



INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality

4th UIC RailTopoModel and railML[®] Conference

*Towards a Universal Topology Model for Railways
and Data Exchange Format for Infrastructure*

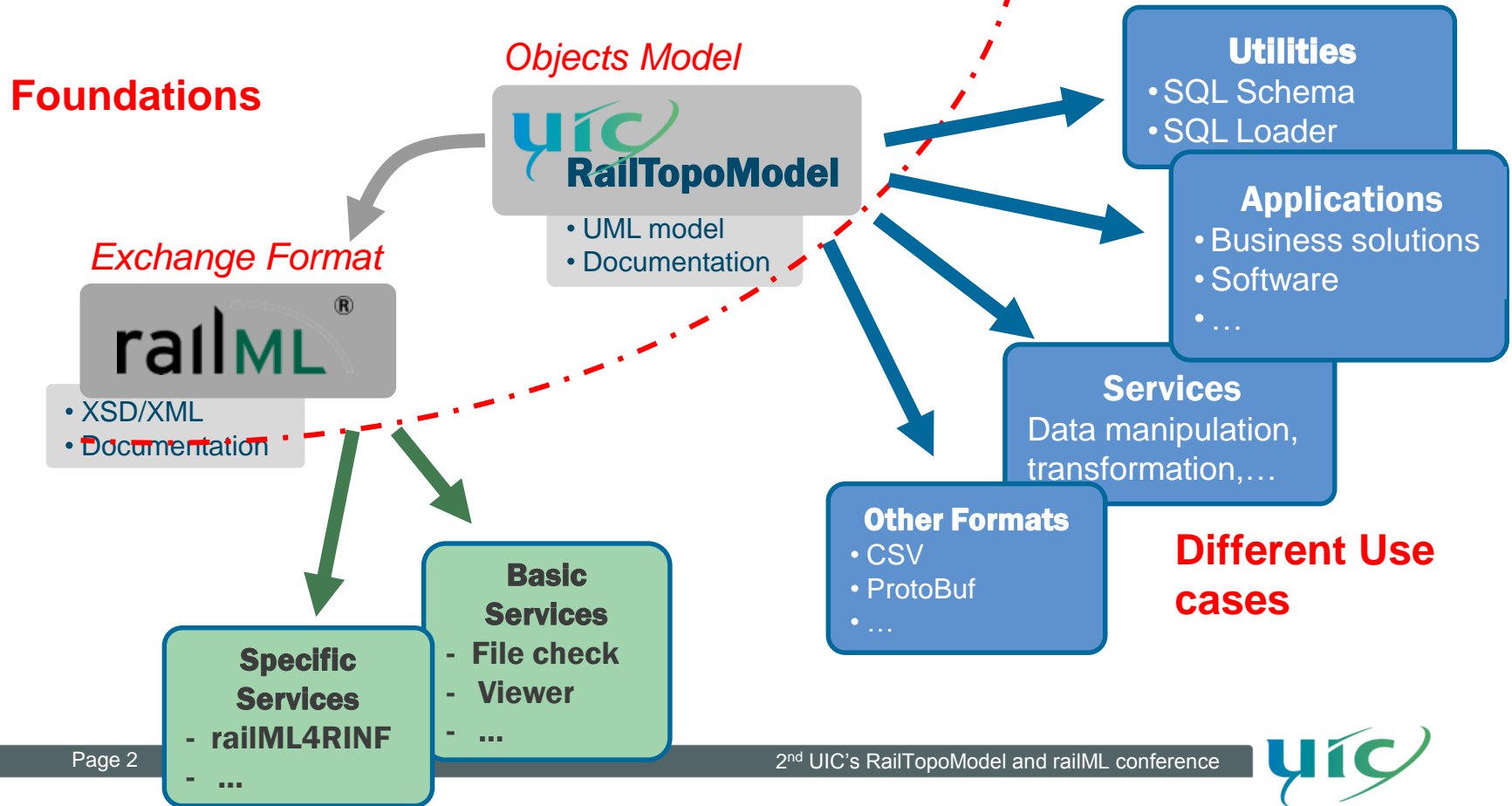
UIC HQ, Paris

April 28th/ 29th, 2015

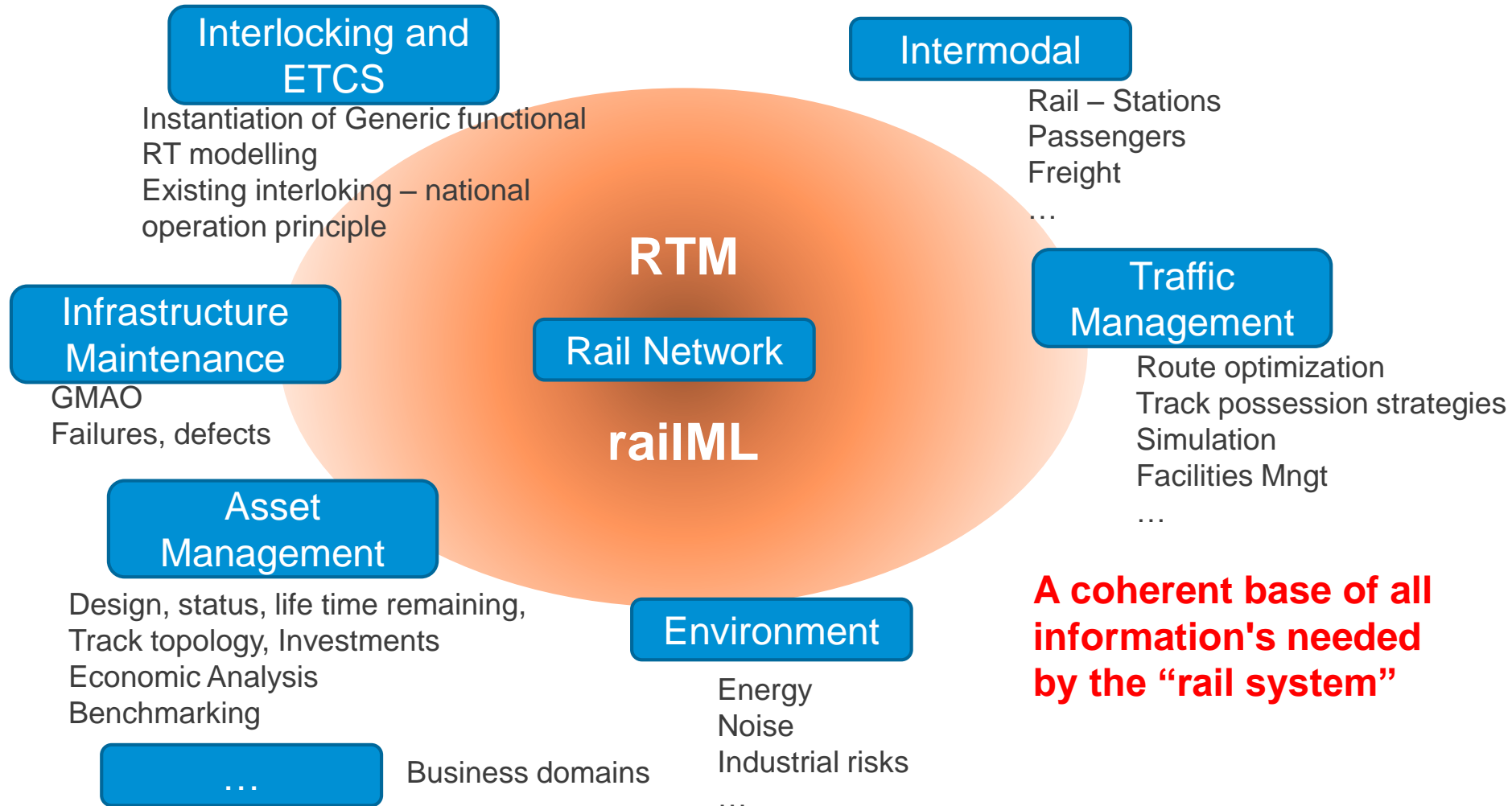
Utility of RailTopoModel & railML®

→ to provide a robust exchange format for the railway sector, for most use cases, and a first set of tools based on this exchange format.

→ the global consistency is ensured by the keystone : UIC RailTopoModel why UIC is a neutral and non commercial railway representative



Utility of RailTopoModel & railML®



Utility of RailTopoModel & railML®

Interlocking and ETCS

Instantiation of Generic functional
RT modelling
Existing inter
operation pri

Intermodal

Rail – Stations
engens
ht

Infrastructure Maintenance

GMAO
Failures, defects

Traffic management

Route optimization
Track possession strategies
Simulation
Facilities Mngt
...

Asset Manager

Design, status, life time remaining,
Track topology, Investments
Economic Analysis
Benchmarking

Environment

Energy
Noise
Industrial risks
...

...

Business domains

YES with the two hands !!

But be aware, some information and their coherence are directly or indirectly safety relevant !!

SIL2 or more functions ?

A coherent base of all information's needed by the “rail system”

RailML3 from the Concept to the reality

- ❑ 2012: few IMs shared their issues and concerns when working on projects as ETCS, Inspire, RINF... Those IMs proposed to both UIC and railML.org to work together to bring solution to the sector on 2 objectives
