHA INTERNET DAS COISAS

Internet das Coisas: O que temos agora e o que nos espera mais pra frente?

Elany Branches

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QUEM SOU EU?

Elany Branches, 26 anos, Paraense. Cientista da Computação. Mestranda em Eng.Elétrica. Entusiasta da Cultura Maker, Rede de Sensores sem Fio e IoT.

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O termo "INTERNET OF THINGS"

Mencionado pela 1ª vez em 1999 por Kevin Ashton em uma apresentação para a P&G.

Principais produtos do estudo “Internet das Coisas: um plano de ação para o Brasil”

NÃO EXAUSTIVO

	I Diagnóstico e Aspiração Brasil	II Seleção de verticais e horizontais	III Investigação de verticais, elaboração da Visão e Plano	IV Suporte à implementação
Objetivos	▪ Desenvolver *benchmark* de **projetos e políticas de IoT** ▪ Mapear ***roadmap* tecnológico de IoT** no mundo ▪ Analisar **demanda e oferta de IoT** no Brasil	▪ Definir **critérios-chave** de seleção ▪ **Priorizar** verticais e horizontais	▪ **Aprofundar-se** nas **verticais** escolhidas ▪ Elaborar **Visão para IoT** para cada vertical ▪ Elaborar **Plano de Ação 2018-22**	▪ **Apoiar** e **acelerar** a **implementação** do Plano de Ação
Principais produtos	0 Plano de governança e trabalho 1 Relatório de *benchmark* 2 Relatório de *Roadmap* tecnológico 3 Relatório de Análise de Oferta e Demanda 4a Relatório de Entrevistas e Pesquisas – Fase I	5 Relatório de Seleção de Horizontais e Verticais – Parcial 6 Relatório de Seleção de Horizontais e Verticais – Final 4b Relatório de Entrevistas e Pesquisas – Fase II	4c Relatório de Entrev. e Pesquisas – Fase III 7a Relatório de aprofund. das verticais – Cidades 7b Relatório de aprofund. das verticais - Saúde 7c Relatório de aprofund. das verticais - Rural 7d Relatório de aprofund. das verticais - Indústria 8 Relatório do Plano de ação 9a Relatório final do estudo 9b Síntese do relatório final do estudo	▪ **Em definição**

FONTE: Análise do consórcio

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INTERNET OF THINGS

Três características de uma solução IoT

Três pré-requisitos:

- **Recebimento de dados** digitais vindos de **sensores** e/ou indo para **atuadores** (por exemplo, sensor de temperatura em um motor).
- **Conexão com uma rede** fora do objeto.
- Capacidade de **processar dados** de forma **automática** (sem intervenção humana).

