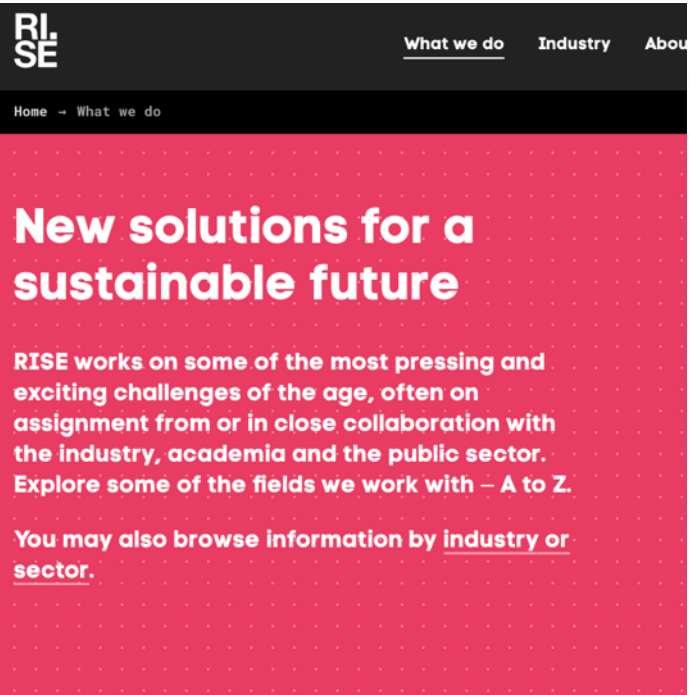
HPC as a service

Martin Körling,
Research Institutes of Sweden, RISE

2022-10-11

https://www.ri.se/en/what-we-do



A

- Additive manufacturing
- Agriculture
- Artificial intelligence
- Automated vehicles

B

- Batteries
- Bioeconomy
- Biorefinery
- Built environments

C

- Calibration
- Cement and concrete
- Certification
- Chemical and biological analysis
- Chemicals
- Circular Economy
- Climate adaptation
- Climate-neutral industry
- Construction
- Corrosion
- Cyber security

D

- Data Science
- Design
- Digital health
- Digital infrastructure
- Digitalisation

E

- Electromobility
- Electronics
- Energy

F

- Fire safety
- Food
- Formulated products
- Fossil-free fuels

I

- Infection control
- Infrastructure
- Innovation support
- Inspections
- Internet of Things

L

- Life Science
- Life-cycle analysis
- Lifelong learning
- Lightweight products
- Logistics and transport solutions

M

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- Material transition
- Medical devices
- Metrology
- Mobility
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N

- New therapies

P

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- Perception
- Pharmaceuticals
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- Preventative healthcare
- Printed electronics
- Production and manufacturing
- Public sector
- Pulp and paper

R

- Resource-efficient cities
- Risk and safety

S

- Sensors and sensor systems
- Service innovation
- Surface technology
- System innovation

