Urbalis
Signaling System

Jerome Billion (System Architect)

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Systematic
Paris Region Deep Tech Ecosystem

Architecture Modulaire
- ligne de produits -

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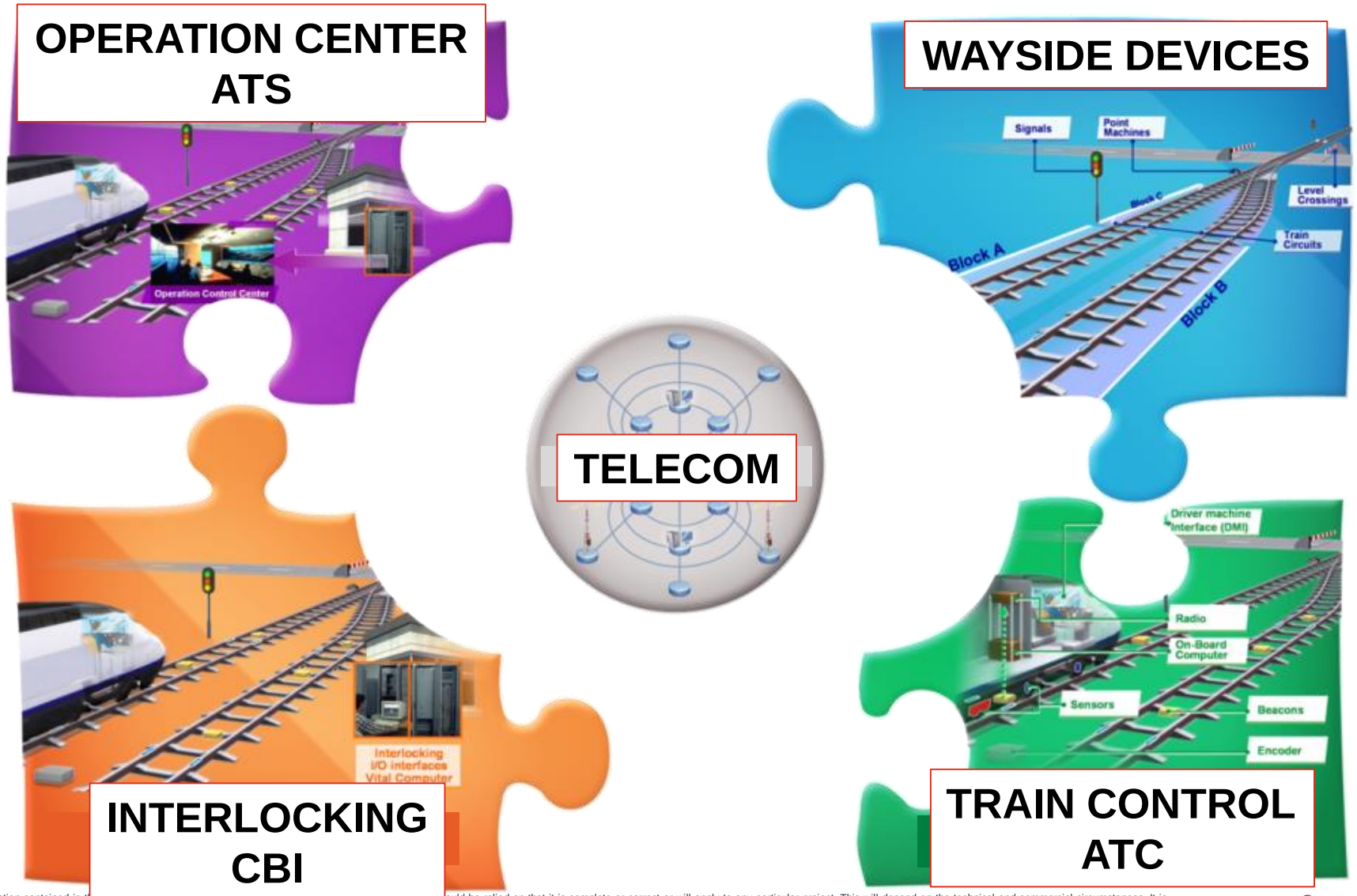
Urbalis 400 – Integrated CBTC System for Urban Signaling



