O controle do tráfego e dos trens do Metrô de São Paulo e do mundo.

Uma reflexão sobre o 8.o CBTC World Congress

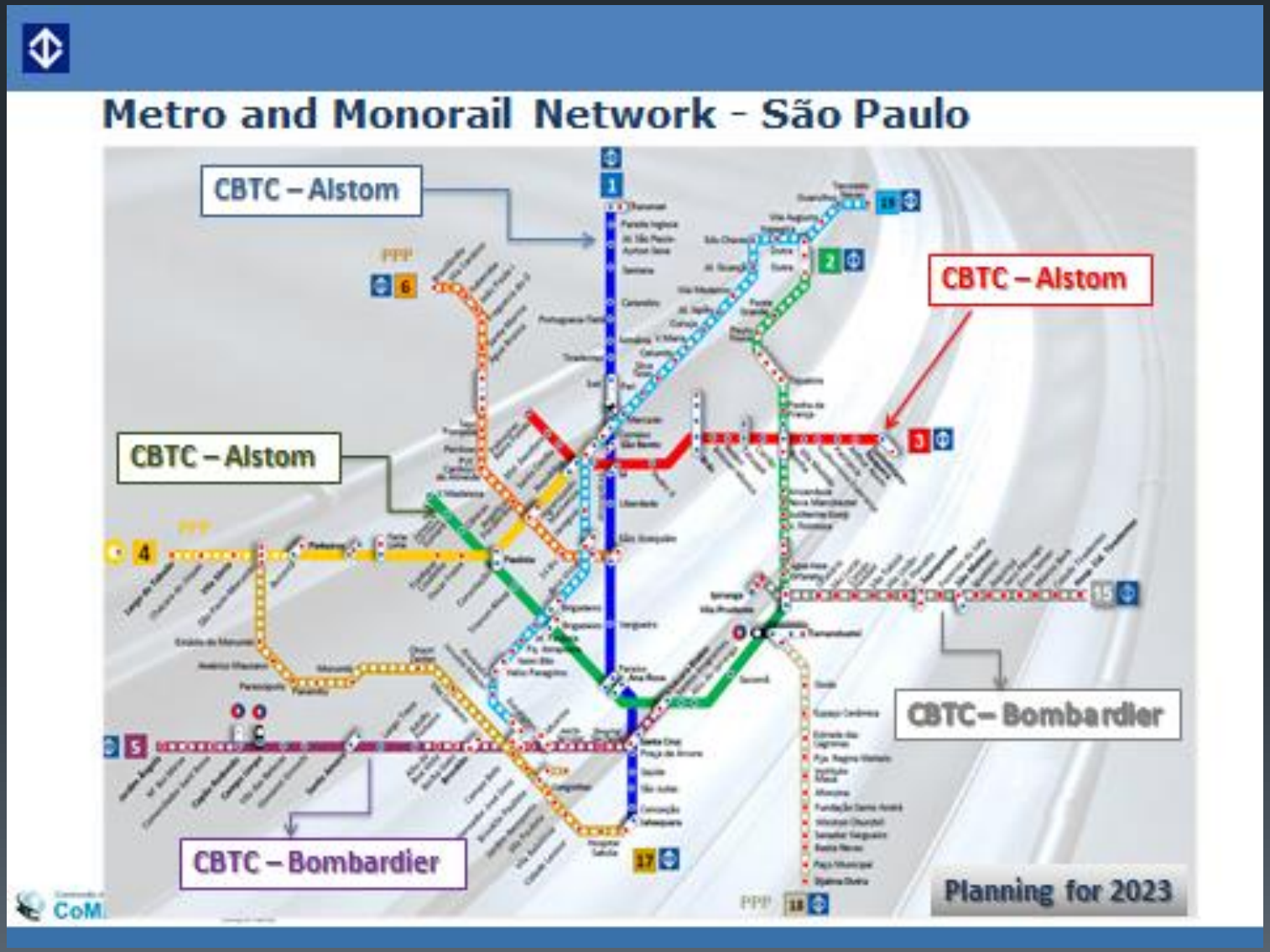
Global Transport Forum
Paris 06-08/11/2017

