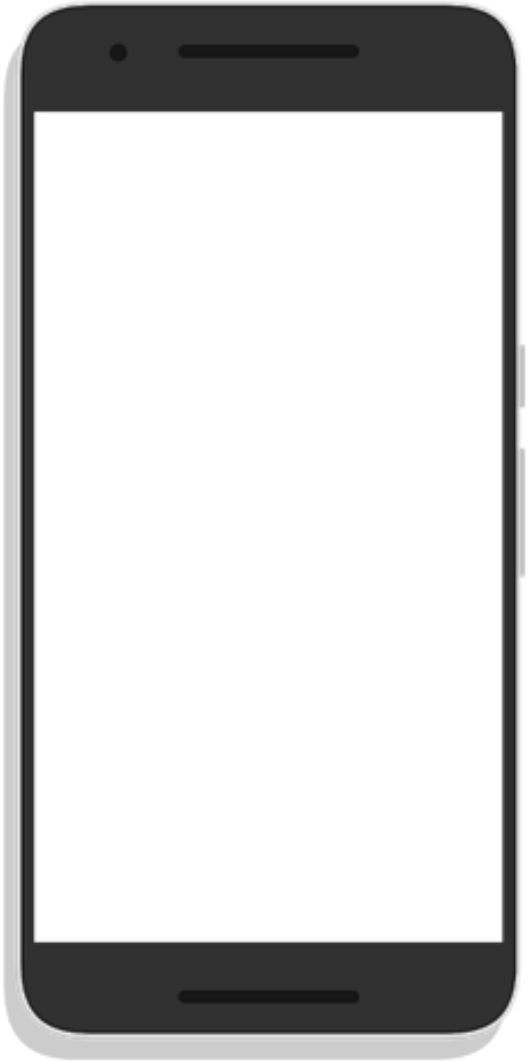
Develop Beyond 2019

Eye Tracking in 5G Era

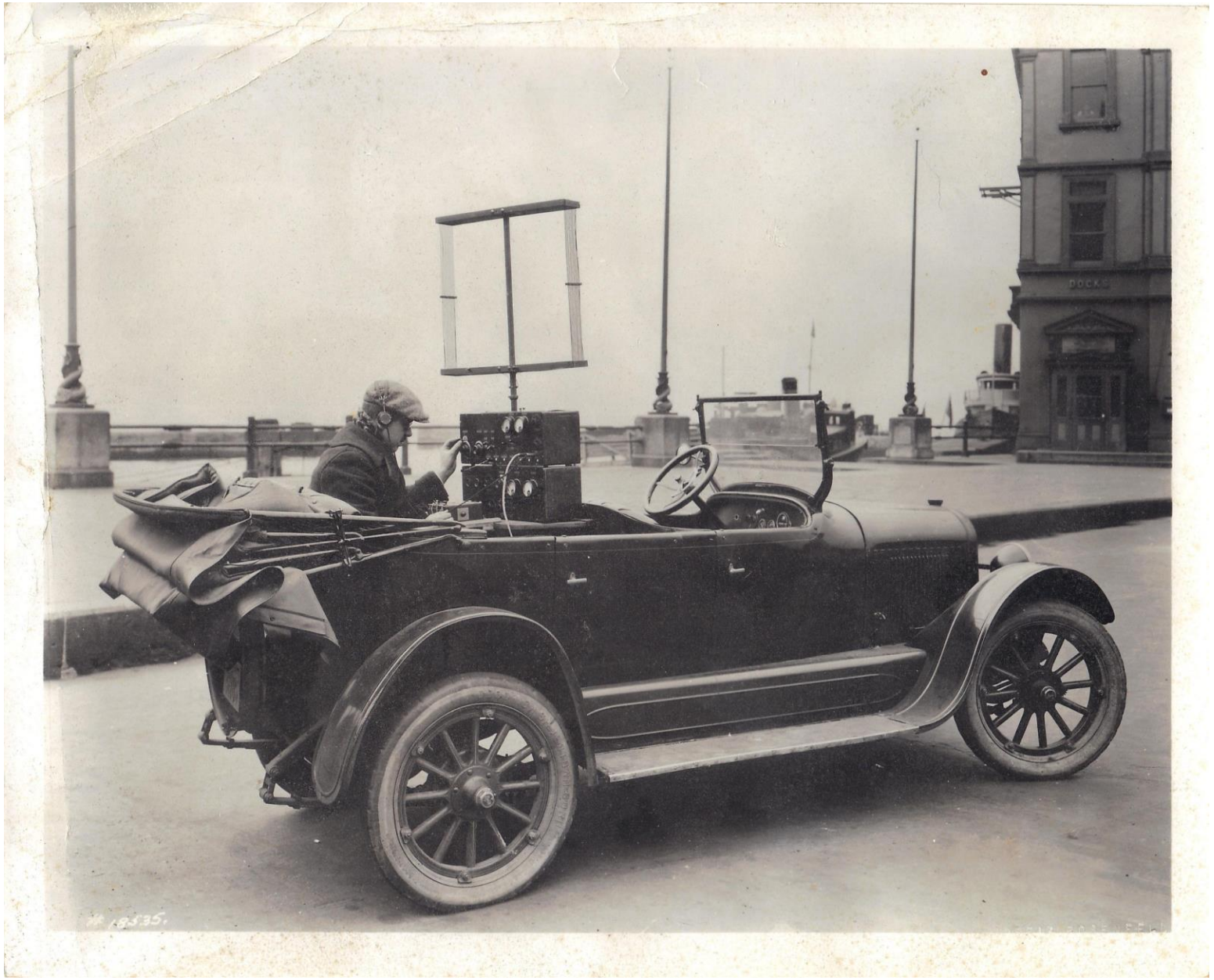
Pravin Kumar Rana and Gérald Bianchi

17 September 2019



Source: Googling

Smart mobile phone (2019)



Source: Googling

Bell Lab Two-way Radio Mobile Telephone (1924)

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Source: Googling

Evolution of Technology and Wireless Telecommunication Standards

Evolution of Technology and Wireless Telecommunication Standards

0G

1946

1G

1979

Source: Ericsson

Evolution of Technology and Wireless Telecommunication Standards

0G
1946

1G
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2G
1991

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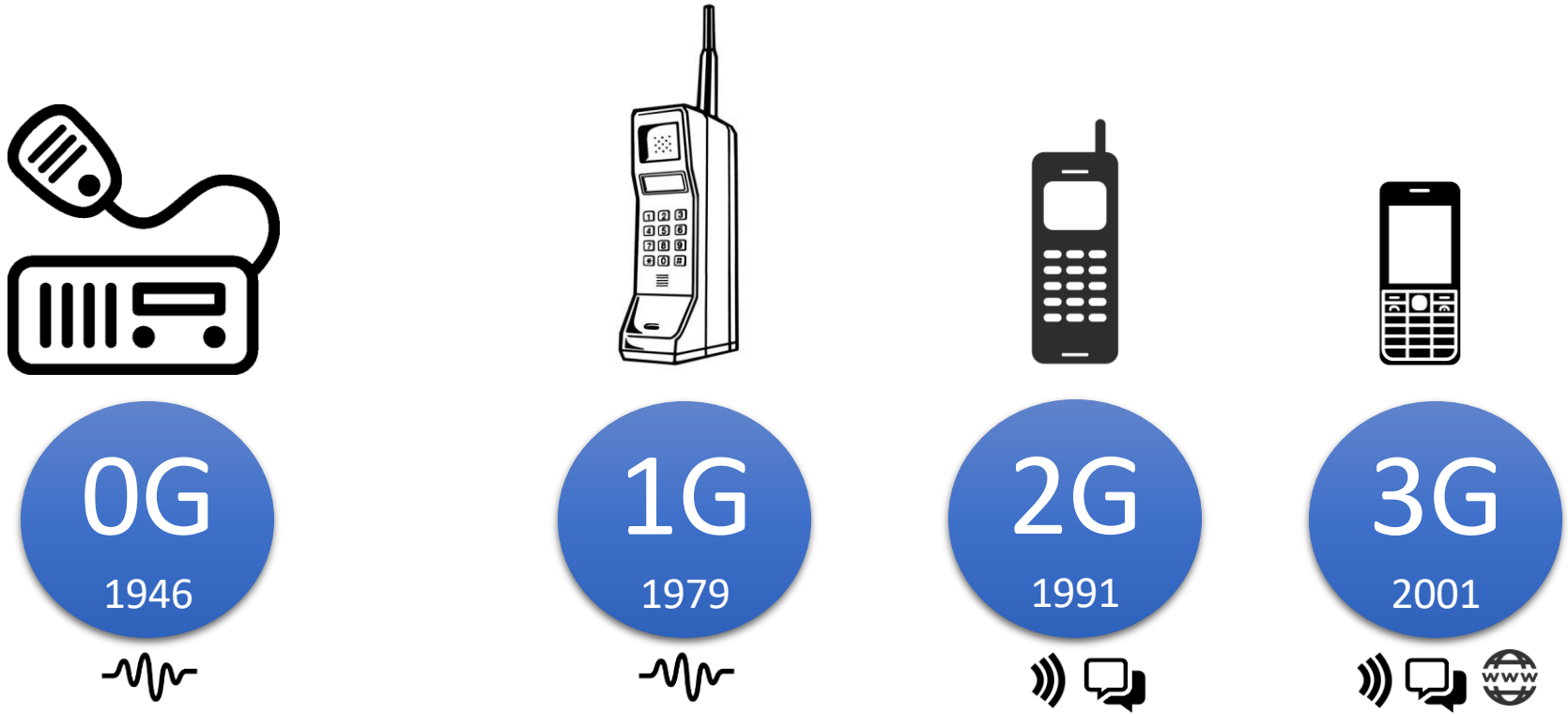
Evolution of Technology and Wireless Telecommunication Standards