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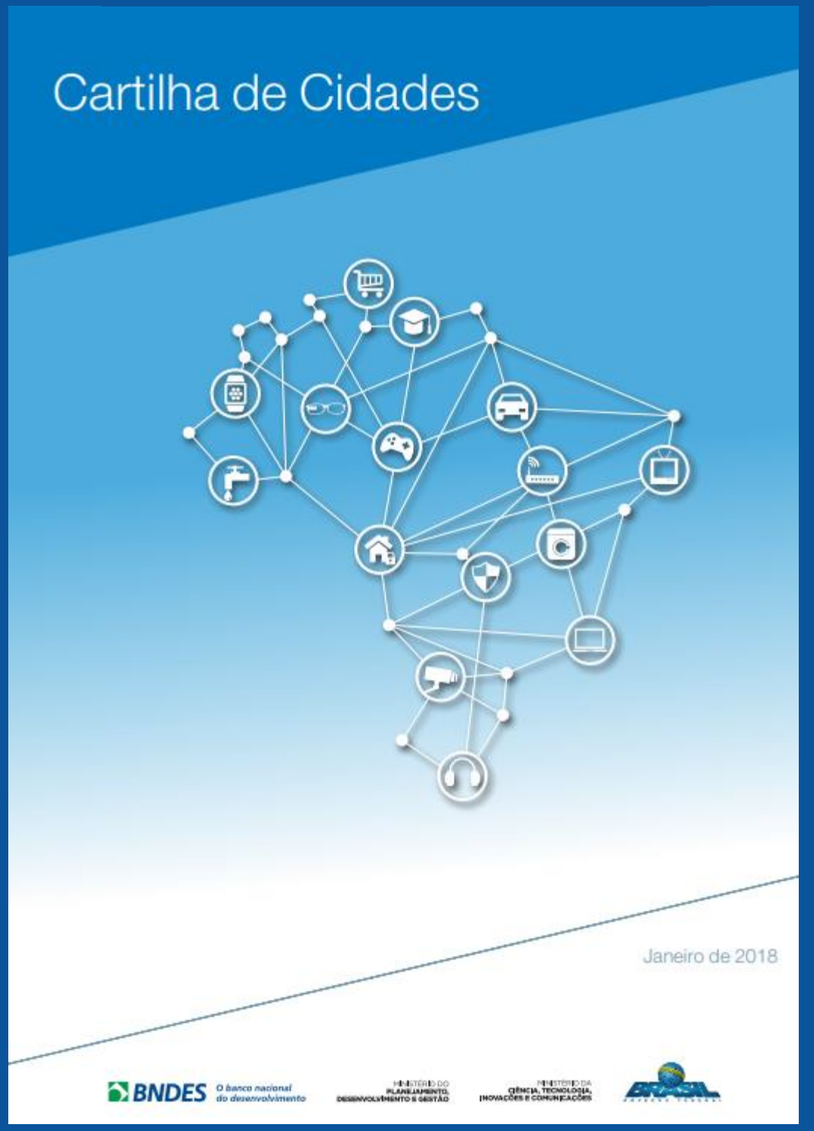
