LOGISTICS PANEL DISCUSSION

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Alex Raimondi, Miromico
Massive Car Tracking Using LoRaWAN®

Maxtrack
ABOUT MAXTRACK

• Leading GPS tracker manufacturer in Latin America for more than 10 years

• More than 3 million devices sold in Brazil over the last 20 years

• Design house in Beijing, logistics hub in Hong Kong, factory and R&D in Brazil

• Supplier of largest insurance companies and tracking companies in Brazil

• Leading data analytics platform for real time driver behavior analysis and theft, crash, fraud and fail detection
ABOUT BRAZILIAN FLEET

• In Brazil we have around 65.8 million cars and motorcycles, 5 million small trucks and 2 million trucks

• More than 70% of the fleet is within 5 states, concentrated in the metropolitan areas of these 5 state capitals
ABOUT GSM AND LoRaWAN® NETWORKS IN BRAZIL

• GSM 2G covers about 93% of the population, corresponding to almost 4 thousand cities

• Phase out of GSM 2G has already started, with connections degrading more and more every month, but CAT-M1 or NB-IOT coverages are still not available. 3G is announced to be approaching end of life as well

• Cost of GSM 2G data is around US$ 1/month for M2M sim cards with 10MB plans and cost of 4G LTE is about US$ 7,50/month for the cheapest data plans, so there is a huge gap between these options, not to mention hardware cost impact

• American Tower has started its LoRaWAN® network last year and it covers about 35% of the population presently, with plans to reach 85% of the population by 2020
ABOUT INSURANCE AND GPS TRACKING IN BRAZIL

- Every year, about 650K vehicles are stolen in Brazil (nearly 1% of the fleet), with some areas showing almost 3% rate, like Rio de Janeiro metropolitan area.

- About 20% of the fleet have insurance, which is not mandatory in Brazil. Insurance companies have several restriction rules for covering professional drivers like Uber’s or to cover old cars. GPS tracking is applied to only 5% of all insured cars, mainly to help recovering stolen cars above a certain value.

- Another 4% of Brazilian fleet have some kind of loss protection or tracking service, but not a formal insurance, neither with any kind of roadside assistance.

- Average cost of insurance in Brazil is about US$ 800/yearly, while non formal protection costs about US$ 250/yearly and GPS tracking services about US$ 180/yearly.

- 76% of the fleet in Brazil (more than 50 million vehicles) have no insurance, protection or roadside assistance at all.
MAXTRACK’S STRATEGY TO INTRODUCE LORAWAN

• Show LoRaWAN® as a way to mitigate risk of 2G shut down

• Workaround CTO’s dilemma between LPWAN technologies giving them options

• Use GSM/LoRa enabled vehicles to work as repeaters to provide connectivity outside of network coverage footprint.

• Create a LoRa peer-to-peer layer to allow a local network between devices

• Create an emergency beacon channel to help recovery teams to find stolen vehicles

• Enhance LoRaWAN-only devices with context awareness (via neural network) to minimize raw data transfers and so compensate for a smaller bandwidth than GSM

• Highlight LoRaWAN not as cheaper than GSM technology, but as a rich companion technology instead (customers are paying a premium for devices with GSM and LoRaWAN)
• Scale Maxtrack’s LoRaWAN® solution (devices + device management + data analytics platform) as a solution to be deployed for all cars with insurance/roadside assistance in Brazil - already ongoing with biggest roadside assistance company in Brazil and second biggest insurance company.

• Ramp GoS2, a company to offer some very cheap tracking and roadside assistance package to those 76% of the fleet which have no insurance or protection at all (about 50 million vehicles) in a very disruptive commercial model.

• Create with biggest risk management company in Brazil a platform for having trucks working as multi-channel LoRaWAN gateways capable of “scanning” all goods being transported.

• Create retail smart hubs to work as "last mile” LoRaWAN gateways, to guarantee coverage at critical points and to allow firmware updates and low cost indoor/outdoor location to all LoRaWAN only (no GSM) devices.
Thank you!

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Improve Quality in Fresh Food Retailing with LoRaWAN® Technology

Domenico Carapezza, Axino Solutions GmbH
Axino Solutions – www.axino-group.com

- Former Business Unit of Swiss technology company ascom
- Management Buy-Out Jan 2016
- New company named Axino Solutions
- IT Solutions and Consulting
  - Service Management
  - Telecommunication
  - Internet of Things
- IT-Solutions based on own products and of leading partners like:
- 100 employees
- Locations in Aachen/DE and Solothurn/CH
Quality in fresh food retailing
Enabling Food Quality Inside

- The temperature inside: fridge shows large fluctuations & peaks.
- This is due to: thawing cycles, temperature thermostat, customer interaction, employee interactions and environmental change.
- How can I make sure the food is cold enough at any given time?
LoRaWAN® Sensor Module

Not to be shared without prior consent by the IoT Backend System.

