



Arbeitsgemeinschaft der Vermessungsverwaltungen
der Länder der Bundesrepublik Deutschland



National Report of Germany: **SAPOS®** and open data – the user requirements

EUREF Symposium 2019 Session 5 - National Reports

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Working Committee of the Surveying
Authorities of the Laender of the
Federal Republic of Germany (AdV)



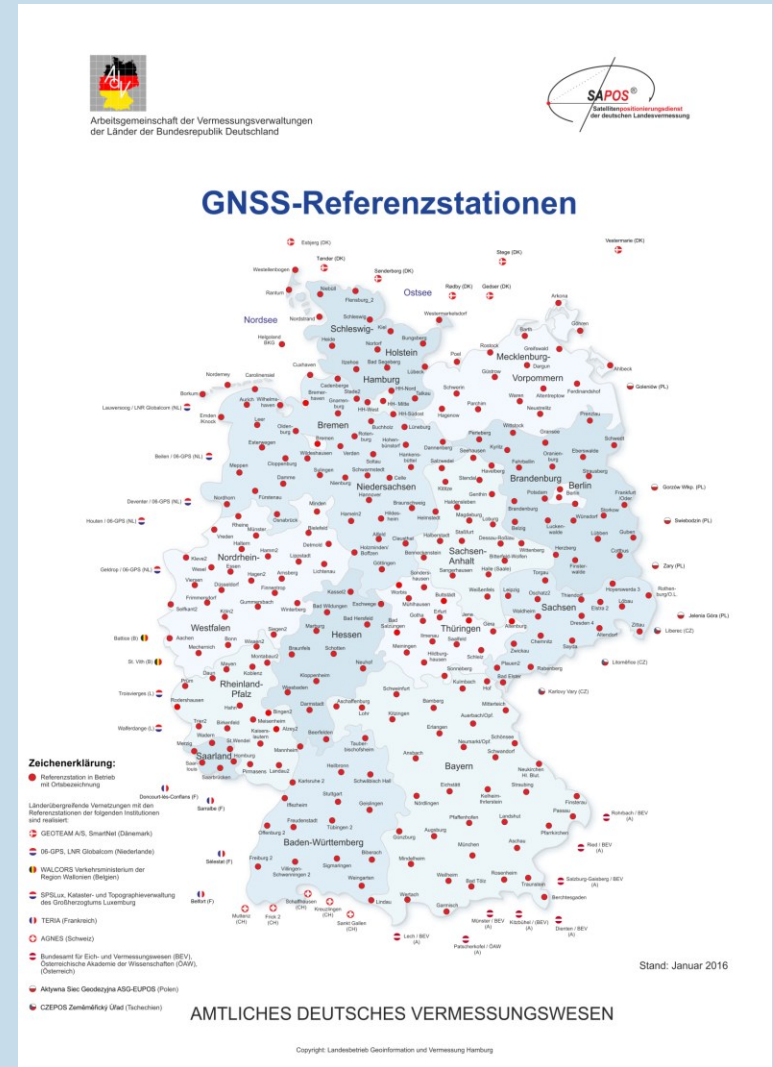
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SAPOS® - services, interoperability and standards

SAPOS® is a service operated by
the Surveying Authorities of the
States of the Federal Republic of
Germany

SAPOS® provides the official
spatial reference

SAPOS® is considered as an
infrastructure basic provision
and as part of the legal task of
the German state survey



