

The IT/OT Railway Game

Railforum – Systeem Integratie

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<https://www.utwente.nl/en/amico/>

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UNIVERSITY
OF TWENTE.



Problem definition: Many companies face difficulties on IT/OT integration

More trains stranded on high-speed line (HSL) due to software failures [1]

ICNG has software issues: new trains delayed for operation [2]



Boeing saved its new Starliner spaceship from disaster. Here's how the mission unfolded and what it could mean for NASA astronauts.

F.A.Z. EXKLUSIV

Dave Mosher Dec 24, 2019, 9:33 PM CET

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VW ruft 56.000 Golf VIII in die Werkstatt

VON HOLGER APPEL - AKTUALISIERT AM 12.01.2021 - 11:19



NOS Nieuws • Maandag 13 november, 10:00

Australische havens weer open na cyberaanval, wel grote achterstand

Boeing 737 Max cleared to fly in UK and EU after crashes

27 January 2021

Industrieconcern VDL Groep getroffen door digitale aanval

[1] Sondermeijer / NRC.nl, 2018; [2] Treinreiziger.nl, 2021;

[VW ruft 56.000 Golf VIII in die Werkstatt \(faz.net\)](#)

[Boeing 737 Max cleared to fly in UK and EU after crashes - BBC News](#)

<https://nos.nl/artikel/2497678-australische-havens-weer-open-na-cyberaanval-wel-grote-achterstand>

<https://nos.nl/artikel/2400694-industrieconcern-vdl-groep-getroffen-door-digitale-aanval>

[How Boeing Saved Its First Commercial Spaceship for NASA From Disaster \(businessinsider.com\)](https://www.businessinsider.com/how-boeing-saved-its-first-commercial-spaceship-for-nasa-from-disaster)



Research on IT/OT Asset Management

- Increase visibility of IT/OT converged systems and to raise awareness on the importance of maintainability of these systems.
- How:
 - 1) Software related failures: RAMS-extention
 - 2) Develop IT/OT design guidelines
 - 3) Connect professionals: IT/OT Railway Game



Why IT and OT are different: definitions

Information Technology (IT)

All the hardware and software that is used to control information.

Main aspect: *Information availability*



NS

Operational Technology (OT)

All the hardware and software that is used to operate the rolling stock.

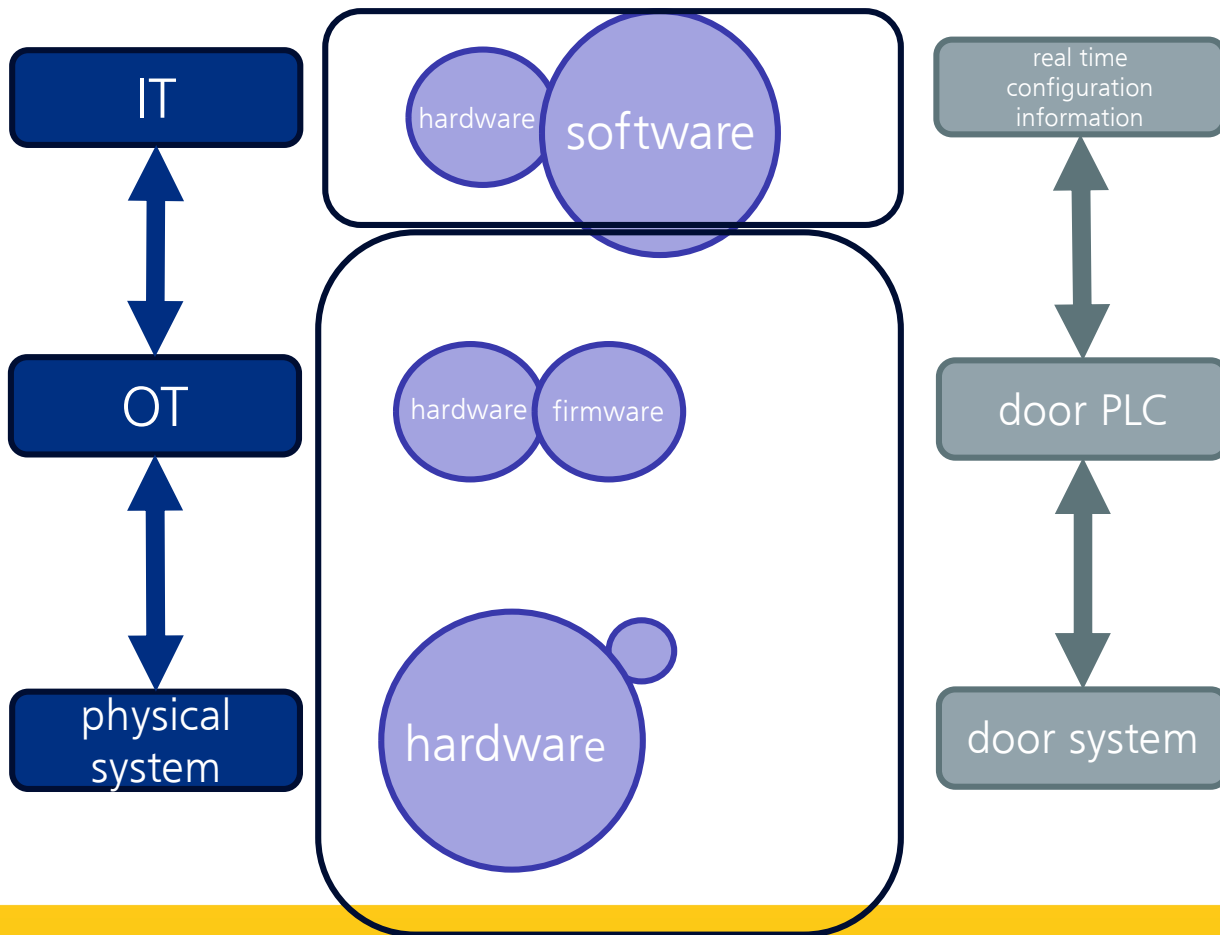
Main aspect: *Reliable performance*



Nicospilt.com



Difference between IT and OT in railways



NS

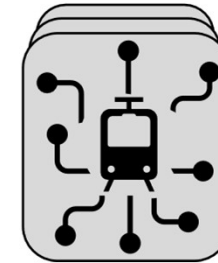


IT and Asset Management

- Why (richten)?
 - Asset management strategy (SAMP)
- What (inrichten)?
 - Asset management plan per asset type (AMP / LLP)
- How & implementation (verrichten)?
 - Planning and execution of the maintenance

Why this serious game?

The IT/OT Railway Game



- For players

To encourage learning about the challenges and opportunities of IT/OT convergence when managing assets

- For this research

As an artifact to learn about the challenges and opportunities of IT/OT convergence on asset management in a controlled environment.



A. Kok, J. Moerman, W. Haanstra, A. Martinetti, J. Braaksma
A serious maintenance management game for decision-making on digitized railway assets