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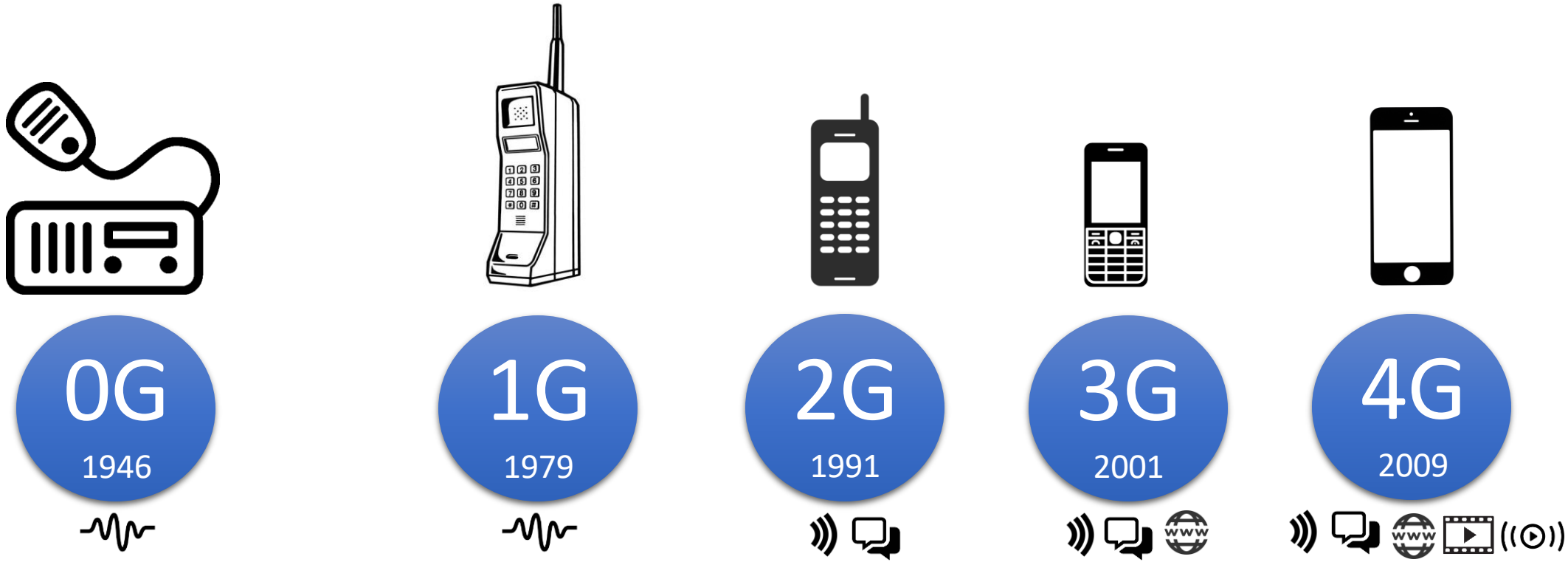
Evolution of Technology and Wireless Telecommunication Standards



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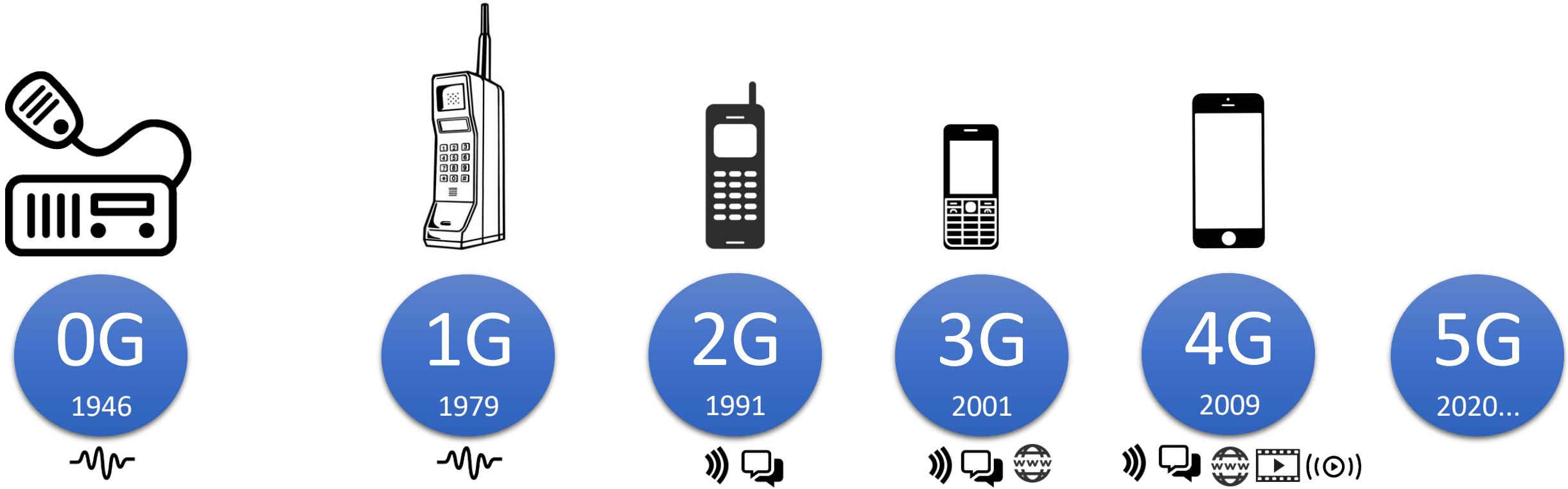

Source: Ericsson

What is 5G?

It is next generation wireless telecommunication technology standards

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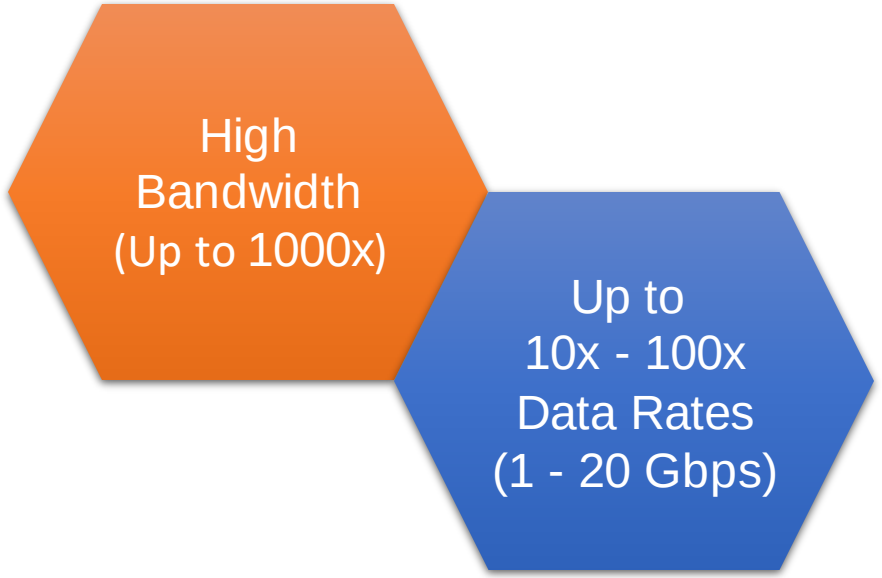

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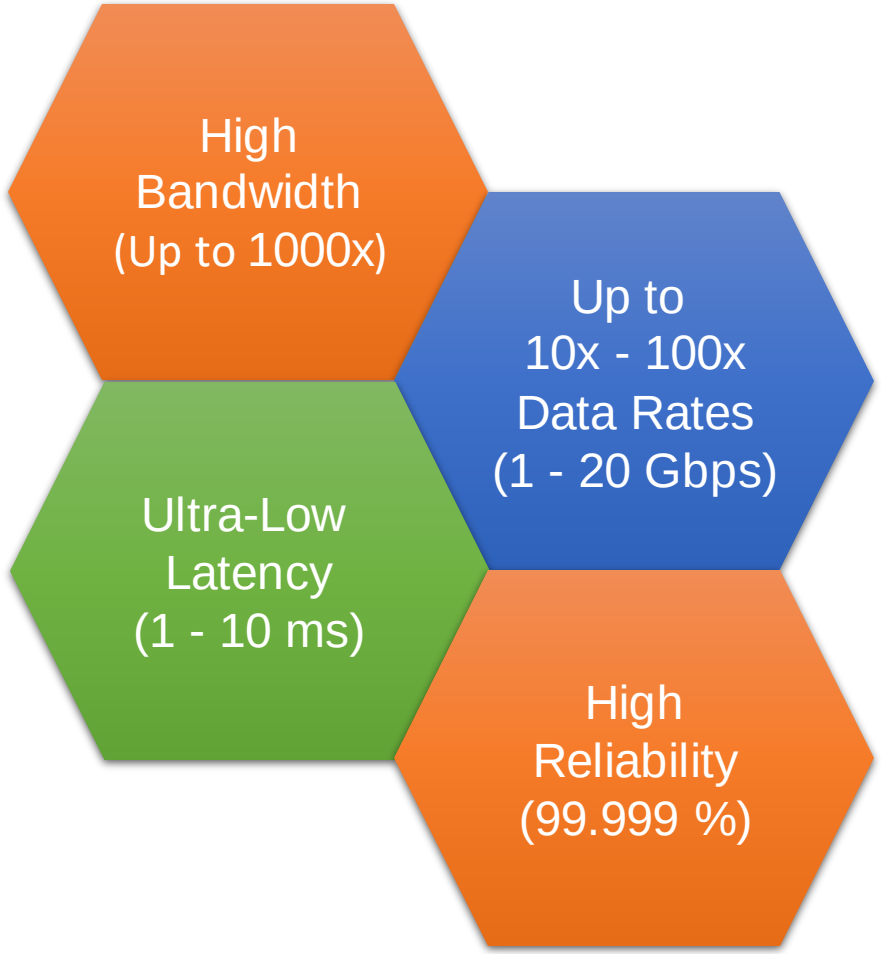