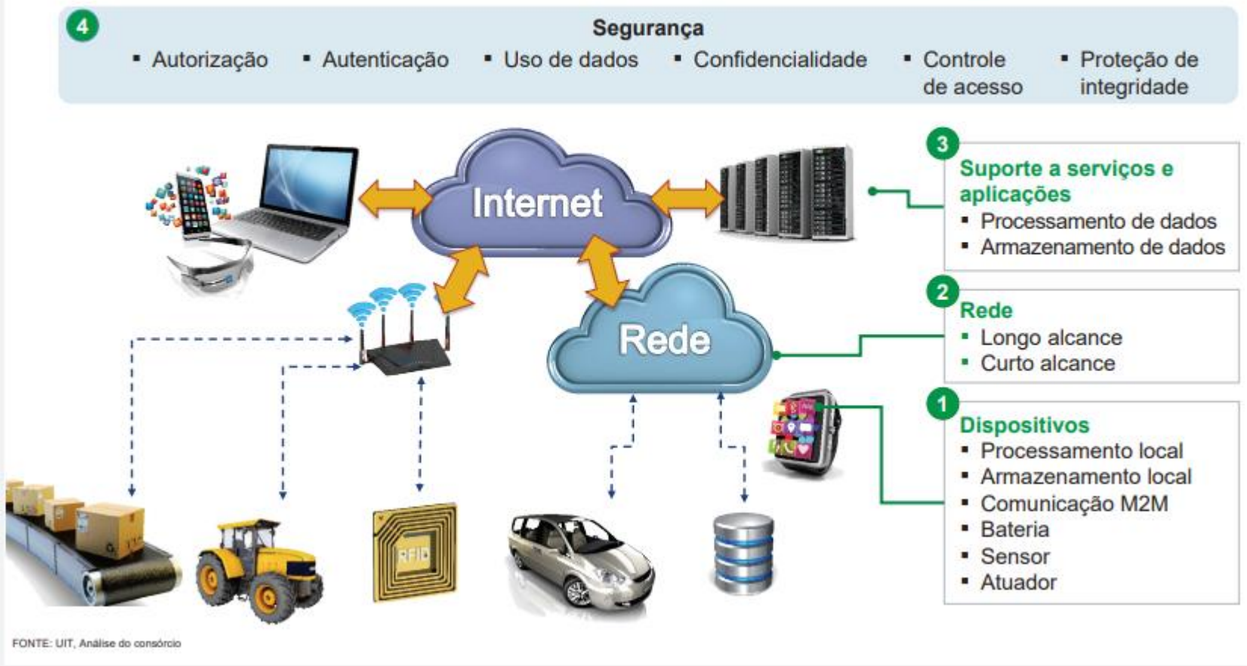
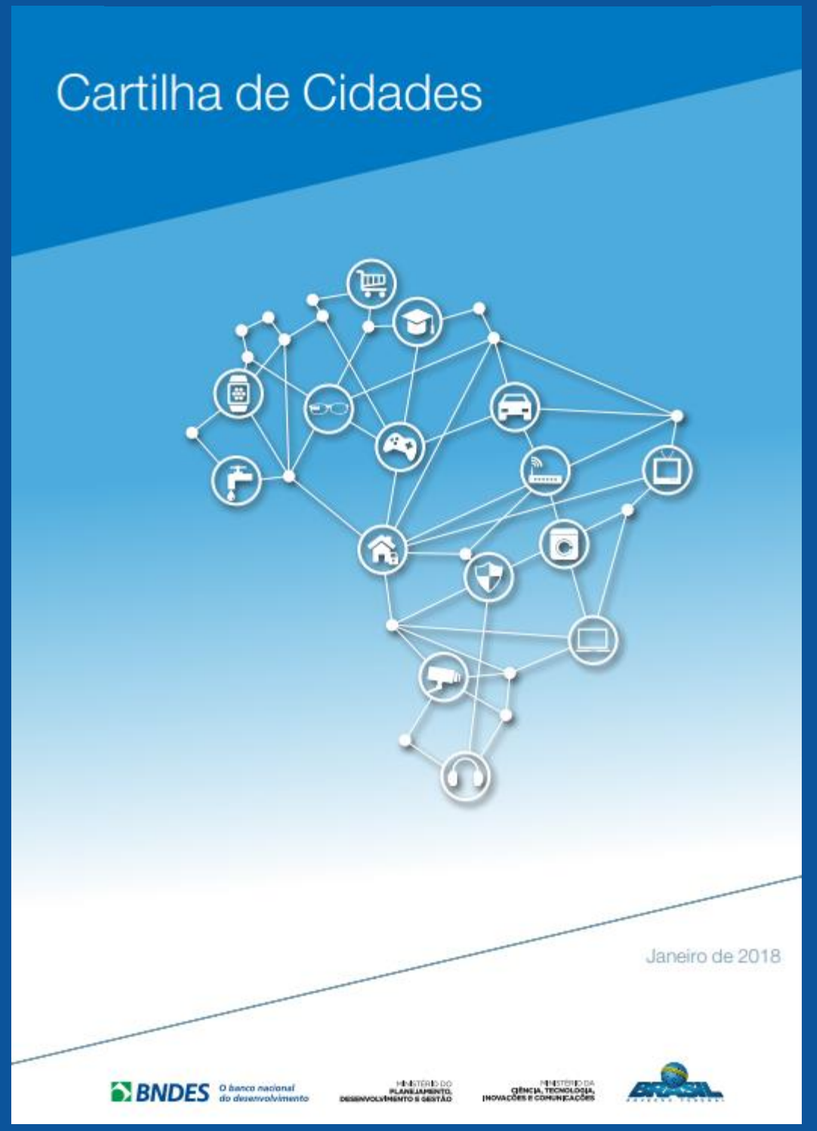