T

- Testing
- Textile

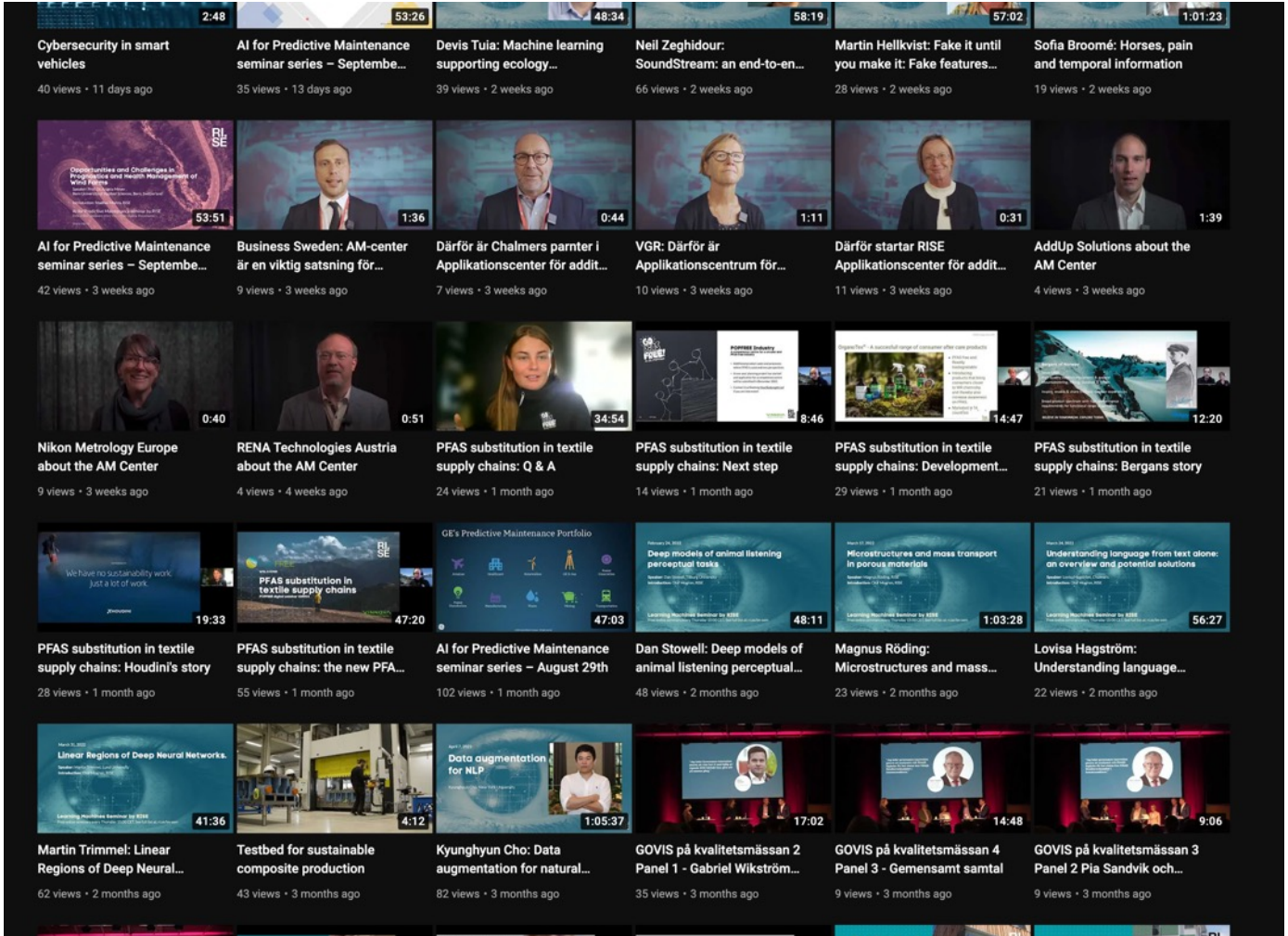
U

- Upskilling
- Urban development

W

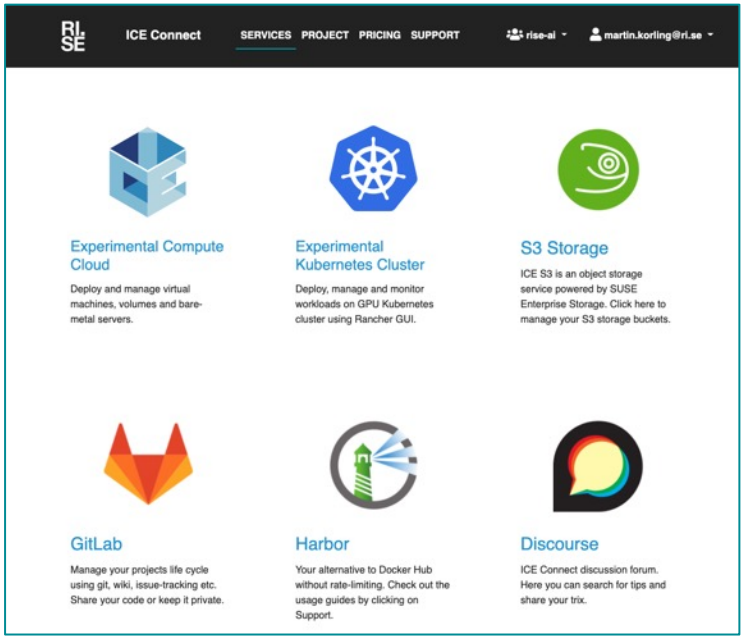
- Water
- Wood technology
- Work environment