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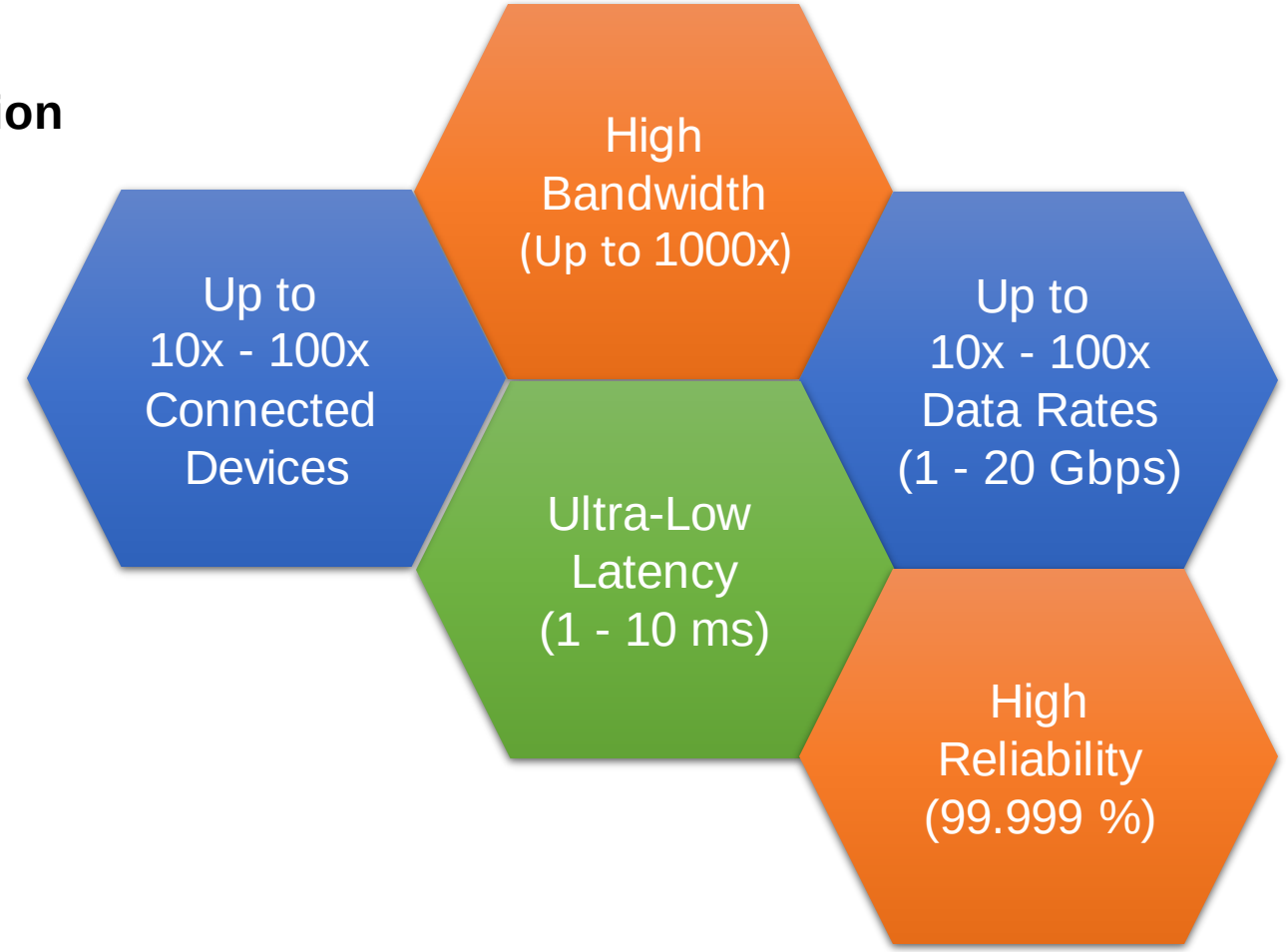

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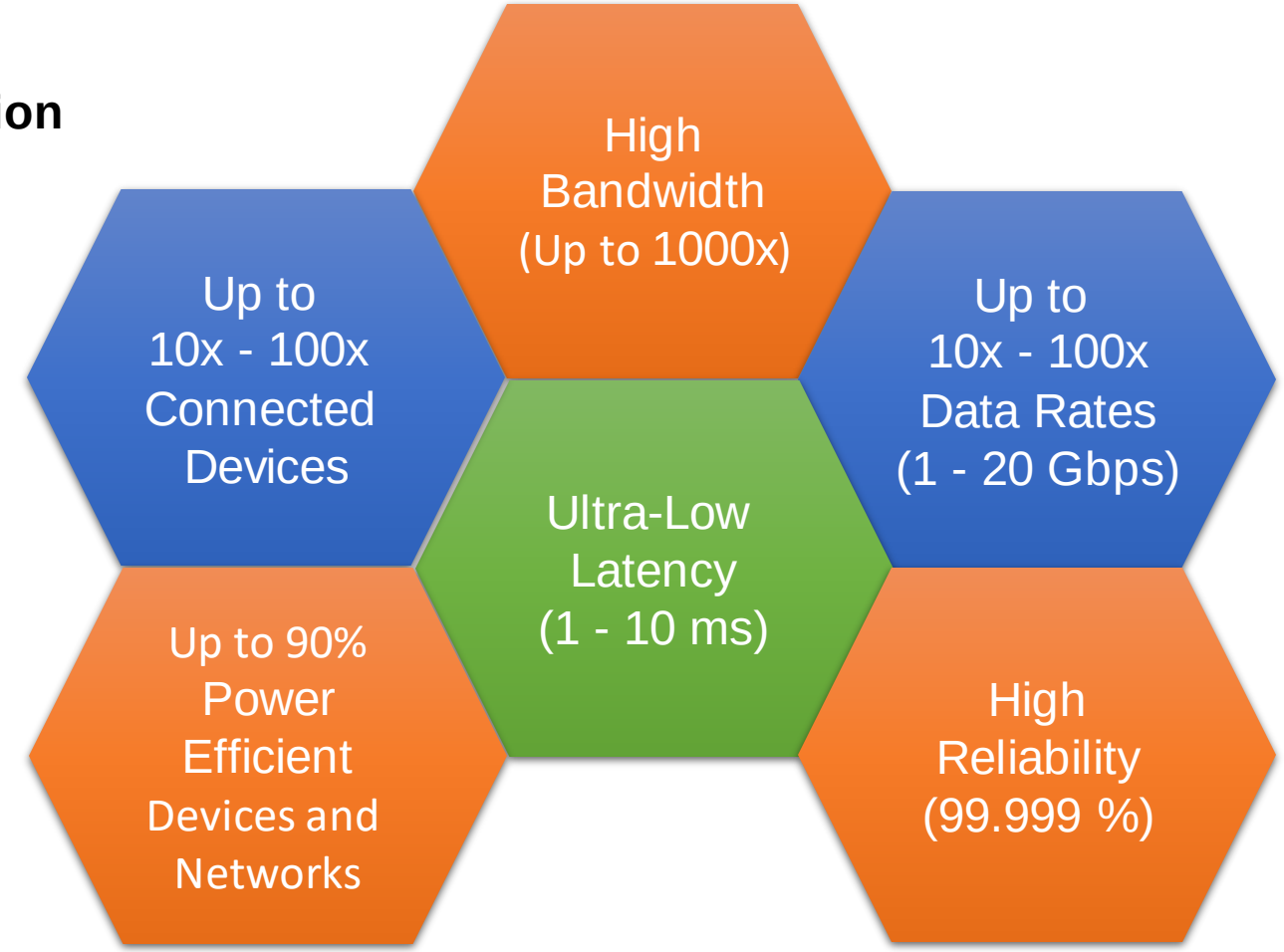