FONTE: BNDES

As 4 camadas tecnológicas das soluções de IoT



FONTE: UIT, Análise do consórcio



FONTE: BNDES

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Fonte: BNDES

Visão do Plano de Ação de IoT para o Brasil

Acelerar a implantação da **Internet das Coisas** como instrumento de **desenvolvimento sustentável da sociedade brasileira**, capaz de aumentar a **competitividade da economia**, **fortalecer as cadeias produtivas nacionais**, e promover a **melhoria da qualidade de vida**

Cidades	Saúde	Rural	Indústrias
Elevar a **qualidade de vida** nas cidades por meio da adoção de tecnologias e práticas que viabilizem a **gestão integrada** dos serviços para o cidadão e a melhoria da **mobilidade, segurança pública e uso recursos**	Contribuir para a ampliação do **acesso à saúde de qualidade** no Brasil por meio da criação de uma **visão integrada** dos pacientes, **descentralização** da atenção à saúde, e da **melhoria de eficiência** das unidades de saúde	Aumentar a **produtividade e a relevância** do Brasil no **comércio mundial** de produtos agropecuários, com elevada qualidade e sustentabilidade sócio-ambiental, por meio do uso difundido do IoT no campo e posicionar o Brasil como o **maior exportador** de **soluções de IoT** para **agropecuária tropical**	Incentivar a produção de **itens mais complexos** e **aumentar a produtividade** da indústria nacional a partir de **modelos de negócios inovadores** e da maior **cooperação** nas diversas cadeias produtivas
Mobilidade	Doenças crônicas	Uso eficiente de recursos naturais e insumos	Recursos e processos
Segurança pública	Promoção e Prevenção	Uso eficiente maquinário	Bens de capital
Eficiência energética e saneamento	Eficiência de gestão	Segurança sanitária	Estoque
Inovação	Inovação	Inovação	Inovação

FONTE: Fóruns de engajamento do estudo, discussões com BNDES/MCTIC e análise do consórcio

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Fonte: BNDES

"Até 2025, IoT terá um impacto econômico maior do que a robótica avançada, tecnologias cloud e até mesmo que a internet móvel."
O impacto esperado no Brasil é que seja cerca de 10% do PIB.

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BARCELONA, Spain, November 7, 2018

Gartner Identifies Top 10 Strategic IoT Technologies and Trends

Analysts Explore Internet of Things Opportunities and Pitfalls at Gartner Symposium/ITxpo 2018, November 4-8 in Barcelona, Spain

Gartner, Inc. today highlighted the top strategic Internet of Things (IoT) technology trends* that will drive digital business innovation from 2018 through 2023.

"The IoT will continue to deliver new opportunities for digital business innovation for the next decade, many of which will be enabled by new or improved technologies," said Nick Jones, research vice president at Gartner. "CIOs who master innovative IoT trends have the opportunity to lead digital innovation in their business."

In addition, CIOs should ensure they have the necessary skills and partners to support key emerging IoT trends and technologies, as, by 2023, the average CIO will be responsible for more than three times as many endpoints as this year.

Analysts discussed how CIOs can lead their businesses to discover IoT opportunities and make

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BARCELONA, Spain, November 7, 2018

Gartner Identifies Top 10 Strategic IoT

Gartner forecasts that 14.2 billion connected things will be in use in 2019, and that the total will reach 25 billion by 2021, producing immense volume of data. "Data is the fuel that powers the IoT and the organization's ability to derive meaning from it will define their long term success," said Mr. Jones. "AI will be applied to a wide range of IoT information, including video, still images, speech, network traffic activity and sensor data."

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Last year's Gartner survey of IoT projects showed 35 percent of respondents were selling or planning to sell data collected by their products and services. The theory of infonomics takes this monetization of data further by seeing it as a strategic business asset to be recorded in the company accounts. By 2023, the buying and selling of IoT data will become an essential part of many IoT systems. CIOs must educate their organizations on the risks and opportunities related to data broking in order to set the IT policies required in this area and to advise other parts of the organization.

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The sensor market will evolve continuously through 2023. New sensors will enable a wider range of situations and events to be detected, current sensors will fall in price to become more affordable or will be packaged in new ways to support new applications, and new algorithms will emerge to deduce more information from current sensor technologies. CIOs should ensure their teams are monitoring sensor innovations to identify those that might assist new opportunities and business innovation.

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Who's Monitoring Our Heritage? Preserving Historic Buildings with the IoT

Sarah McMillian, Product Outreach

1 month ago

On April 15, 2019, at approximately 3:00 in the afternoon, a structural fire broke out beneath the roof of the Notre-Dame Cathedral in Paris.