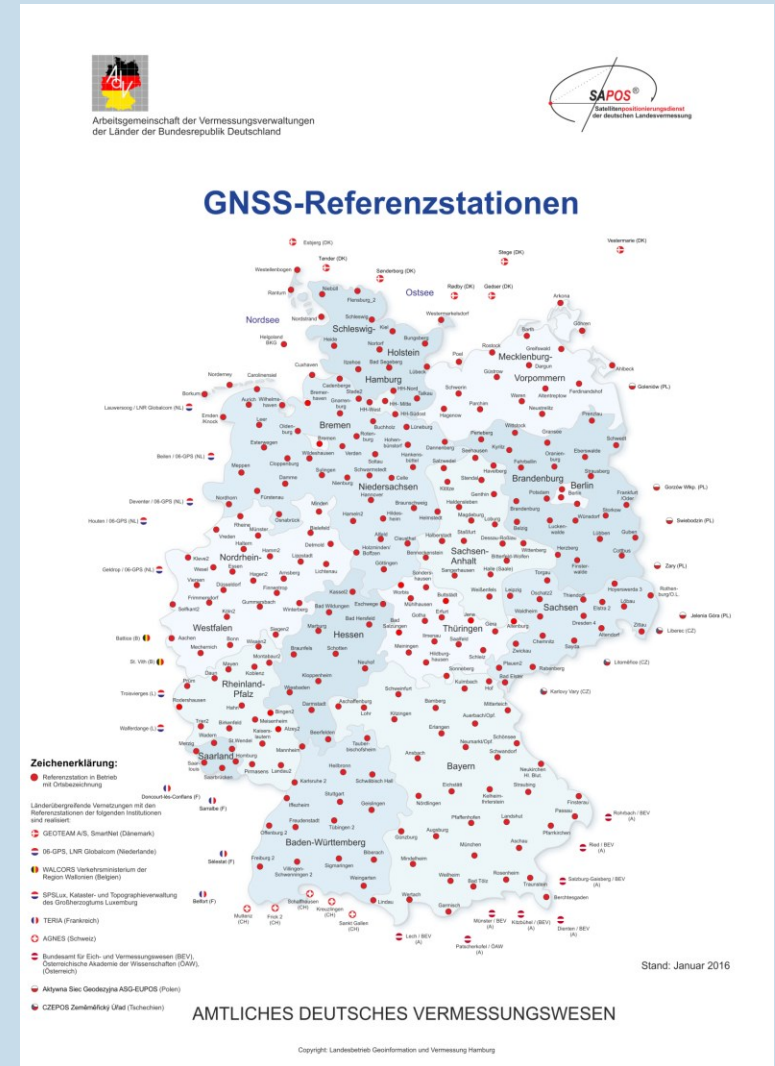


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SAPOS® - services, interoperability and standards

SAPOS®

- about 270 reference stations
- cross border networking with neighboring countries
- interoperability: use of international standards as part of the product definition (RTCM, RINEX, NMEA, NTRIP)
- standardized quality management
- GPS → GLONASS → Galileo → Beidou





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SAPOS® - services, interoperability and standards

