

GETTING DAB+ INTO CARS

ABU-DBS WORLDDAB WORKSHOP

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SECURE CONNECTIONS
FOR A SMARTER WORLD

PUBLIC

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NXP SEMICONDUCTORS WORLDWIDE

Together with our valued customers, we're not just advancing technology, we're advancing society.



AUTOMOTIVE

Enabling carmakers to develop smarter solutions for complex autonomy, connectivity, and electrification challenges

Accelerating the shift to greater mobility



INDUSTRIAL

Reducing wasted time, money, and effort by helping business run more efficiently.

Enabling more efficient data processing



MOBILE

Giving wearable and mobile devices easier access to the services that make modern life more convenient without compromising security and safety.

Transforming how people and devices connect



SMART HOME

Solutions that listen, learn, and adapt into the places we call home for more comfort, affordability, safety, and convenience.

Powering the intelligence behind the technologies



SMART CITY

Simplifying how people access and interact with local services to achieve new standards of sustainability, efficiency, mobility, and economic growth.

Anticipating the demands of tomorrow



COMMUNICATION INFRASTRUCTURE

Powering insights and inspiring performance with hardware solutions for handling 5G connectivity across the emerging communications spectrum.

Delivering real-time responsiveness at the speed of 5G

60 years of combined experience and expertise
Operations in more than **30 countries** worldwide

Approximately **29,000 employees**

Headquarters in The Netherlands – **Eindhoven**



IS AUTOMOTIVE DIFFERENT FROM CONSUMER (DIGITAL) RADIO?

- Temperature & Lifetime
- Distraction free & intuitive use
- Challenging reception situations
- Long lead times
- On the road: entertained & informed
- Specific use cases driving radio architectures
- Global platforms

Yes, Automotive is different!

Cold



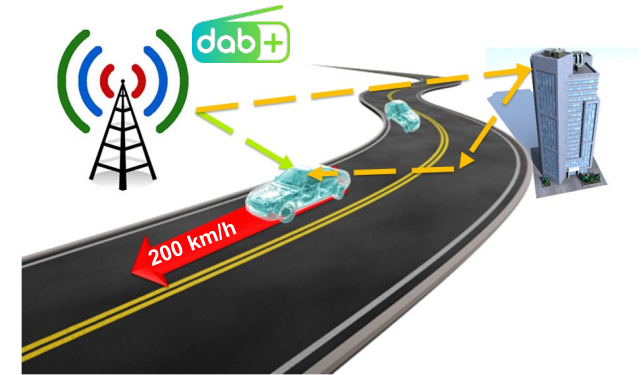
Hot



Lifetime



Mobile reception circumstances



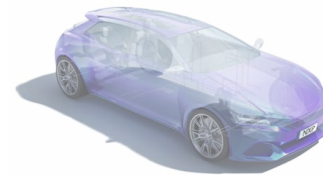
- Service following
- Uniform service lists for DAB, FM, IP
- Doppler effects
- Multi-path
- Strong adjacents
- Weak signal handling
- Interferences



Receiver chip design

Tier-1 Radio development

OEM car development



6-7 years from chip definition to production in a car

~100 YEARS OF CAR RADIOS



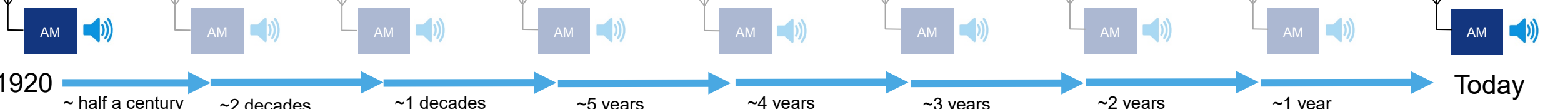
POPULAR MECHANICS
 October, 1919
RADIO SETS FOR AUTOMOBILES
 PROMISE OF NEAR FUTURE

~10 years

~35 years

~50 years

**Innovation is ever accelerating:
 Expect more change the next decade than the past 50 years**



1920 Intro of Car Radio
 ~ half a century FM
 ~2 decades FM Background channel
 ~1 decades Dual antenna FM
 ~5 years DAB
 ~4 years DAB background channel + data
 ~3 years DAB-DAB service following
 ~2 years Dual antenna DAB
 ~1 year Radio over IP
 Today