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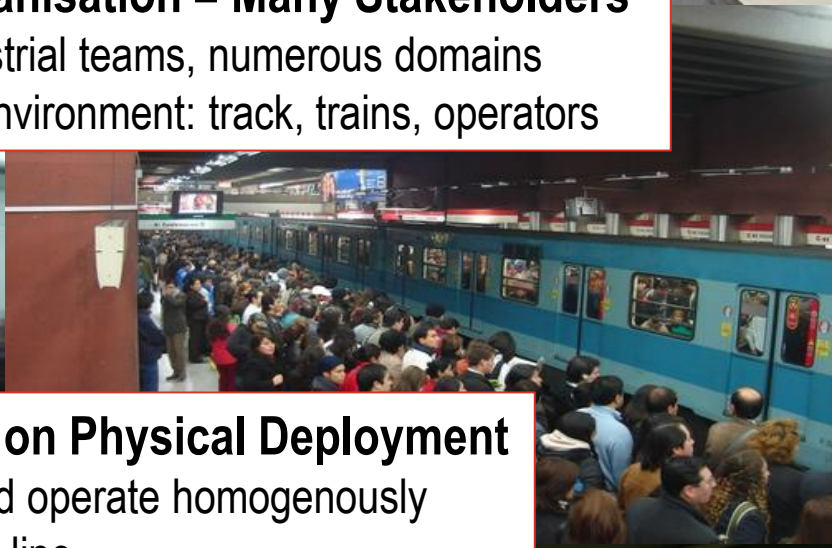
Urbalis 400 – Strong Safety and Availability Constraints

Metro line = Critical Infrastructure

- up to 1 Million passengers a day
- no accident, no delays

Project Organisation = Many Stakeholders

- large industrial teams, numerous domains
- complex environment: track, trains, operators

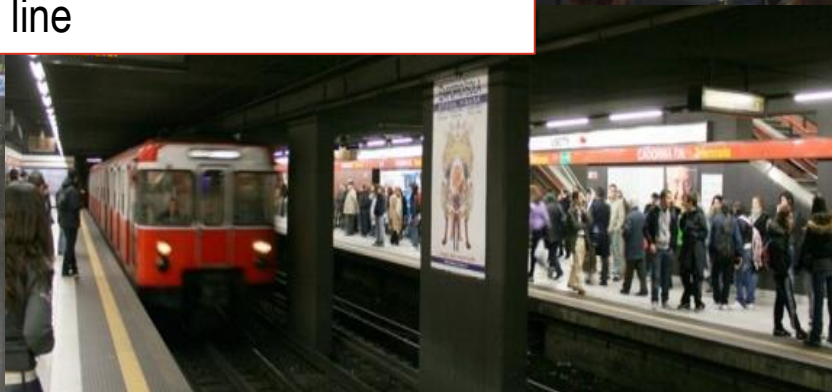


Signaling Project = Major Stakes

- cost 10 to 1000 Million Euros
- duration from 2 to 10 years

Functions depend on Physical Deployment

- need to protect and operate homogenously everywhere on the line



URBALIS™ – Features Developed & Modernized in 4 Steps + 1

URBALIS Fluence
Train Centric CBTC
The next step

1989 Paris RER-A

SACEM ATC
pre CBTC
+ ATO, ATB, PSD
+ hot-standby, ISA
+ overlay migration

1991…

Hong-Kong,
Santiago, Istanbul
Mexico

URBALIS 200
pre CBTC
System approach
Modernised
core components
Eurobalise
Cenelec

2004…

Delhi, Shanghai,
Daegu , Santiago,
Seoul , Madrid,
Incheon, Cairo,
Jaipur, Bangalore