Real time

EPS

0,3-0,8 m

Provision by
mobile Internet

Data format RTCM

HEPS

1-2 cm

Provision by mobile
Internet and GSM

Data format RTCM

fees / open data

Post Processing

GPPS

< 1 cm

Provision by
Webserver

Data format RINEX

fees / open data

EPS: Real Time Positioning Service

HEPS: High Precision Real Time Positioning Service

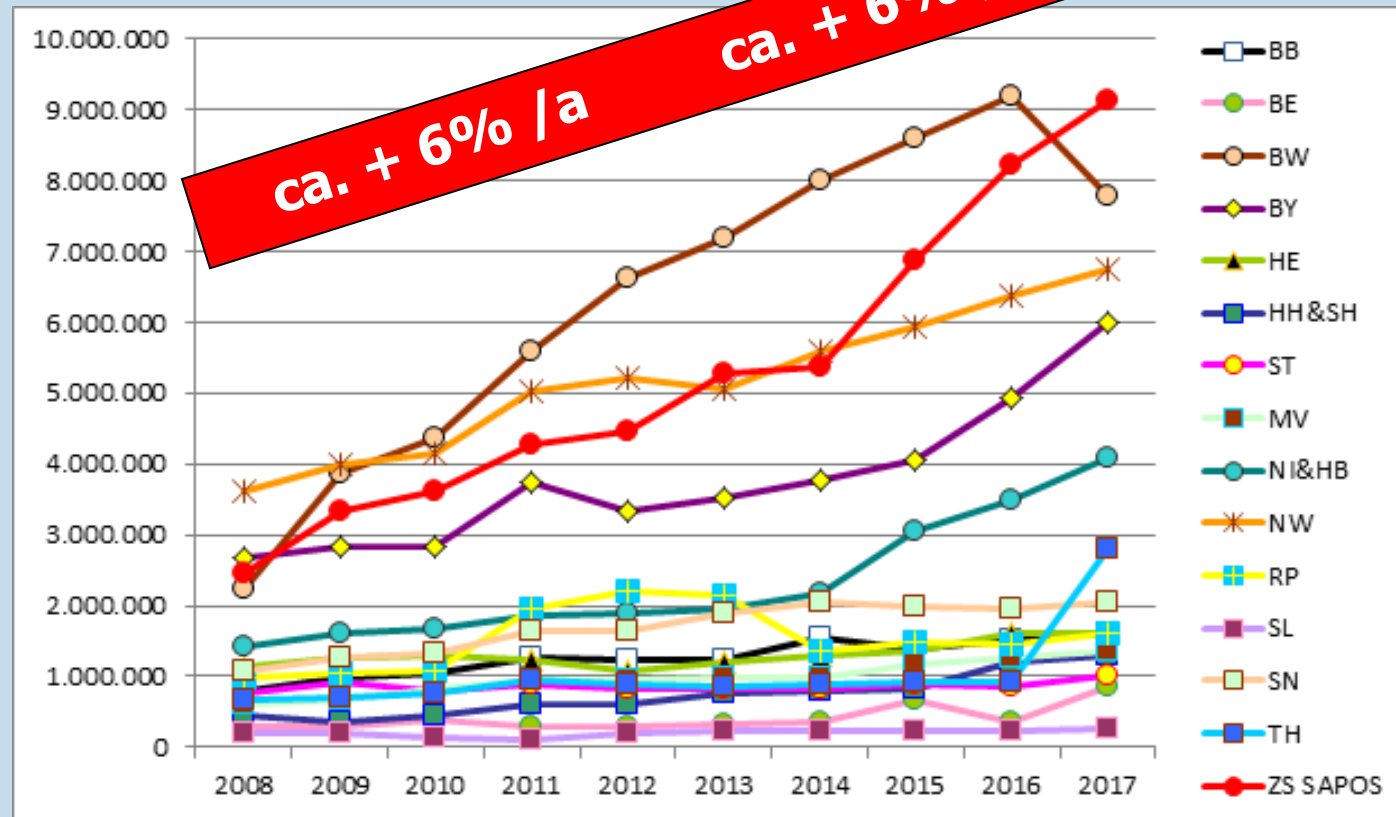
GPPS: Geodetic Precision Positioning Service



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SAPOS® - the user requirements