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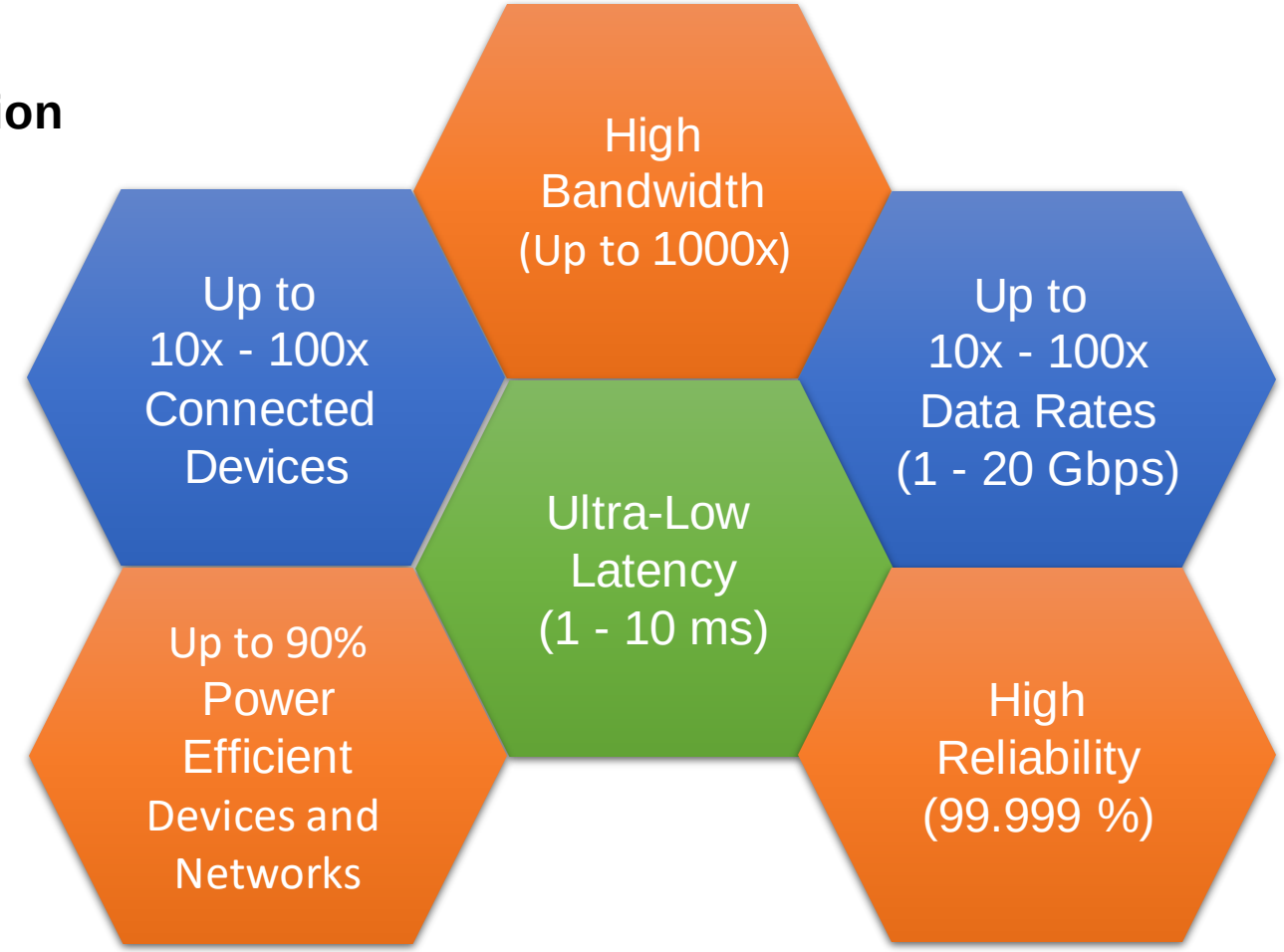


ERICSSON

> **With 5G, we are creating the biggest innovation platform ever.**

Source: Ericsson

Quotes

QUALCOMM

"AR and VR: The First Wave of 5G Killer Apps"

WIRED

"Why Doctors and Gamers Are Equally Excited for 5G's Launch"

PCWorld

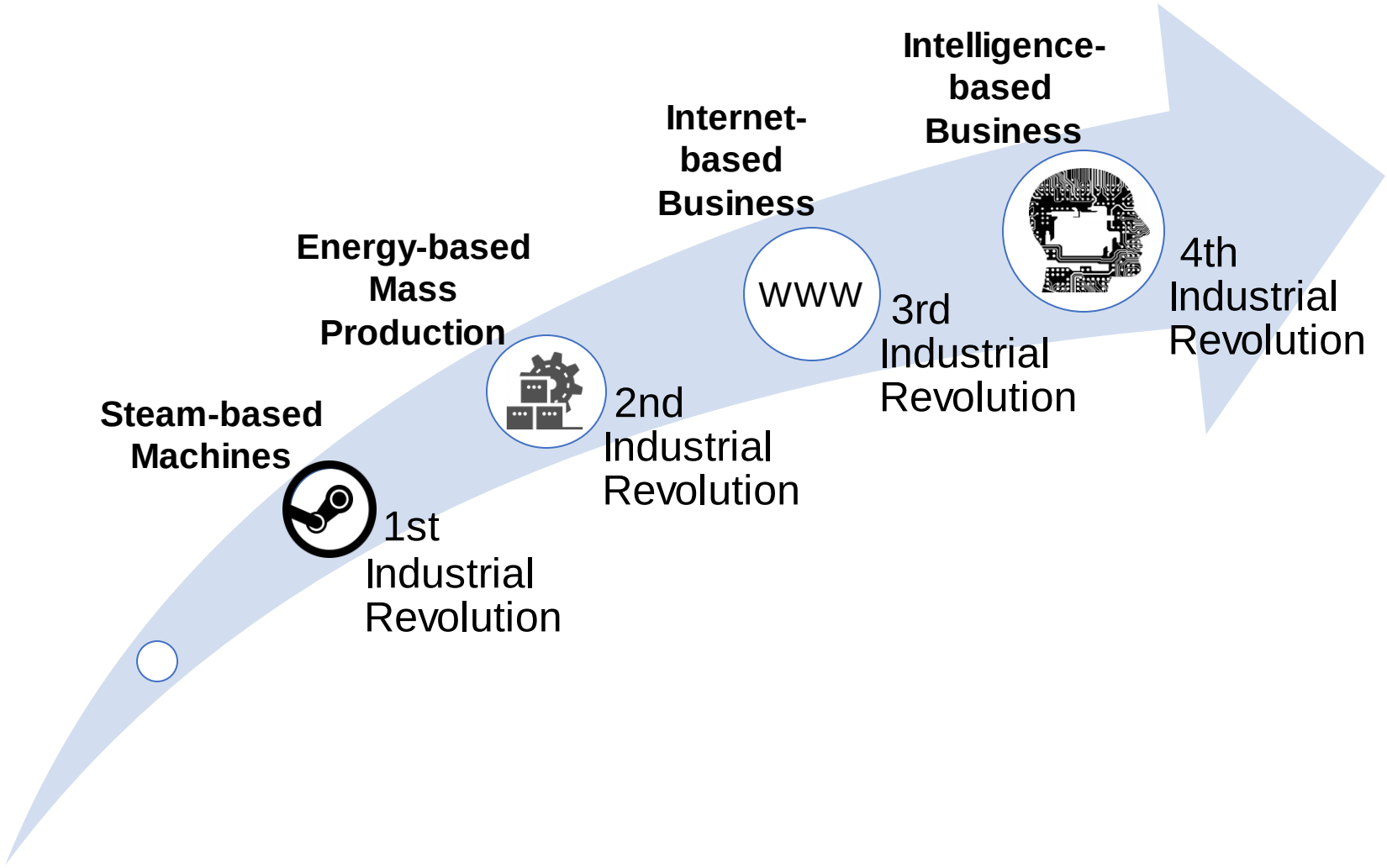
"I played Shadow of the Tomb Raider over 5G, and it didn't suck"

MOBILE WORLD LIVE

"5G will transform key industries such as autonomous vehicles, aviation, and healthcare"

"By removing complex and expensive elements from devices, their form factors can be transformed completely, with the only limits being the imagination of designers"

The 4th Industrial Revolution



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Motivations - 5G Driven Technology

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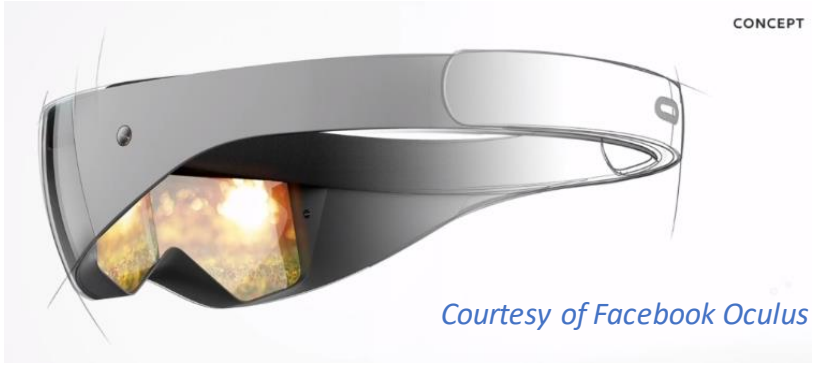

Courtesy of Facebook Oculus

Small and light form factors

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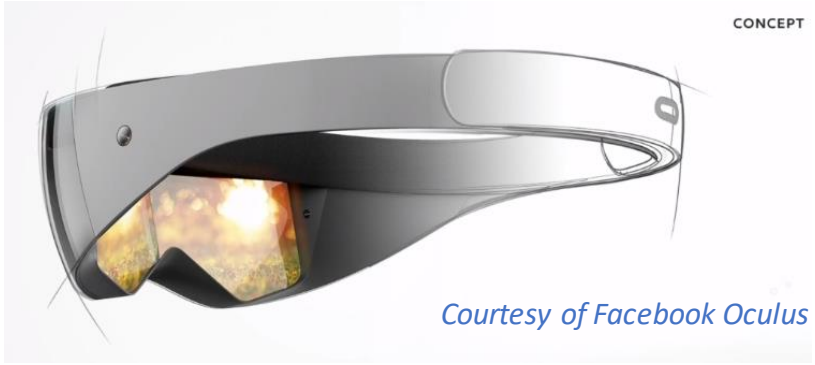

