

# Foster Rail – Infrastructure Roadmap

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Leoš Horníček (CTU in Prague)

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*Ulf Bohlin*  
*Trafikverket*

*Kevin Blacktop*  
*Network Rail*



# Potential for improvements

Infrastructure continues to be the major cost driver for the railway system. Focus must be on achieving cost effectiveness, reliability, flexibility and availability.

To address this is needed to:

1. Increase track resilience and cost efficiency.
2. Reduce maintenance costs and maximise track availability.
3. More modularization and well defined interfaces.
4. More automated condition monitoring and maintenance.

# Potential for improvements

Inspection, maintenance and renewal are currently time and labour intensive. Increasing customer demand for longer operating hours will only drive down the opportunity to gain track access, whilst the increase in capacity will drive up degradation rates, both combining to drive up cost.

1. New designs and materials e.g. self healing. Results in reduced preventive maintenance.
2. Targeted timely maintenance interventions.
3. Reduced time for tests, homologation and time on the track for renewal of components.
4. Autonomous monitoring, inspection and repair. Less track workers and less accidents.
5. Infrastructure, capacity management and vehicles optimised to deliver minimum wear and tare on fixed and mobile assets.

# Expectations from Shift2Rail

Expected are:

- 1. Development and refinements of existing infrastructure designs.**  
*Must function together with legacy technology.*
- 2. Development of modelling tools for virtual prototyping and testing.**  
*Virtual modelling instead of costly mock ups and extensive field testing – zero on site testing vision.*
- 3. Search for and application of new materials.**  
*Such as self adjusting track components, elimination of hazardous track works, non intrusive condition monitoring and predictive maintenance ...*
- 4. Capitalization of opportunities that digitalization and automation offers.**

# Expectations beyond S2R

- 1. Implementation of S2R results – full scale implementation 2025 and beyond.**

*Such as better infrastructure designs, modelling tools for virtual prototyping and testing, application of new materials. S2R II needed.*

- 2. Use of Artificial Intelligence for handling of and acting upon vast amounts of data.**

*Artificial Intelligence is in its infancy. The potential for savings are huge.*

- 3. Non disruptive condition monitoring.**

*In service train track monitoring systems.*

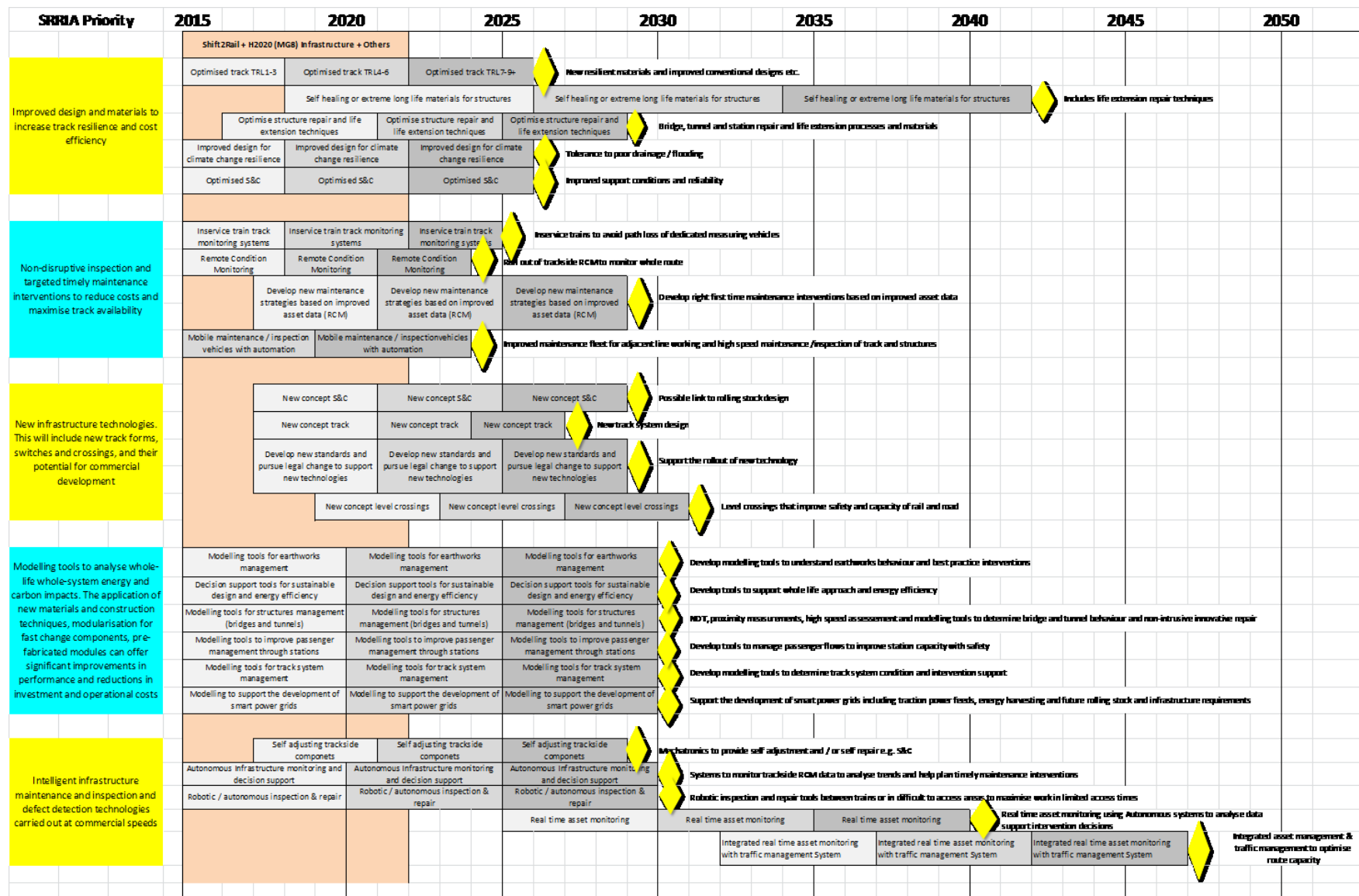
- 4. Automation/robotization of maintenance.**

*Robotic inspection and repair tools between trains or in difficult access areas.*

- 5. Realization of the Digital Railway ...**

*Everybody is talking about the digital railway but there is no comprehensive unanimous picture of what it is and its impact on the railway system. We believe that there will be big changes but no one is able to imagine the full extent of these changes.*

# Visual Roadmap, milestones and deliverables overview



**Thank you for your attention!**

**Full Roadmap**

<http://www.errac.org/foster-rail/deliverables/>