SAPOS® HEPS 2008 – 2017

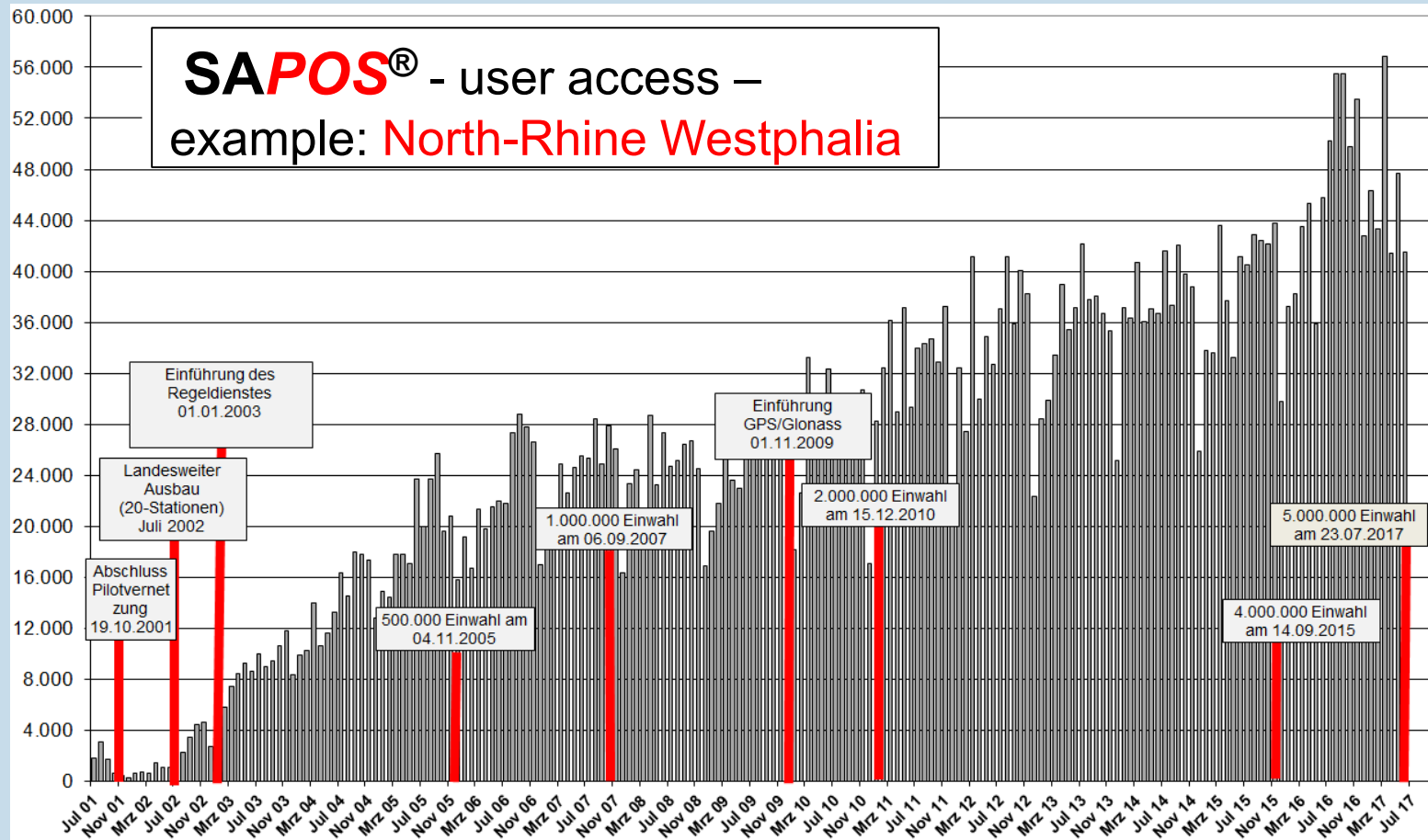




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SAPOS® - the user requirements

SAPOS® - user access – example: North-Rhine Westphalia



source:



GEObasis.nrw



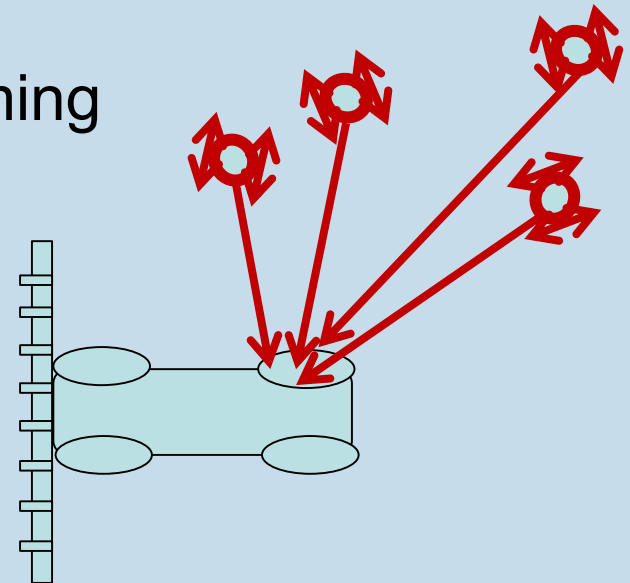
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SAPOS® - the user requirements

Conference of the (German Laender) agricultural ministers, 31.03.2017, Hanover

Topic future of agriculture – innovation and digitalization:

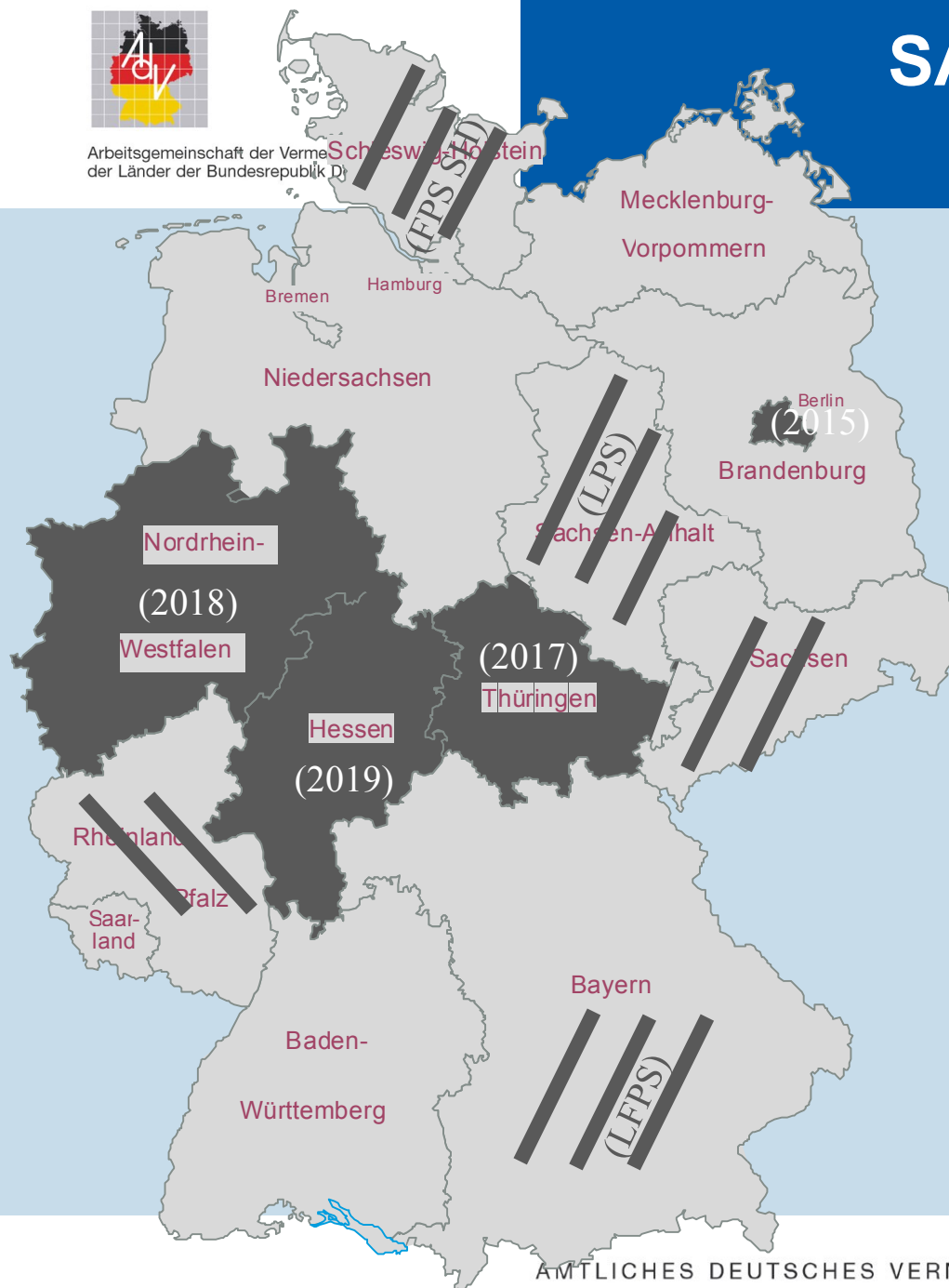
- demand for SAPOS as open data
- to develop the potential of smart farming





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SAPOS® and open data 2019 (9 of 16 Laender)



Chargeable
SAPOS-services

free of charge / open data for all
SAPOS-services (year)

special conditions / free of charge
HEPS for agriculture

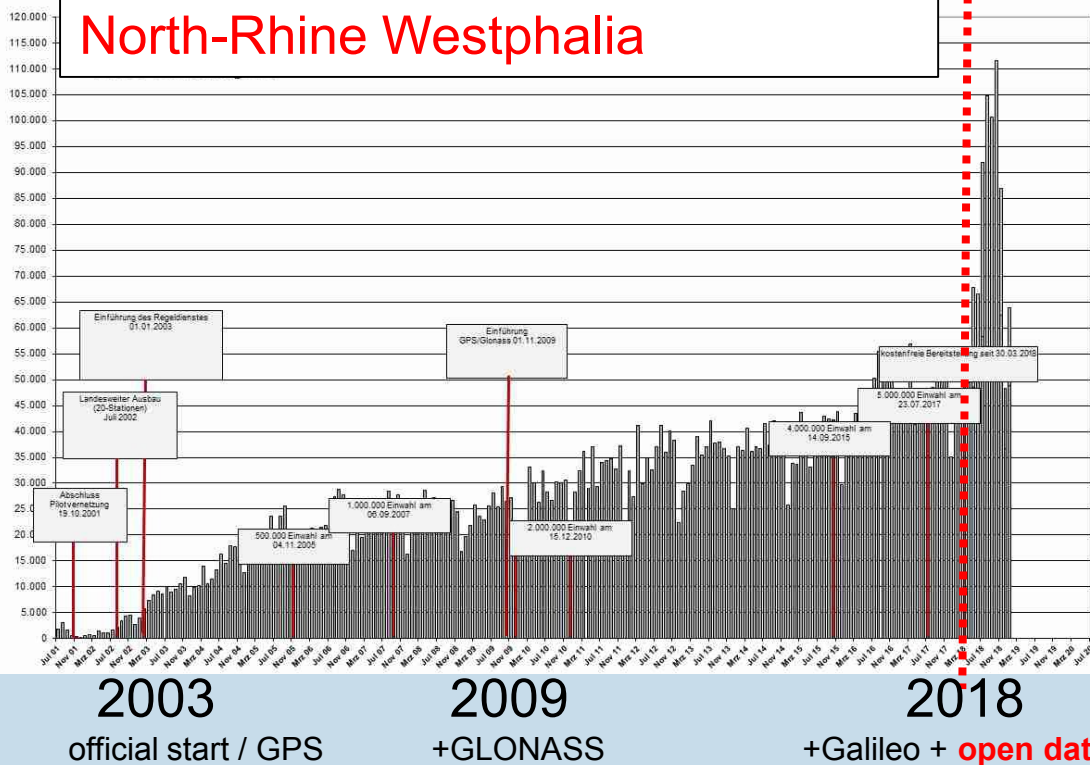
internal fees between ministries:
HEPS for agriculture