GIS / Christian Becker
PIC – AEAMESP – 08/02/2018

Agenda

- CBTC no METRÔ-SP
- Prospecção Tecnológica
- SMART METRO / CBTC World Congress
  - Visita técnica SNCF EOLE NExTEO
  - Apresentações
  - Workshops
  - Painéis
- Debate

METRÔ-SP


Metro and Monorail Network - São Paulo
CBTC – Alstom
CBTC – Alstom
CBTC – Alstom
CBTC – Bombardier
CBTC – Bombardier
Planning for 2023

Prospecção Tecnológica

- Publicações
  - Setor / “clipping”
  - Produção acadêmica
  - Padrões / normas
- Apresentações / Workshops
  - AEAMESP
  - PIC
  - CoMET / Nova
  - SIMEFRE
  - Fornecedores

Prospecção Tecnológica

- Colaboração
  - ABNT CB06
  - Algum CBTC no Brasil?
  - Algum CBTC em São Paulo?

- Conferência Internacional
  - SmartRail World (Global Transport Forum)
    SmartMetro / CBTC World Congress
  - Next-Generation Train Control Conference
    (International Conference on CBTC, Washington)
  - +

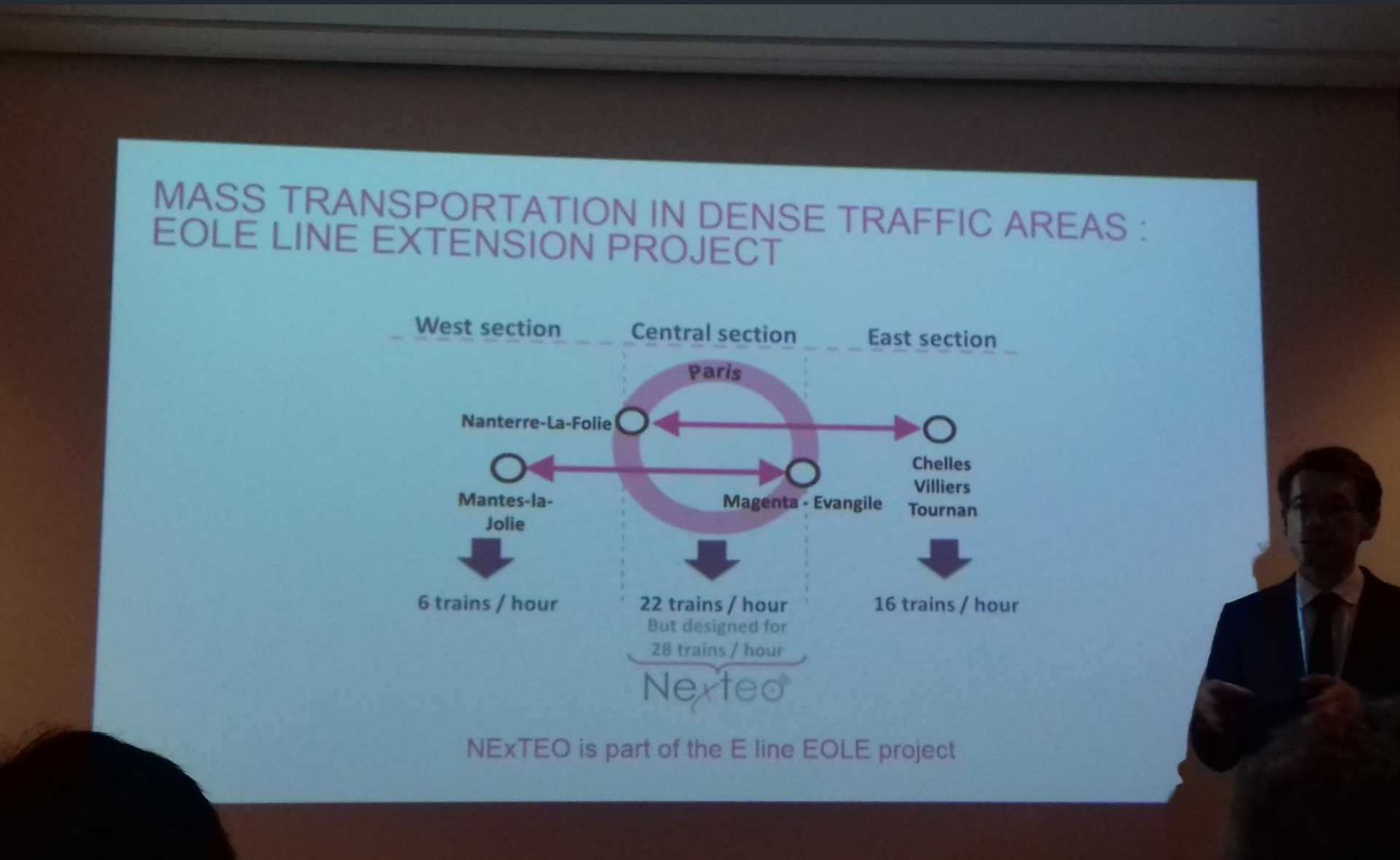
E continua...