Essentially maintenance free

Easy to use
<table>
<thead>
<tr>
<th>Benefits</th>
<th>Corporate Quality Assurance</th>
<th>Store Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete view in real-time</td>
<td></td>
<td>Complete view in real-time</td>
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<tr>
<td>Simplified control (internal / external)</td>
<td></td>
<td>Cost-effective installation</td>
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<tr>
<td>Traceability of QA measures</td>
<td></td>
<td>Reliable Alarming</td>
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<tr>
<td>Improved Quality</td>
<td></td>
<td>Simplified and improved documentation</td>
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<tr>
<td>Lower operating costs</td>
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<td>Lower operating costs</td>
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<td>Fast ROI (12-18 months)</td>
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Recognition

Finalist of the Aachen Innovation Prize 2018

Winner of the IoT/WT Innovation World Cup 2019 in the Category Transport, Lifestyle and Retail Mobile World Congress 2019 in Barcelona
Smartbutton Reader: The LoRaWAN® Smart Button Reader

Alex Raimondi, Miromico
BRAVE NEW WORLD

THE POST IN TRANSITION
Digital Postal Services on demand at your Domicile

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Cash-Handling as a Service for SME

Reverse Logistics: Pickup services for recycling goods

Postman knows order in advance

Services cash or digital payment

Customer Touchpoints via LoRaWAN® Button, Portal, Mobile App, Telephone

LoRaWAN® provided by Swisscom

B2B-Cases: Supply logistics supported by buttons (e.g. for pharmacies)

B2B2C: Order and delivery Services for Partners

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POST Home Button (PHB)
The innovative functions explained

**Button:**
With a click on the trigger button, the scan of an OID Code is carried out and the order is triggered. The amount due is automatically deducted from the once-off payment.

**Status Display**
If the scan was successful, the status bar lights up green after a short time.

**Order Card**
The customer can order products with the code on the order card. It is physically sent to the customer by post. Instead of a "card", any printable format can be used, including catalogues, flyers or an imprint directly on the packaging.

**Antenne und Funkmodul**
The button sends and receives data via a LoRa radio module. The LoRaWAN® has a network coverage of 95% of the Swiss population, is designed for the transmission of very small amounts of data and requires extremely little energy.

**Battery**
The integrated battery has a service life of up to 10 years on average usage. If the battery tapers towards the end, the button triggers the replacement by itself.

**OID Reader**
The OID-Scanner is located in the head of the Home button. It is activated by pressing the button and can reliably read the OID Codes within milliseconds.

**Scan area with OID-Code**
The so-called OID Code (Optical Identification Code) contains product and service information. The code is read at the push of a button and transmitted to the post office by LoRaWAN®.

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APPLICATION

1. Hold read head on scan area and click
2. Transmission via LoRaWAN®
3. Notification by e-mail / SMS to the stored e-mail address / mobile no.
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Menü-Bestellkarte

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  mit Kartoffelsemas und Karotten-Rindfleisch-Schweizerbrat

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  CHF 12.00
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- Apfelstrudel Menugen
  CHF 12.00
  Tägliche, Kartoffeln, Käse, Räucherbrand und Apfelmus

- Schweinemotswurst, an Zwiebelsauce
  CHF 12.00

- Anbraten Sauce mit Kartoffelstock und grünem Schmor

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Trends

- **83% the senior citizens** do not want to stay in a retirement home, but at home
- **+34% empty beds** in retirement and nursing homes (2012 bis 2016)
- **New** housing forms and offers are in demand

Social contacts

Essential factor for health and well-being

Support costs (Spitex services)

2.45 Mrd. CHF 2017

(587.- per recipient), +5.8% for the previous year

Other markets

- Services at home (e.g. for DINKS)
- concierge
- secondary dwelling
- Hotel
- ...

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The market is changing rapidly due to various influences. This can be cost pressure (e.g. in the health sector) or new digital possibilities which allow services to be provided more efficiently. Customers are demanding more and more services, so-called "on-demand" services.

New business opportunities and potentials are opening up in this digital transformation.

Our focus:

Services for Silver Agers
(Living in old age)

Mediation of services: physically & digital

Further Markets (Phase 2)

Services at home

Hotel and second apartments

etc…
«ÖKO-SYSTEM SILVER ECONOMY, WE CLARIFY»

What are the needs?
Possible offers?
Who are our partners?

= Business Case Yellow Services Platform

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The topic of cross-media is more present today than ever, because the physical and digital worlds are increasingly merging...
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