https://www.youtube.com/c/RiSeSweden/videos



RISE in HPC

RISE engages through ENCCS and ICE Datacenter



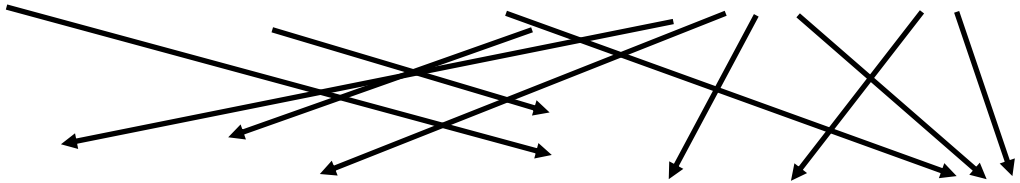
RI. SE

Workloads and Infrastructure

Spectrum of workloads

Web apps — *Interactive* — *Data Analytics* — *AI* — *HPC*

Cost, ease-of-use, performance, compliance, security, privacy



US providers

Google Cloud

aws

EU providers

IONOS

OVHcloud

Scaleway

safespring

cleura

binero

ICE

HPC / Public funding

EuroHPC Joint Undertaking

SNIC

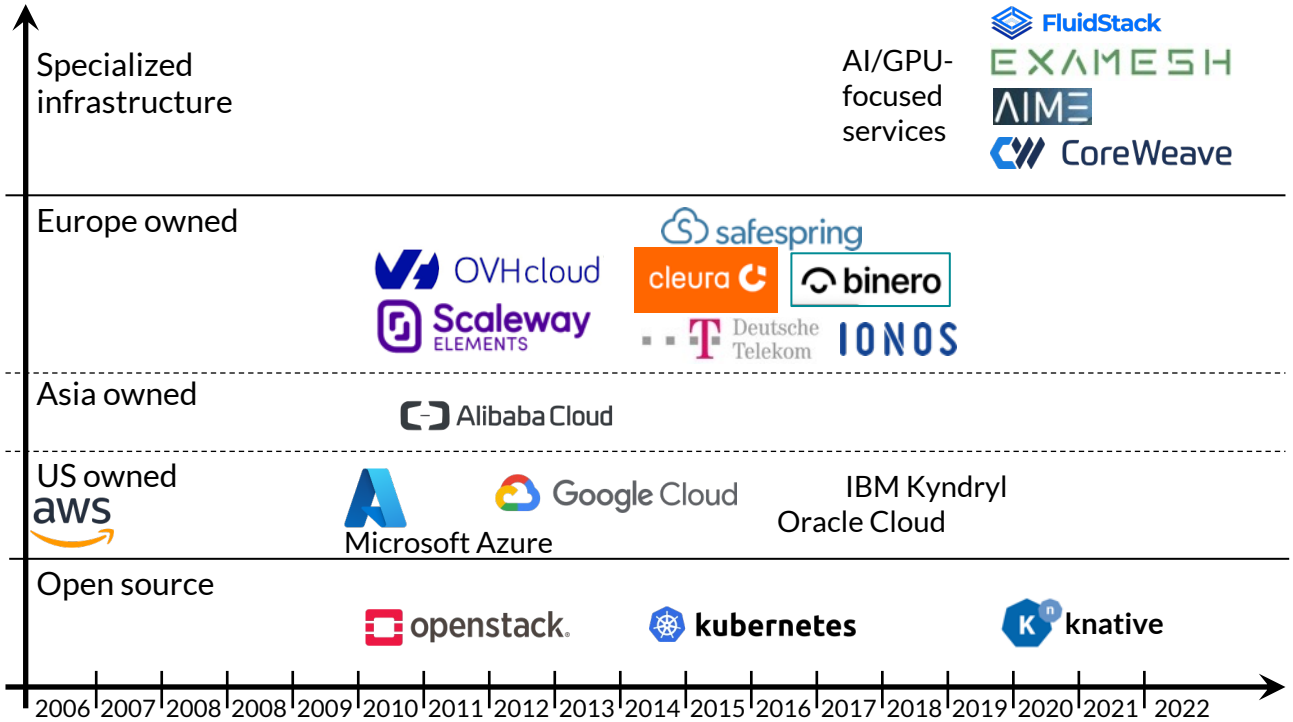
In-house infra

RANCHER

kubernetes

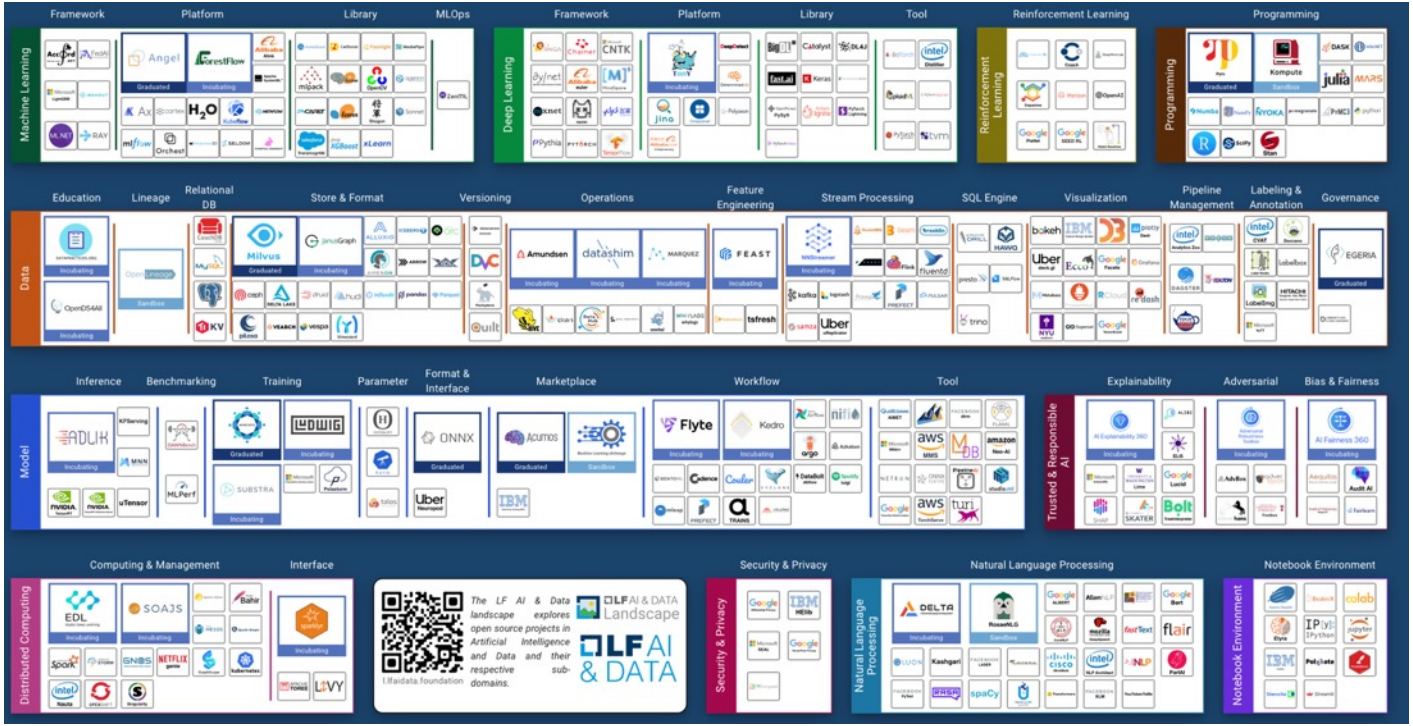
openstack.