- Trabalho (muito)
  - Diretrizes
  - Especificação técnica
    Projeto básico
  - Projeto Executivo
  - Implantação
  - Comissionamento
  - Treinamento contratual
  - Transferência

- Lições aprendidas

Visita técnica / SNCF Eole

Visita técnica / NExTEO



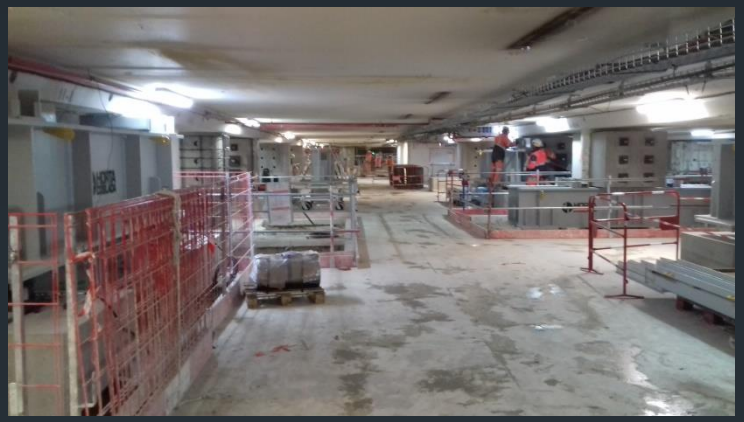
Visita técnica / La Défense

Visita técnica / La Défense

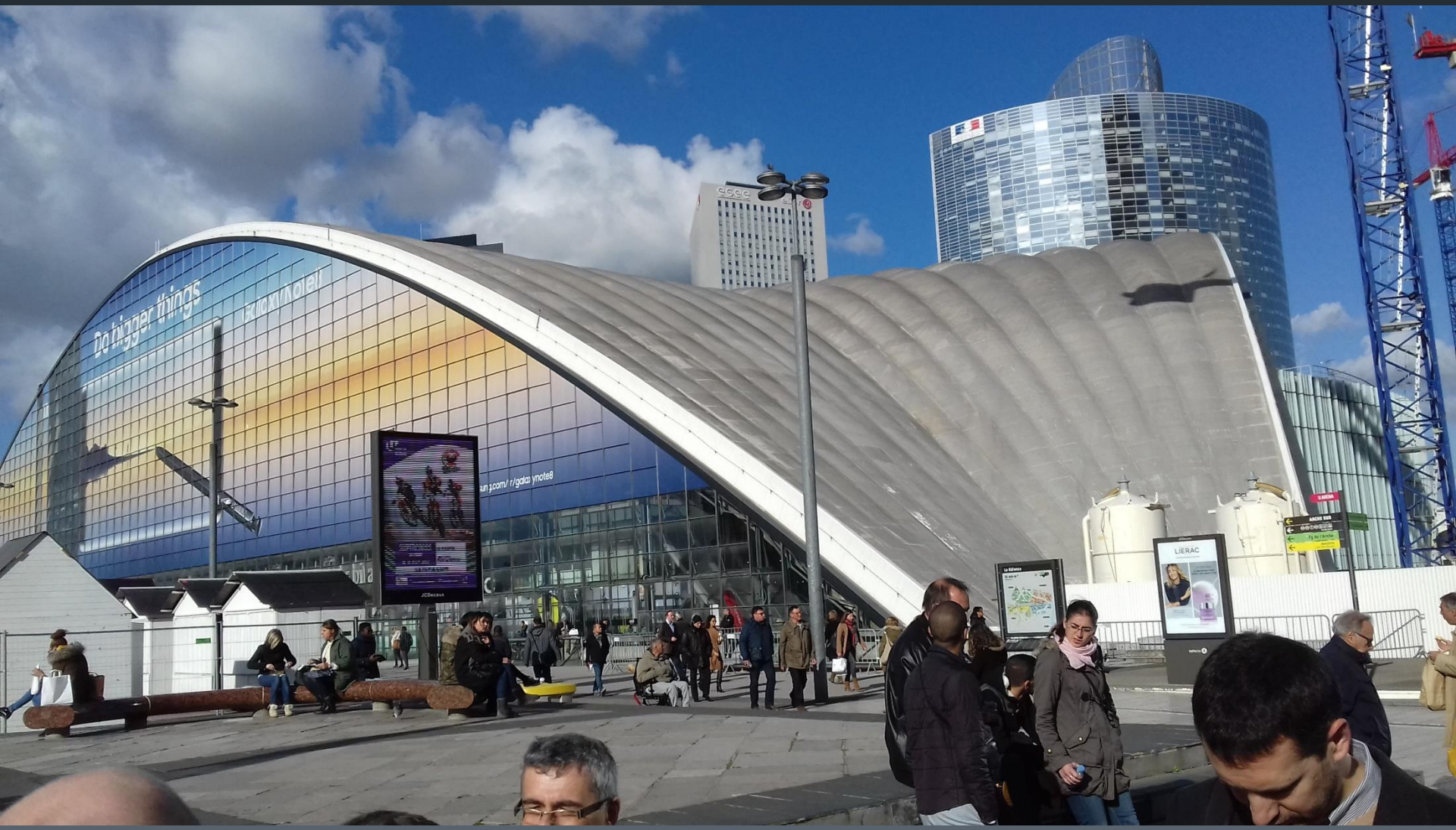
Visita técnica / La Défense

Visita técnica / La Défense

Visita técnica



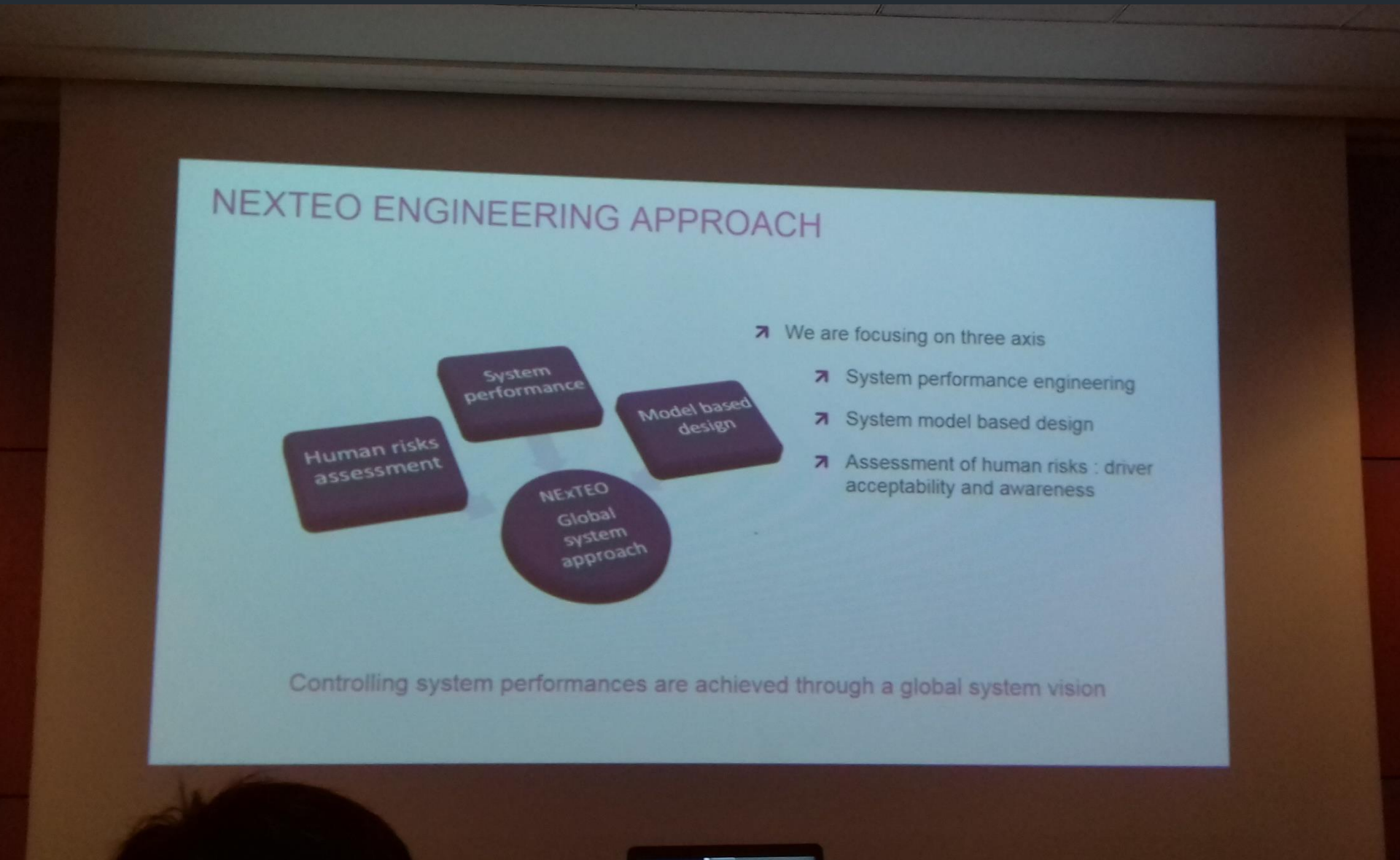
Visita técnica / La Défense



Visita técnica / La Défense

Visita técnica / La Défense

Visita técnica / NExTEO



Visita técnica / NExTEO

NEXTEO LEADING THE FUTURE OF MASS TRANSPORTATION SYSTEM

- Our first lessons
- Introducing CBTC in the railway network is not just introducing a technical system
  - Operation and maintenance rules and regulation have to be adjusted at the minimum
  - Driver's duty and human factor risks have to be assessed
  - ATS and traffic trends are the key to success to react with efficiency to incident
  - Make the system suitable for operator, maintainer and driver, do not impose technical constraints,
  - Global vision approach is mandatory to govern performance allocation.