URBALIS 300
Radio CBTC

+ Moving Block
+ Driverless
+ Radio 2.4 GHz

2003…

Singapore NEL
Singapore CCL
Lausanne m2

URBALIS 400
Networked Radio CBTC

System Deployment
Industrialisation
Standard DCS

2008…

> 100 lines

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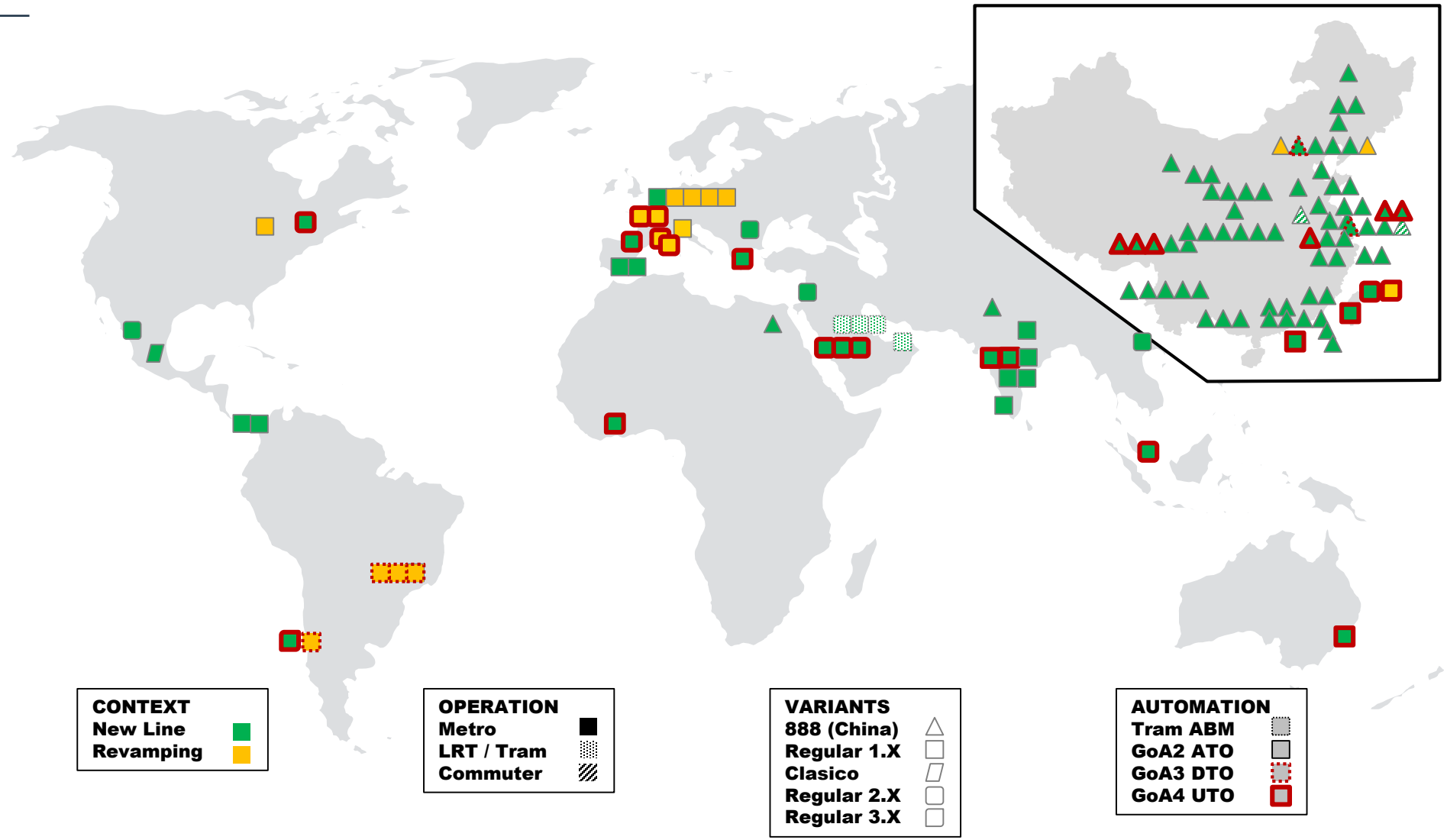
U400 Lines: Distribution of Urban Lines Projects



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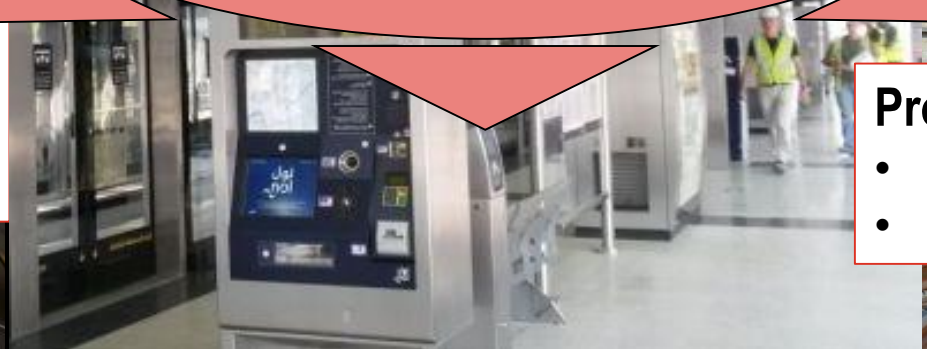
Urbalis400 – Strong Generic Core + Tailor-made Configuration

Extended Project Customisation

U400 Platform
Reference Architecture & Interfaces
Common System Database & Software
Highly Automated Factory Tests
Generic Safety Case + ISA

Imbrication of Project and Platform Cycles



Project Testing

- Operation & Performance
- On-site T&C

U400 Platforming – Lessons Learned

- Recurring successes made possible via engineering industrialization
  - concentration of key competences in core team
  - factorization brings reduced lead time and development costs
  - increased system quality and easier sustaining

- Tight synchronization with projects is a key process
  - harmonization of project deadlines and platform delivery plan

- Defining what is common and what is project specific is not trivial
  - what should be configurable and how? who does what?
  - trial and error process with long learning curve

No other ways to deliver so many projects in such a short time frame

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