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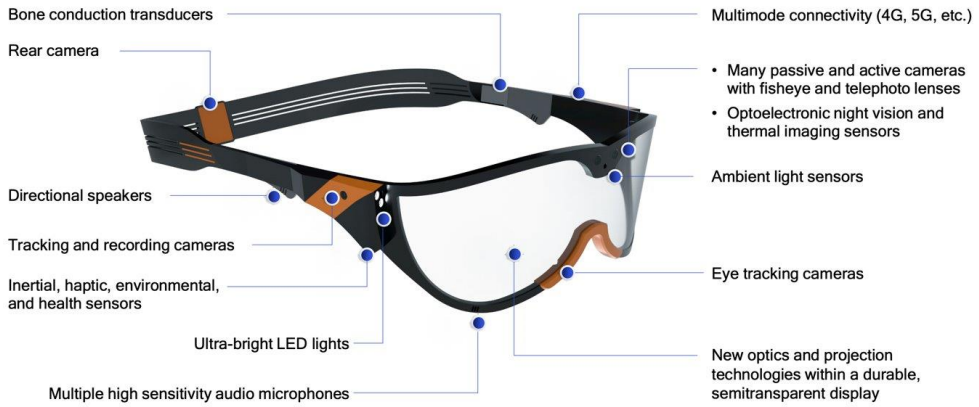
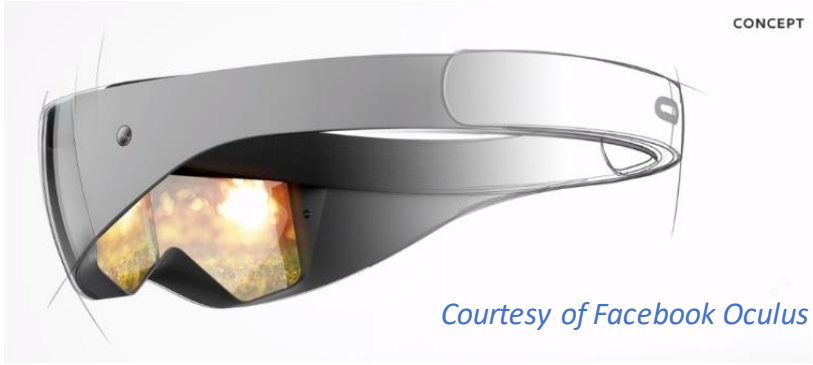


Courtesy of Qualcomm

Multiple sensors

Motivations - 5G Driven Technology



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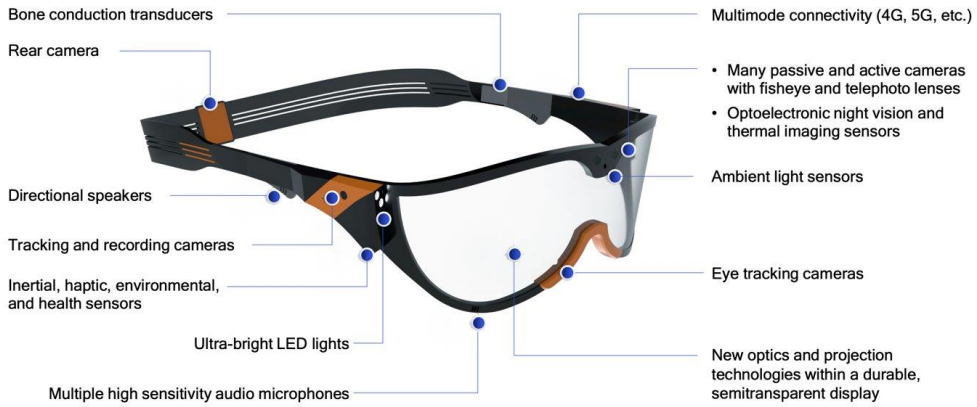


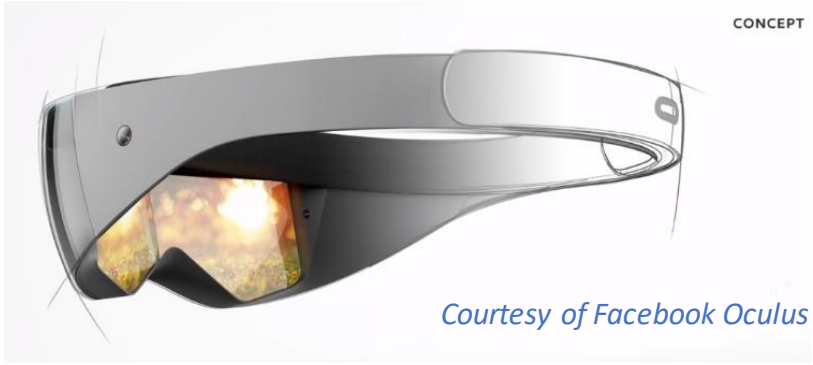
Courtesy of Qualcomm

Multiple sensors

Courtesy of Mercedes-Benz

Energy efficiency

Motivations - 5G Driven Technology



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Small and light form factors

Low price point

Courtesy of Qualcomm

Multiple sensors

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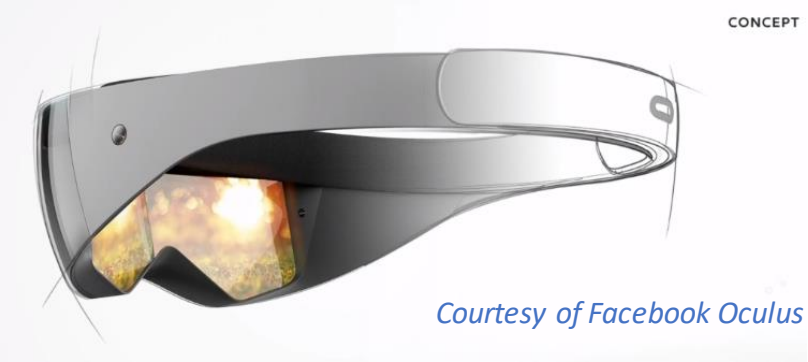

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ENABLED BY 5G

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Energy efficiency

What 5G Can Bring to Eye Tracking

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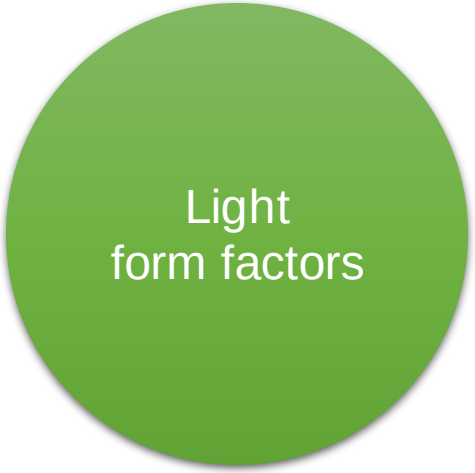

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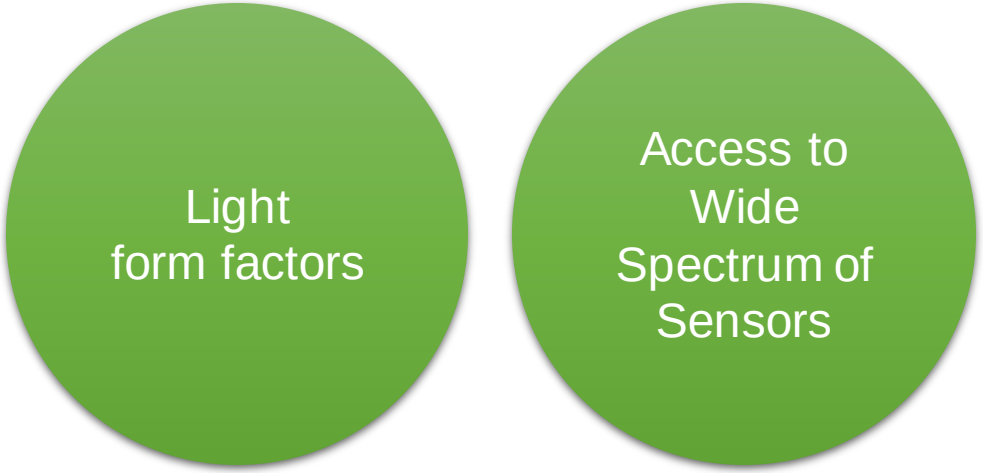

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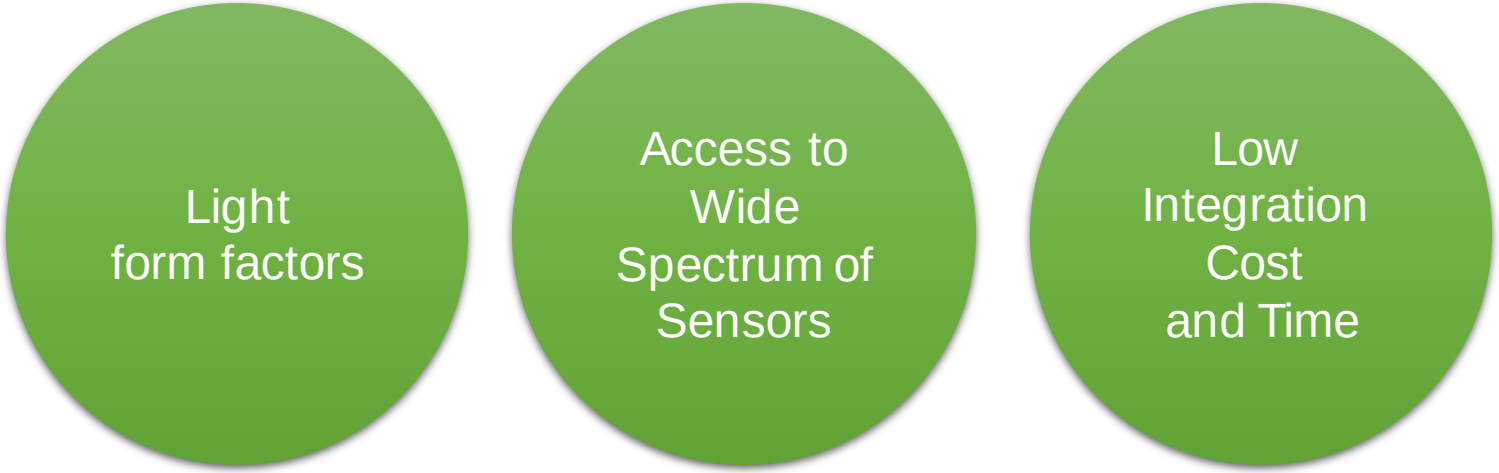