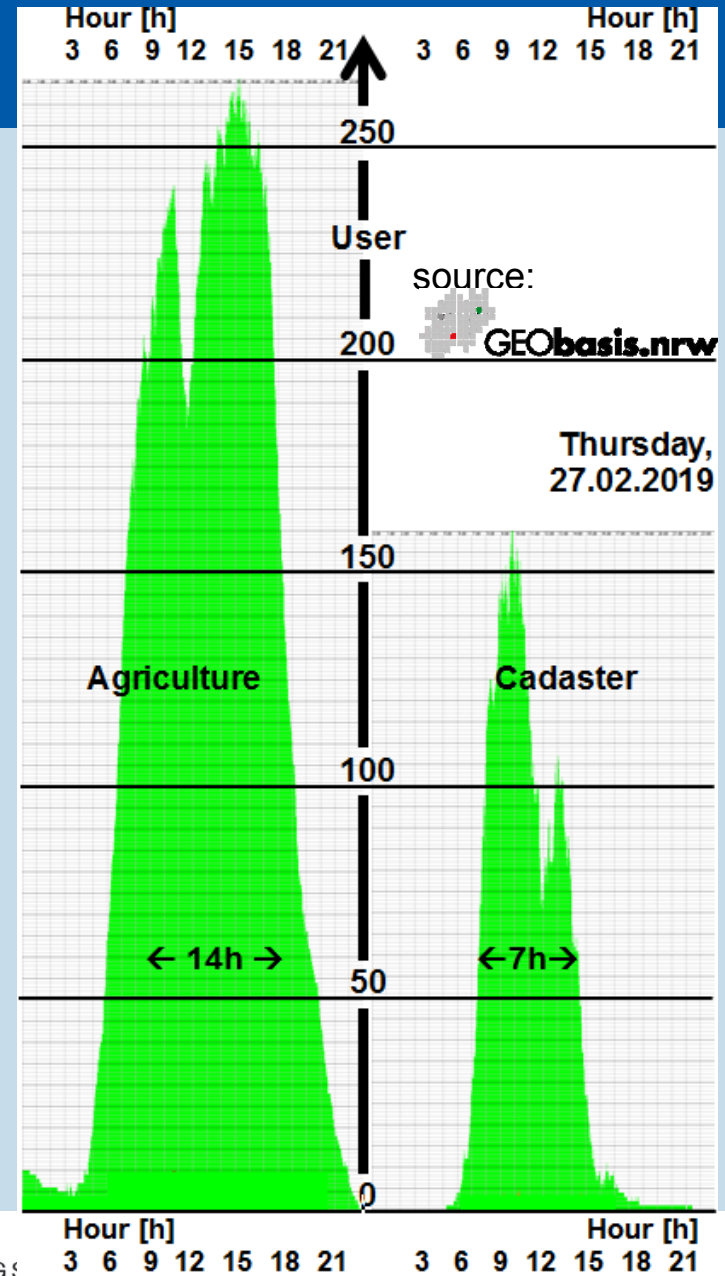
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SAPOS® - the user requirements

SAPOS® - open data, example: North-Rhine Westphalia



AMTLICHES DEUTSCHES VERMESSUNGS...