The tragic fire caused the main spire and roof of the building to collapse, causing extensive damage that will take a long time and considerable costs to repair.

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Who's M
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On April 15, 20
Notre-Dame Ca

The tragic fire c
long time and c

The Torre Aquila

The exterior of the Torre Aquila may be demure, but inside are the brilliantly painted frescos, the "the Cycle of the Months." The painted walls offer insight into life in the region during the 14th century, and attract thousands of visitors each year (Buonconsiglio).

A scene from the Cycle of the Months Frescos. Photo courtesy of Provincia Autonoma di Trento.

The project started when the Municipality of Trento, where the Torre Aquila is located, submitted a proposal to build a road tunnel near the tower.

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The project started when the Municipality of Trento, where the Torre Aquila is located, submitted a proposal to build a road tunnel near the tower.

The initial construction, compounded by the pollution and vibration from the cars that followed, posed a threat to the structure and the frescos inside. The looming danger motivated the tower's manager to install a monitoring system that would warn them of adverse conditions (Zonta et al.).

A scene from the Cycle of the Months Frescos. Photo courtesy of Provincia Autonoma di Trento.

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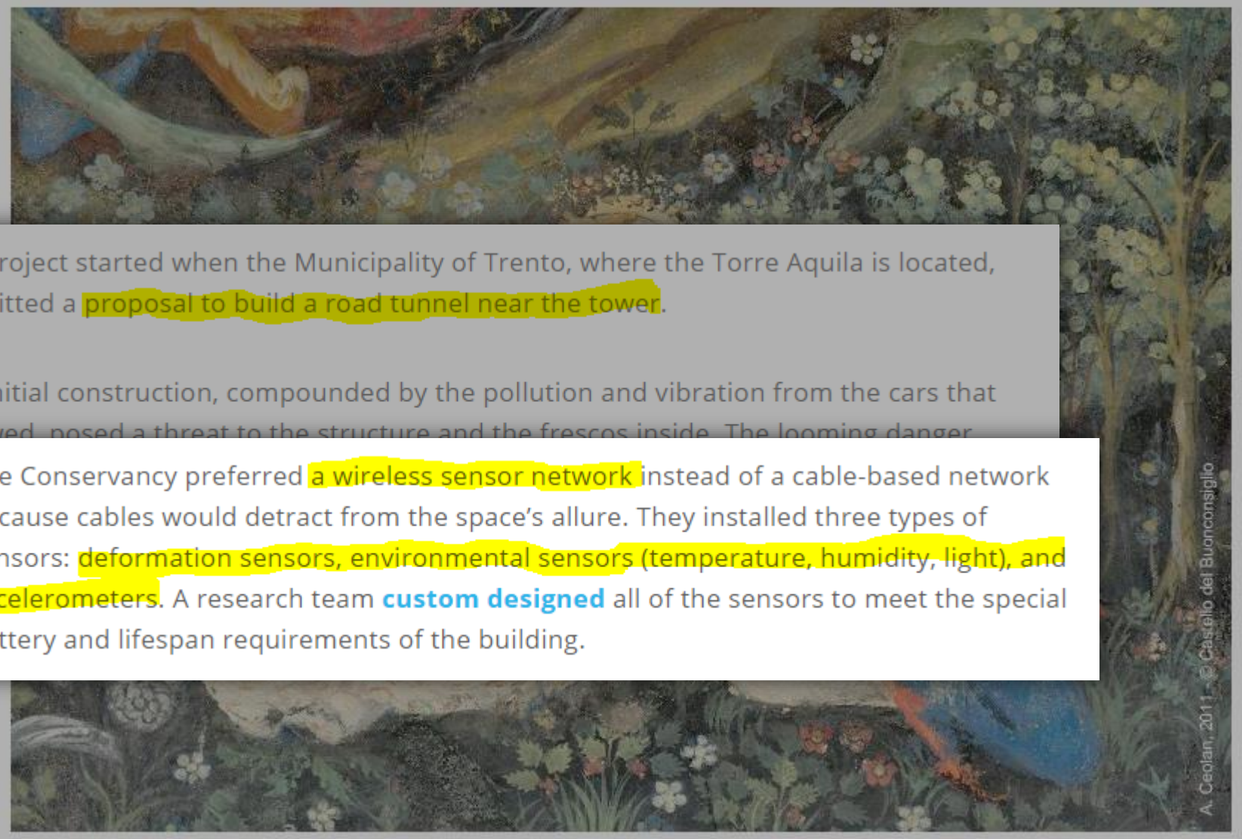