- ❑ 2013: a project team is initiated, federating contributors from 7 countries. A feasibility study is conducted by Traf IT. Based on the conclusion of this study, the project is launched. October: presentation of a road map to the sector
- ❑ 2014: Description of a solution. A common language to become an industrial standard → UIC RailTopoModel.
A new version of railML standard, to leverage performances → railML3
Presentation of RailTopoModel V1 & detailed road map of railML3 schema for Infrastructure
- ❑ 2015: Presentation of the results after 18 months of work from a large group of IMs to serve common interest of railway Industry

WITH TOOLS NOW AVAILABLE TO SUPPORT THE WORK!

A word about Open source concept

Using Open Source (or Open Models)?

- ☐ Several Open Source components already works well
... and will be kept maintained by third party
- ☐ No vendor lock-in → very important
- ☐ Allows to fix/improve source code → S&S have to be managed
- ☐ Doesn't necessarily imply that everything must be Open Source
→ could be useful to separate the HW & basic SW of IT units
→ from interpretable “Open models” that could be designed and maintained by “railways”

The way will not be so simple but we have to work together to reach the goal... for the railway sector!

Conclusion

- ❑ A very useful and strategic project
... a keystone for the digitalization of the railway activities
- ❑ Thanks to the UIC members a way between the concept and the reality has been quickly done
... and has to be continued
- ❑ Open source is a new way with new possibilities and new threats.

We have to avoid to main risks : Immobilism and Amateurism / Irresponsability

We have to come back to the Why and What to define new How's, to define a new tomorrow

...Thank you for your attention

Marc ANTONI
UIC Rail System Department
antoni@uic.org