Cloud landscape evolution



AI/ML Software/Services landscape

Linux Foundation AI & Data Foundation https://landscape.lfai.foundation/



Platform software

Spectrum of workloads

Web apps *Interactive* *Data Analytics* *AI* *HPC*

Cost, ease-of-use, performance, compliance, security, privacy

Application support	Helping users
Platform software	Application environments, images, datasets, deployments
System software	Schedulers, file systems, …

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Platform software

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Web apps *Interactive* *Data Analytics* *AI* *HPC*

Cost, ease-of-use, performance, compliance, security, privacy

Application support

Platform software

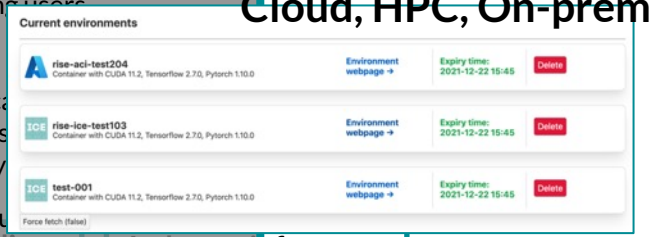
System software

Helping users

Applica… images deploy…

Schedu… file systems, …

Common across Cloud, HPC, On-prem



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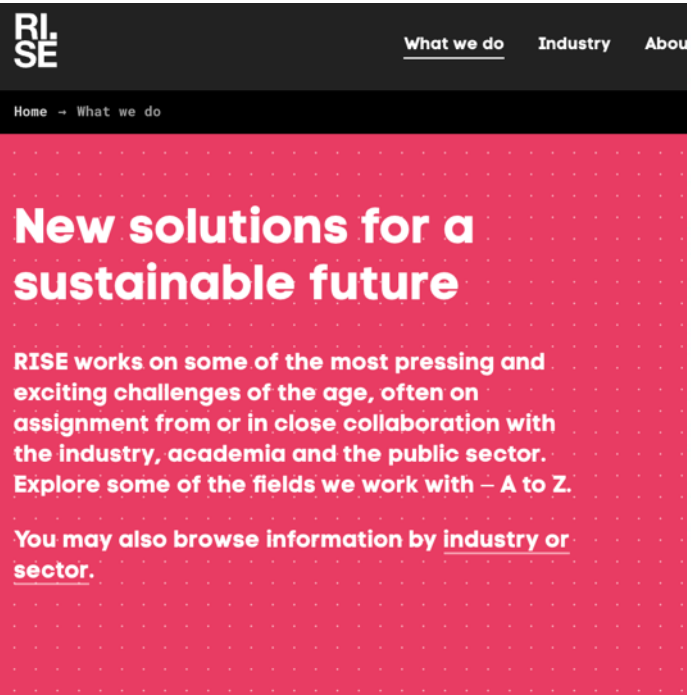

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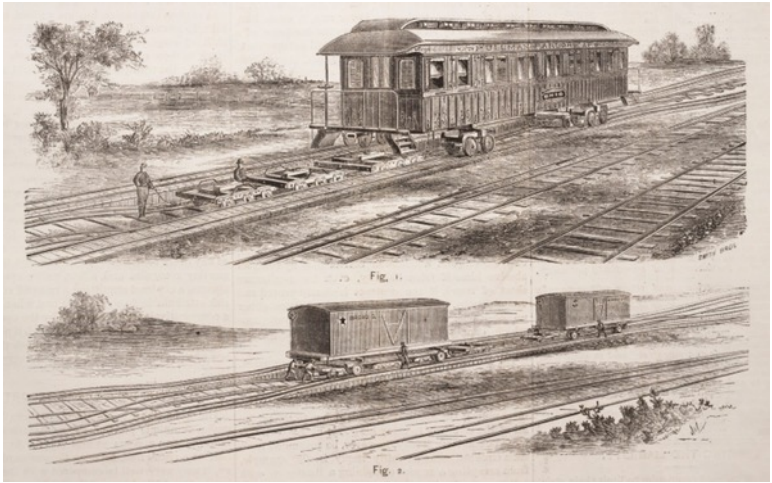
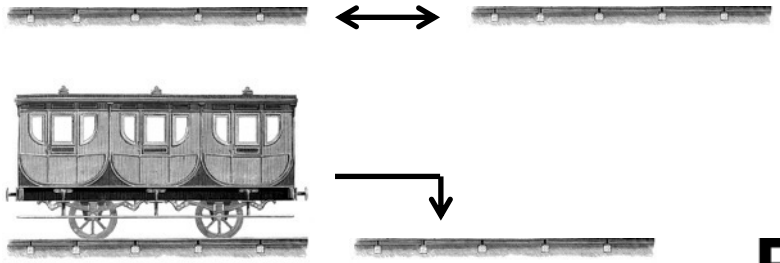
Railroad tracks