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The Conservancy preferred a wireless sensor network instead of a cable-based network because cables would detract from the space's allure. They installed three types of sensors: deformation sensors, environmental sensors (temperature, humidity, light), and accelerometers. A research team **custom designed** all of the sensors to meet the special battery and lifespan requirements of the building.

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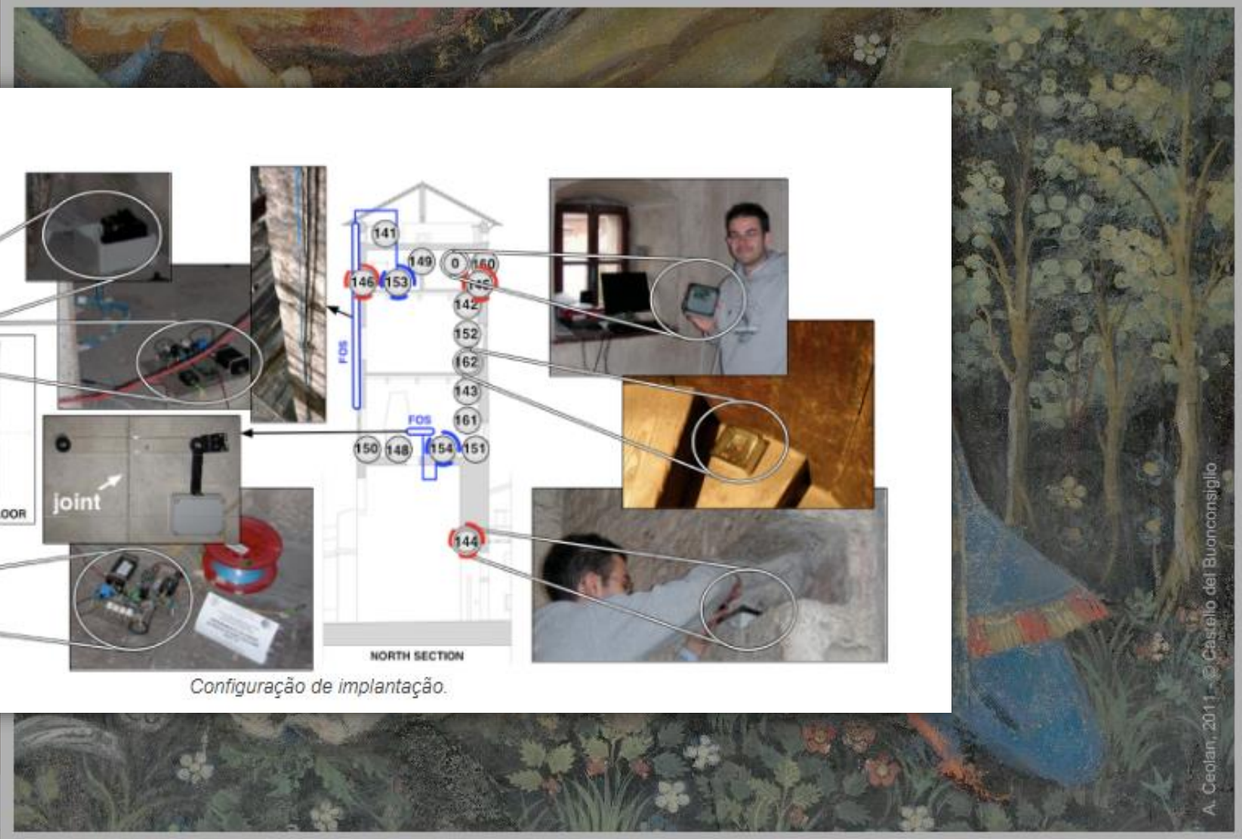

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Configuração de implantação.