Humans are part of the system and shall be considered in the specification of the system

Visita técnica / NExTEO

Workshops / Intimate workshops

- How to create value for passengers and operators

What are the biggest pain points for customers?

How does technology increase connectivity?

How can we enable customers to take ownership of their journey?

- Where are the opportunities for deeper automation?

From automatic coupling to automated workshops, increased automation can improve reliability, safety, and efficiency. This workshop will look at where this is practical and the kinds of automation offering the best ROI.

Apresentações / C-LEVEL PLENARY

- Innovating in the face of an increasingly competitive landscape
  RATP
- Investing in an ageing network to increase capacity and improve service
  SMRT
- Bringing the community together with a well-designed metro network
  Metro do Porto
- Encouraging uptake of public transport
  GVB Amsterdam

Painel?

- Ask the Leaders.
  - As technology develops and new challenges arise, what should operators be investing in?
  - What opportunities are there for maximising capacity by getting the most out of existing infrastructure?
  - In what ways are customer expectations changing in today's digital world?
  - How can metros deliver cost-efficiency, sustainability, and value for money for passengers?
  - How should operators respond to the rise of new modes of transportation such as ride-share and autonomous vehicles?

Apresentações / Procurement & Project Delivery

- Case study: Vienna goes UTO: challenges and opportunities of an upgrade-project
  - Identifying your priorities for a new signalling system: what new functionalities are available?
  - Keeping trains running during the upgrade process.
  - Operational concepts and improving customer experience.

    Wiener Linien

- Refactoring CBTC through data

  Systra

Apresentações / Procurement & Project Delivery

- Case study: Line 4 of the Parisian underground: extension and automation.
  - Global picture of the project.
  - Operational specifications.
  - Systems renewal: new command center, new signaling.
  - Why keep lateral signaling anyway?
  - How to deal with different generations of trains.

    RATP

- Leadership of mega projects
  - Odense Letbane is the first stage of a network of light railways, which will link cities and districts in the Odense area. This presentation will give an update on the progress of the project, and discuss the qualities needed for leadership on major transportation and construction projects.