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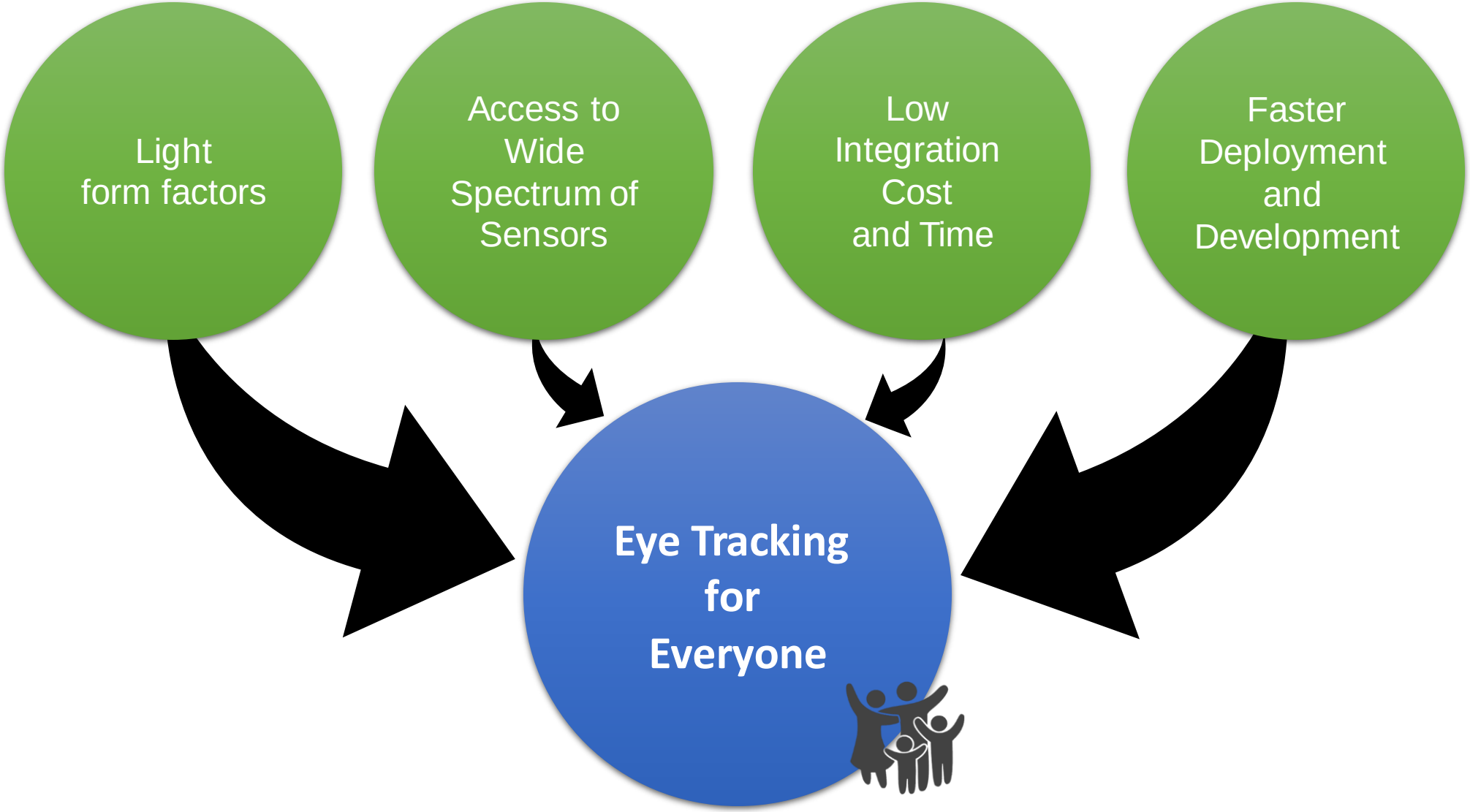

5G Eye Tracking Ecosystem

Sensors







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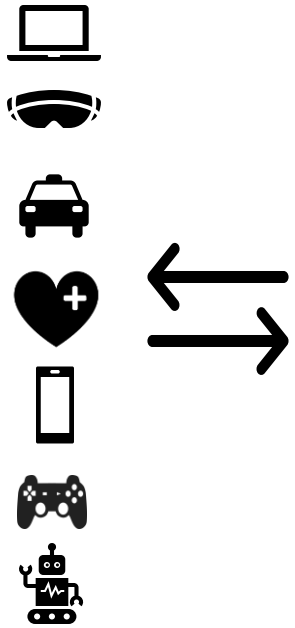
Sensors



Universal Eye Tracking Standards (UETS)

- Interface and specifications to facilitate eye tracking across different sensors

5G Eye Tracking Ecosystem

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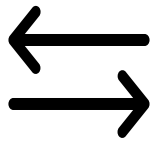

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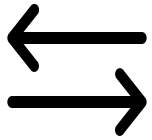
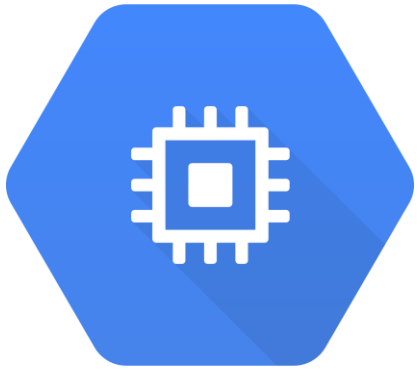


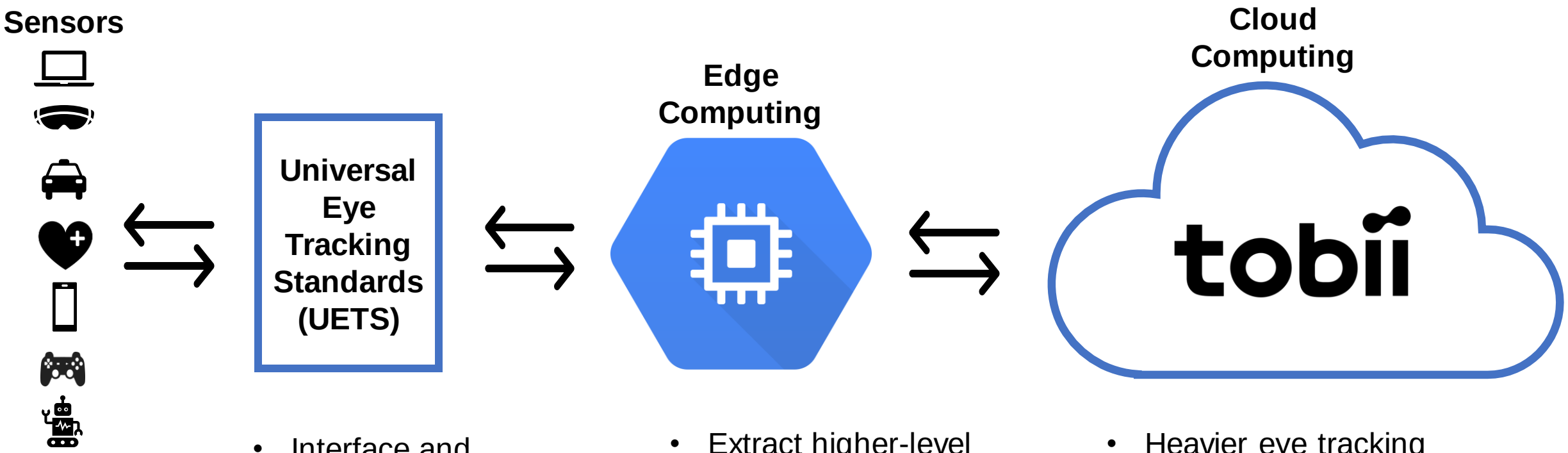
Edge Computing



- Interface and specifications to facilitate eye tracking across different sensors

- Extract higher-level representation of eye features
- Identify sensing system

5G Eye Tracking Ecosystem



- Interface and specifications to facilitate eye tracking across different sensors

- Extract higher-level representation of eye features
- Identify sensing system

- Heavier eye tracking algorithms
- Act as interface to services, such as AWARE

Values ...