- 1846 British standard 4’8.5’’ 1435mm
- 1870s US standard 4’8.5’’ 1435mm

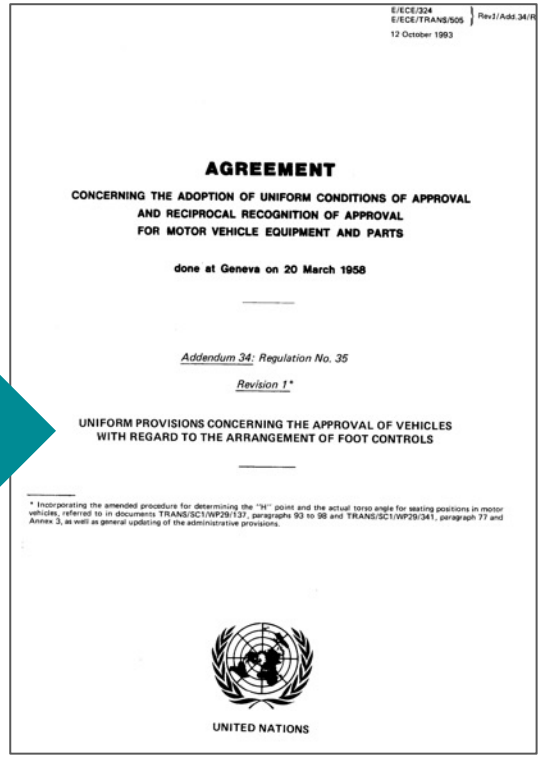


- **Interoperability**: information exchange such that track 1 is compatible with track 2
- **Portability**: Take a railroad car and move it from track 1 to track 2



Standards and innovation

1958 agreement on placement of foot controls



E/ECE/324
E/ECE/TRANS/505 } Rev.1/Add.34/R
12 October 1993

AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM CONDITIONS OF APPROVAL
AND RECIPROCAL RECOGNITION OF APPROVAL
FOR MOTOR VEHICLE EQUIPMENT AND PARTS

done at Geneva on 20 March 1958

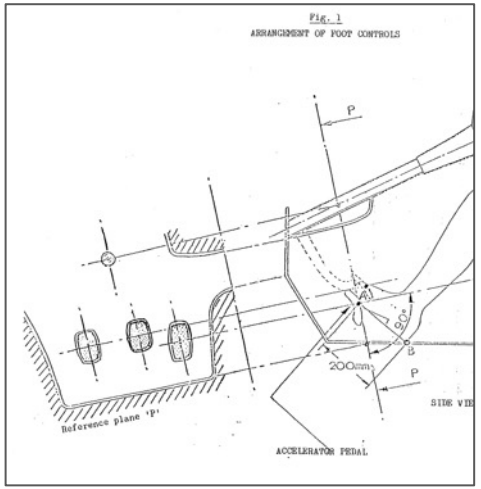
Addendum 34: Regulation No. 35

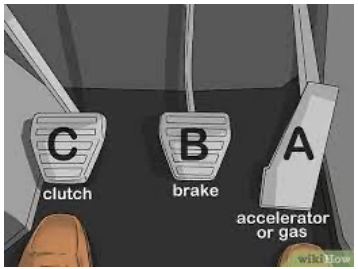
*Revision 1**

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES
WITH REGARD TO THE ARRANGEMENT OF FOOT CONTROLS

* Incorporating the amended procedure for determining the "H" point and the actual torso angle for seating positions in motor vehicles, referred to in documents TRANS/SC1/WP29/137, paragraphs 93 to 98 and TRANS/SC1/WP29/341, paragraph 77 and Annex 3, as well as general updating of the administrative provisions.

UNITED NATIONS





extensibility

No conflict between standards and innovation/differentiation

Diffusion curve