    Odense Letbane P/S

Painel


Top questions (22)
Anonymous
@ Olivier. When making our train control systems more open through API's, use of wifi, etc, what about cyber-security?
8
Vincent
@Olivier : how to inject such innovation within the context of Cenelec safety standards fostering 'service proven' approach?
7
Anonymous
For operators: how do you see the fusions like Siemens-Alstom that could decrease your choice between different solutions ?
6
Join at
slido.com
#question
Latest question
Anonymous
On Line 1 ans Line 4 in Paris, did you implement automatic coupling of trains to manage train evacuation in disrupted mode ?
2

Painel


CBTC World Congress
Top questions (21)
Antonio Munoz
How will you handle passenger evacuation in legacy tunnels after upgrade to GoA4?
7
Anonymous
@Patricia what feedback & lessons learnt from L1? Which function did you discard that were superfluous on L1 and which one did you add that were missing on L1?
6
Anonymous
@Nikolaus How many live stream CCTV will you be able to simultaneously monitor from the OCC?
5
Latest question
Anonymous
TfL - How much did the analysis cost? How much were the benefits? Could you do the same analysis on other railways? Or only with your new system?
0
Join at
slido.com
#question

Apresentações / Interoperability – Open System

- Innovative technology to address traffic regulation issues on an open network
  - Ownership and access to data is a sensitive issue. Operators must maintain data privacy in case of incidents or legal issues. Yet data sharing is also crucial in order to identify faults and improve the network. This session will explore where compromises can be found.

    Industrial PHD Student - SNCF

- How can suppliers and operators work together to improve interoperability
  - The case for software mobility (container)

    Ansaldo

Apresentações / Interoperability – Open System

- Independent Observations NYCT CBTC Program
  - NYCT Signal Modernization Program
  - Pilot CBTC Installation – Canarsie
  - Interoperability Program (I^2 Spec)
  - Current CBTC Projects – Flushing, QBL
  - Plans for Future Signal Modernization
  - Genius Challenge Initiative

    RTE

- Onboard technology: would standardisation make technology upgrades easier?

  <->

Workshop / Intimate workshops

- CBTC for light rail and tram

CBTC is quickly becoming the signalling system of choice for light rail and tram networks. These pose unique and unusual challenges as they often run alongside automotive and pedestrian traffic.

Apresentações / Innovation, Tech & Data

- How do urban rail systems improve city life?
  - Eliminating urban traffic and promoting pedestrianized areas.
  - Improving the urban environment with green spaces along the tram network
  - Zaragoza's dynamic traffic light priority system: improving traffic flow.

    Zaragoza Tram

- The 21st century mobility experience: How will autonomous vehicles change the existing urban transport system?
  - Autonomous vehicles have the potential to provide flexible and cost-efficient mass transit solutions with minimal need for investment in infrastructure.
  - How far away we are from launching autonomous vehicles as a viable mode of transportation and how they will change the transportation landscape.

    Easymile

Apresentações / Innovation, Tech & Data

- Case study: Car-tube - the urban transport mode of the future?
  - Car-tube is a theoretical urban transport system which envisages passengers travelling in autonomous vehicles through relatively low-cost, small bore tunnels to free up space on the ground.
  - Introduce the concept and explore its feasibility.

PLP Architecture

Apresentações / Digitising Networks

- The business case for greater automation
  - Where is there room for further automation?
  - Does more automation make business sense?
  - Is there a balance to be struck between automation and safety?

    Keolis

- Organisational change & CBTC
  - Succession planning and acquiring new talent
  - What are the challenges of training staff in the use of CBTC technology?
  - Balancing new and legacy systems

    Metro Trains Melbourne

Apresentações / Digitising Networks

- From automation to autonomy: benefits for metro systems
  - From GOA 4 to autonomy
  - Benefits of autonomy
  - Best transition strategy

    Thales

- Preparing to fail: optimising control systems and improving crisis management
  - In-service failures are a major cost; access to the right data is crucial for identifying and handling failures before they get out of hand.
  - Improving response times to faults or incidents to keep lost-customer hours to a minimum.

    Crossrail

Workshop / Interactive Roundtables

- Digital optimisation based on real time ridership

  Alstom

- How to integrate safety and security in transport systems?

  IKOS Group

- Safety certification: how can we organize the safety certification of a metro project without significant impact on its schedule

  Auditsafe

Debate