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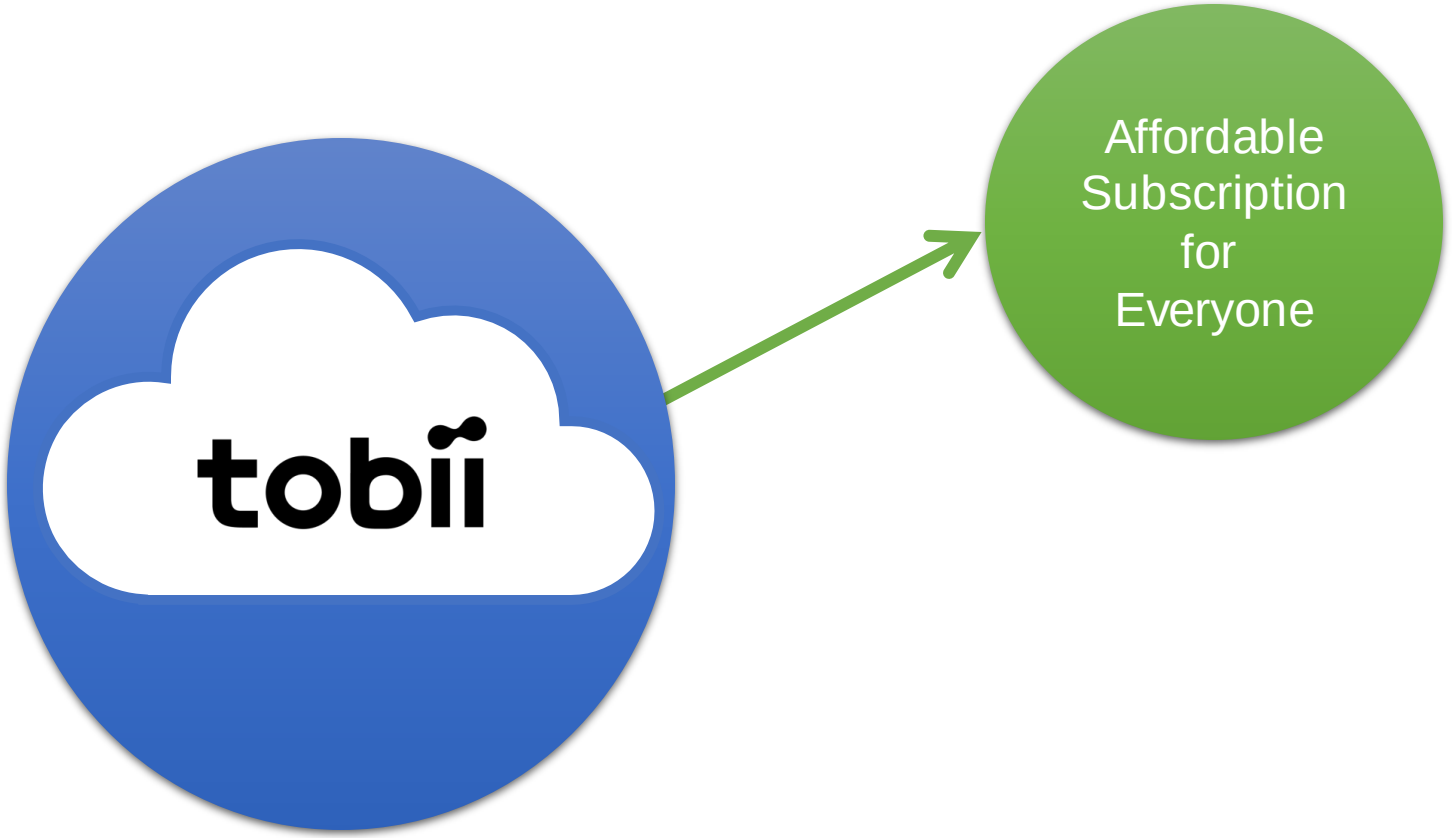

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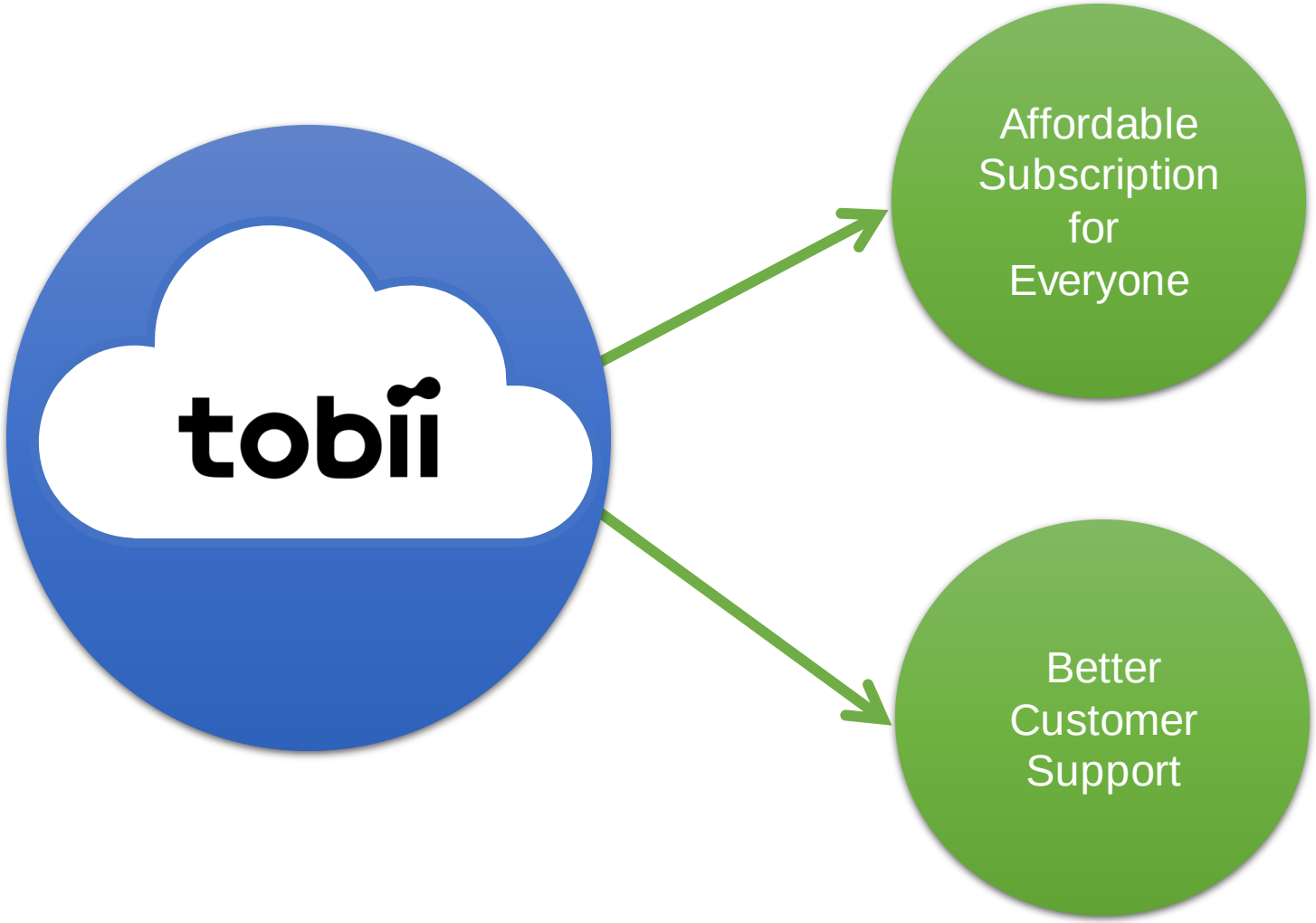
tobii
Affordable Subscription for Everyone
Better Customer Support

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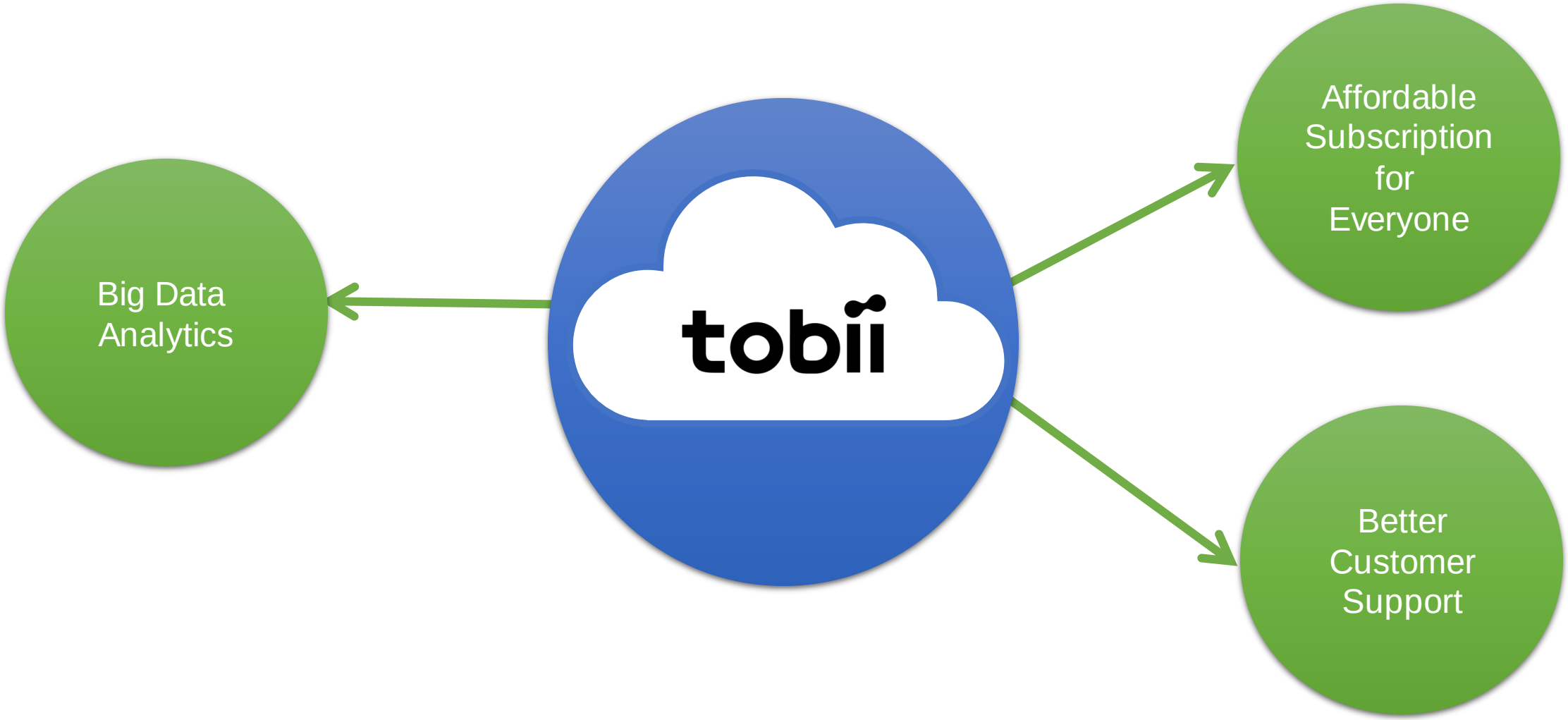
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tobii
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Challenges