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The MIT Green Building

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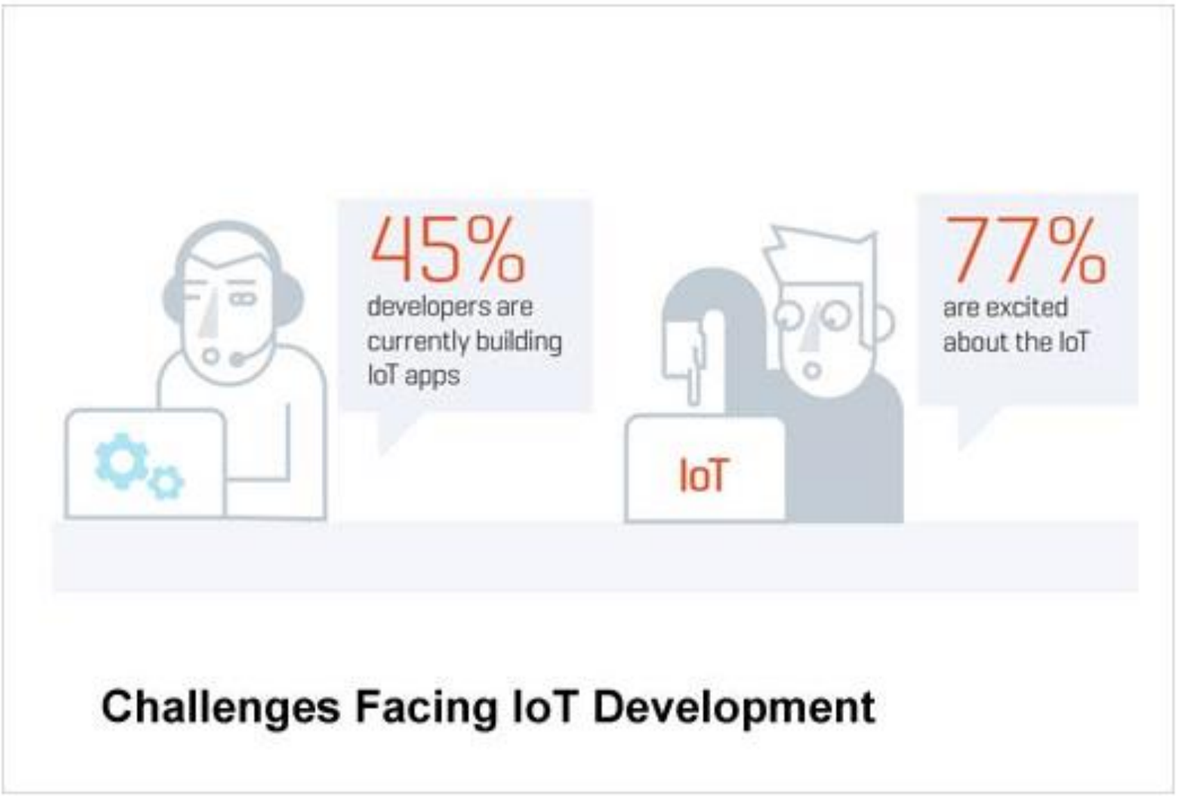
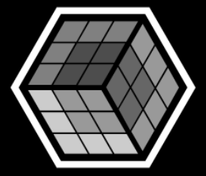
The MIT Green Building

They developed a monitoring system that collected data from 36 accelerometers spread throughout the building, and combined it with weather data, such as wind speed. They plugged that data into a high-fidelity finite element model that incorporated other relevant variables, such as "the strength and density of concrete walls, slabs, beams, and stairs in each floor (MIT News)."



Fonte: ItBusinessEdge



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