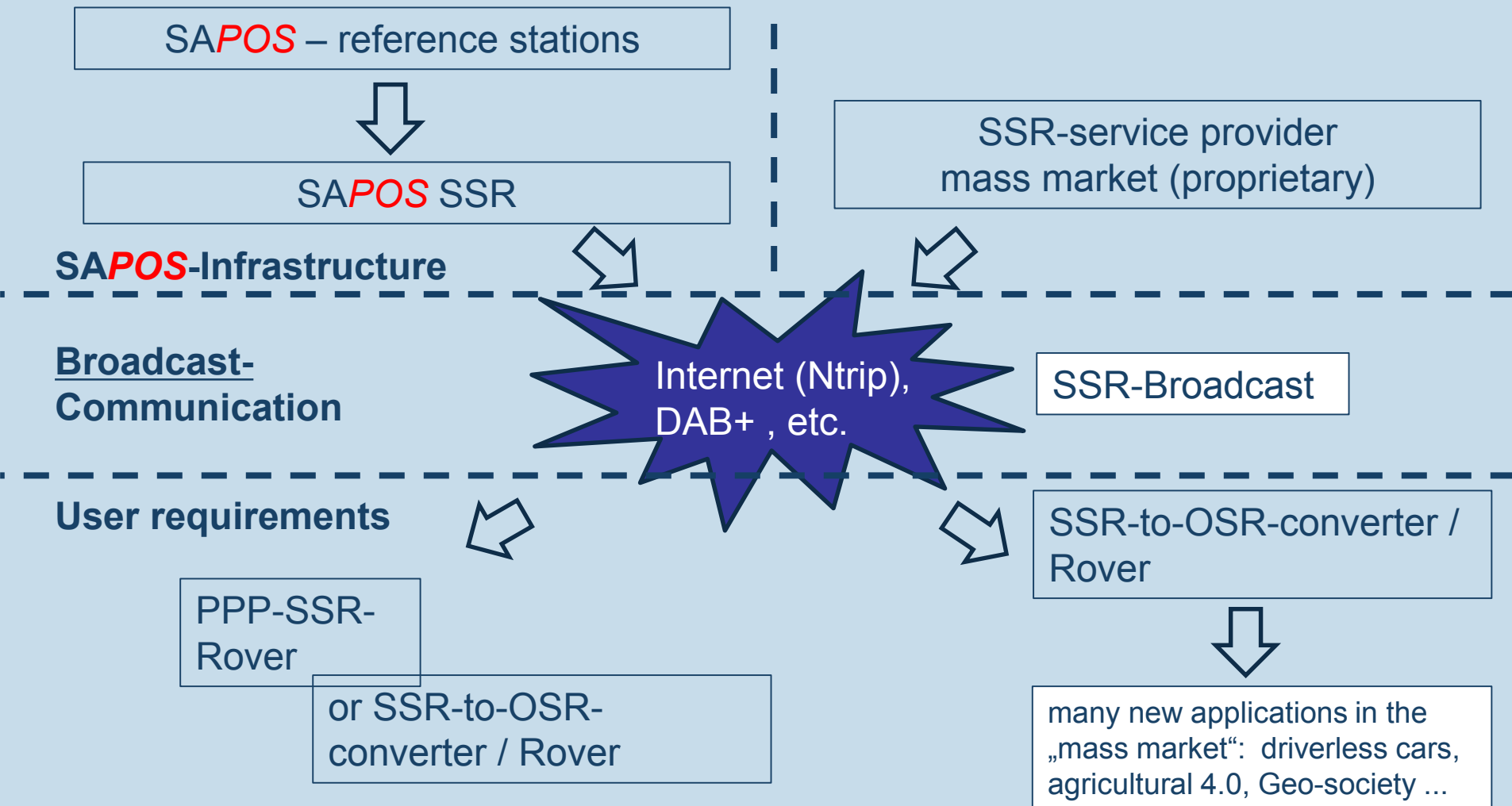




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SAPPOS®

2021+





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Gracias

Tānan

Tack

Сағ олун

Merci

Thank you

Kiitos

Tak

Děkuji vám

Danke

Ačiū

Dǎkujem vám

further reading: <http://www.adv-online.de>

Dank u

Paldies

Dziękuję

Grazie

ευχαριστο

Mulțumesc

Obrigado

Köszönöm

Благодаря

Hvala