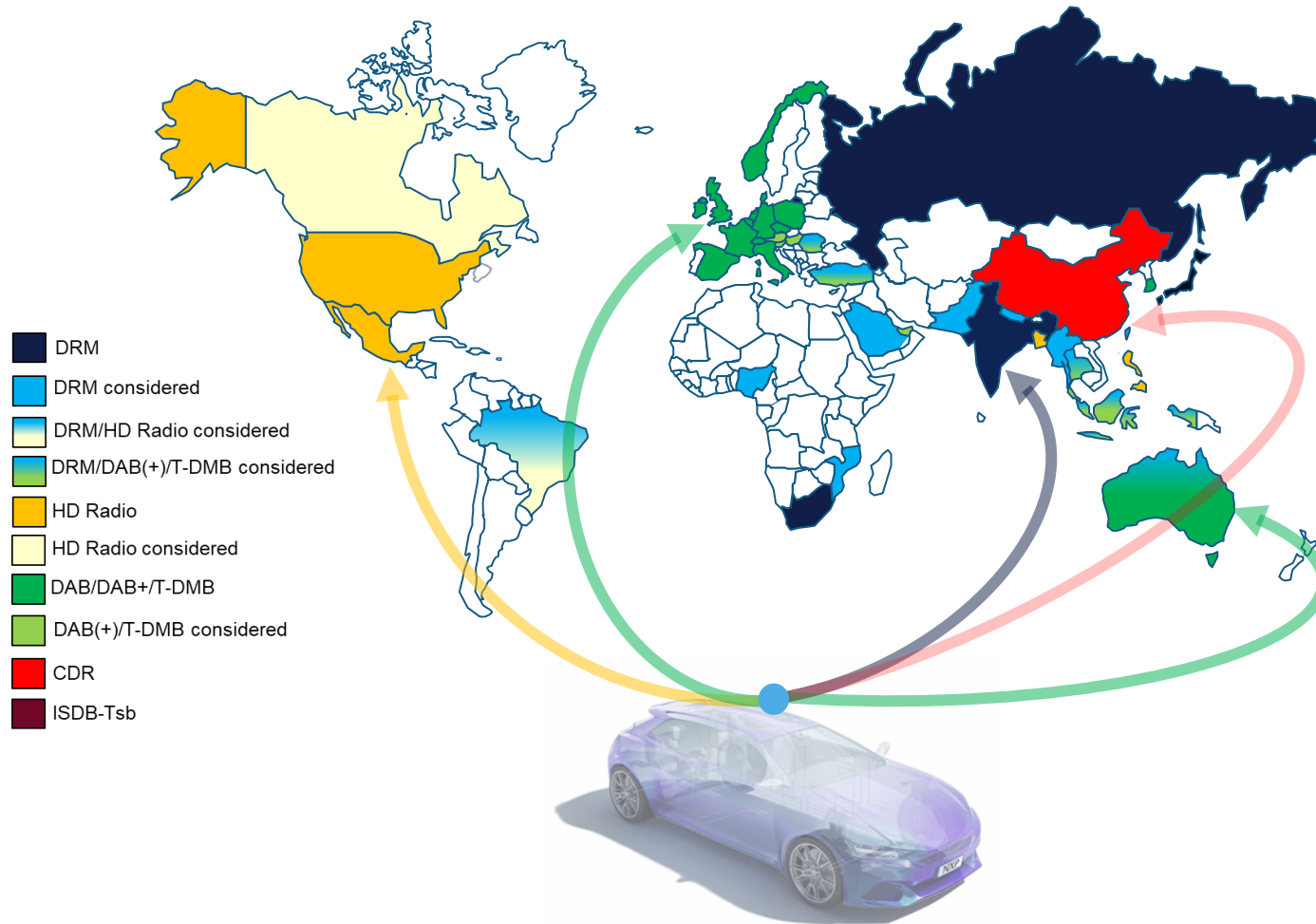
Car of the future? New competition...



**DAB+ offers great innovation possibilities
upgrading the user experience greatly**



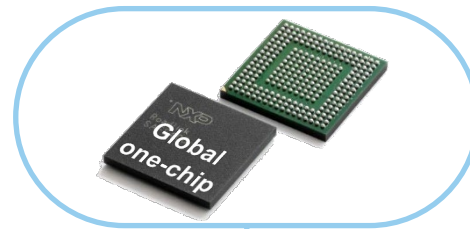
CARS ARE SOLD GLOBALLY DEALING WITH MULTIPLE STANDARDS



- Single car platforms for global reach
- Single HW – Multi standard
- Software Defined Radio



NXP GLOBAL ONE-CHIP: INTEGRATION OF TUNERS & SOFTWARE DEFINED RADIO

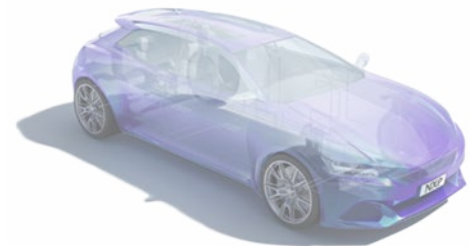


Tier-1s



Single HW validation and qualification

Car OEMs



Lean logistics & assembly

Consumers





CONCLUSIONS

- Car innovations will change the behavior of the listener: [new competition](#)
- Change accelerates continuously: [don't wait](#) with innovation
- Move to [digital radio](#) is a must and [DAB+ is a great opportunity](#)
- [NXP](#) offers the [ideal products](#) for global car radio solutions





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