To design a 5G eye tracking ecosystem

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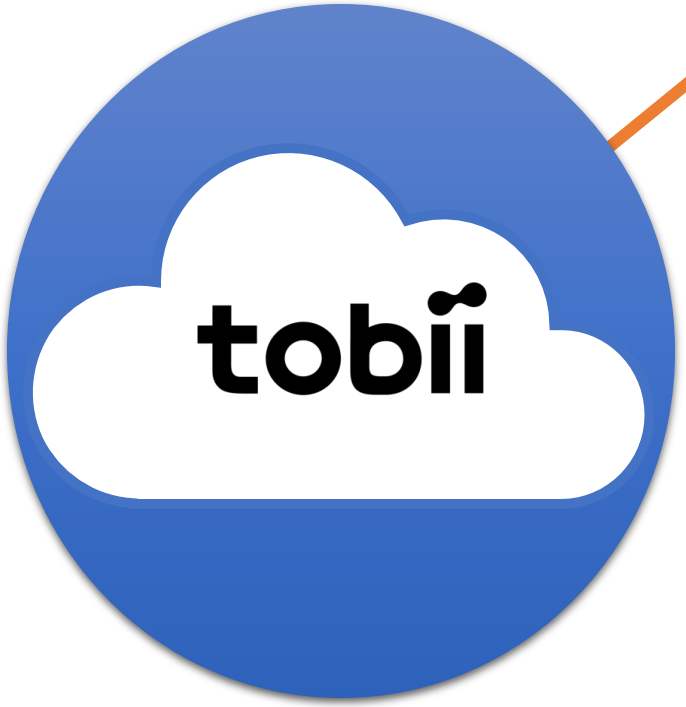
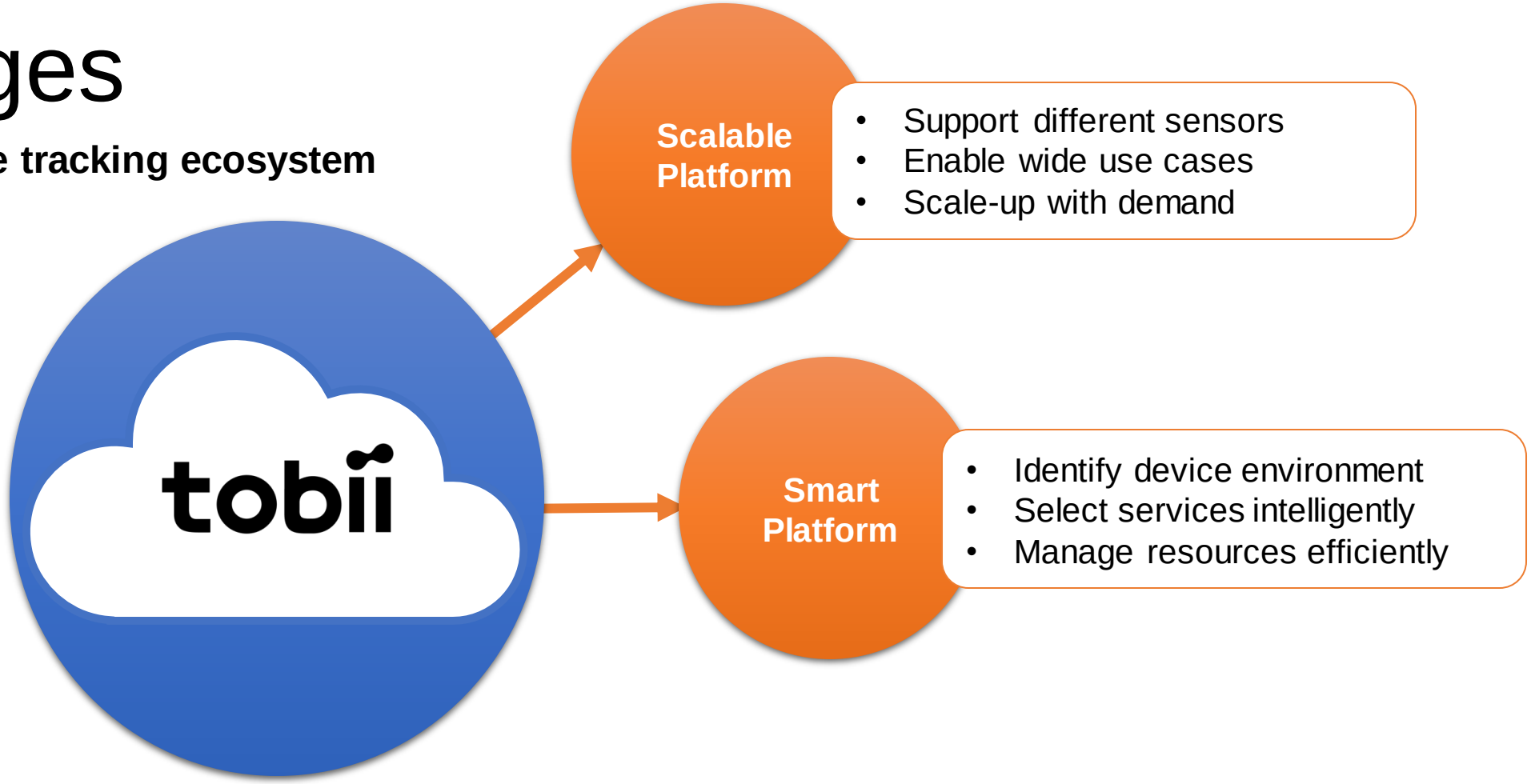


Scalable Platform

- Support different sensors
- Enable wide use cases
- Scale-up with demand

Challenges

To design a 5G eye tracking ecosystem



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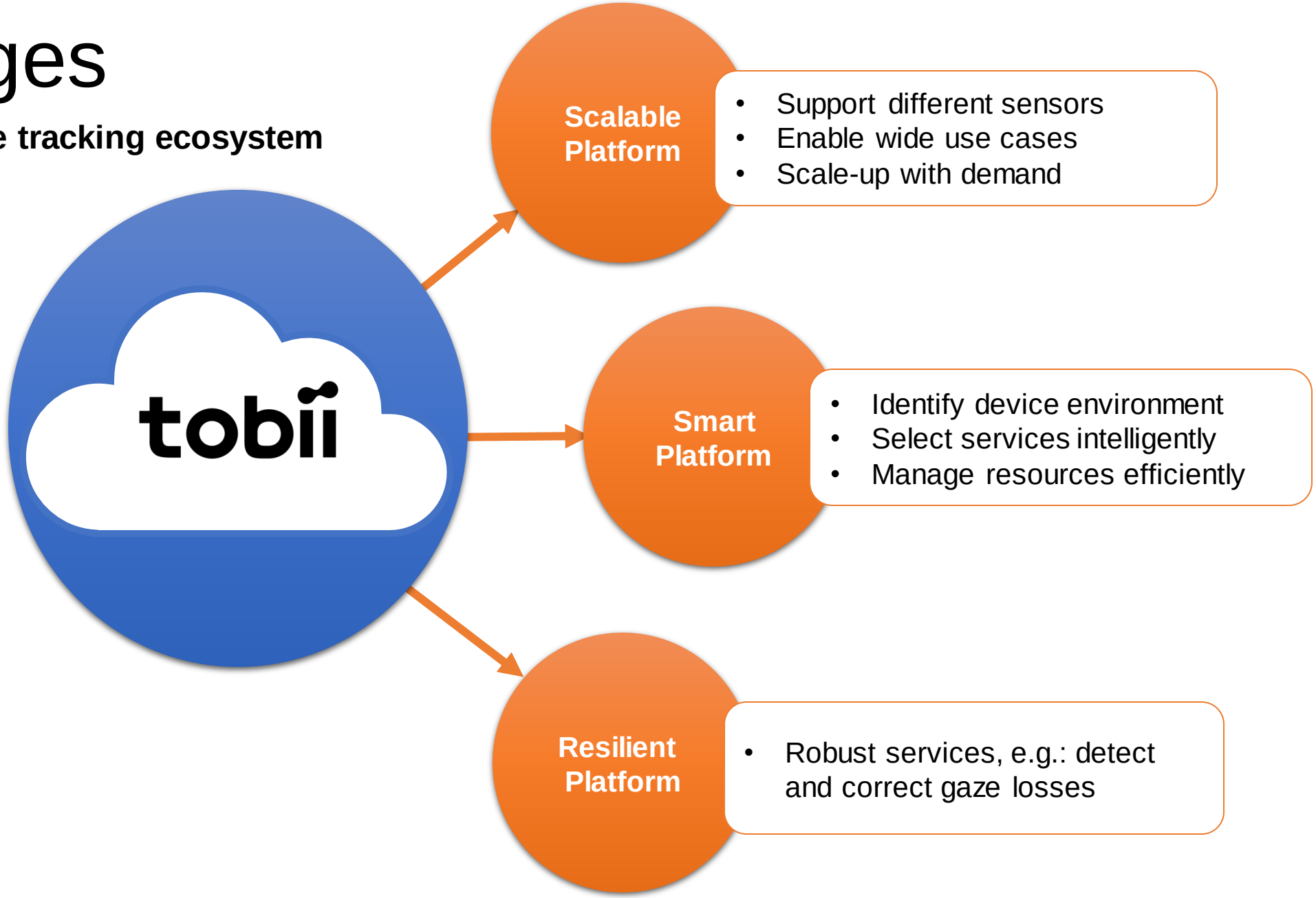

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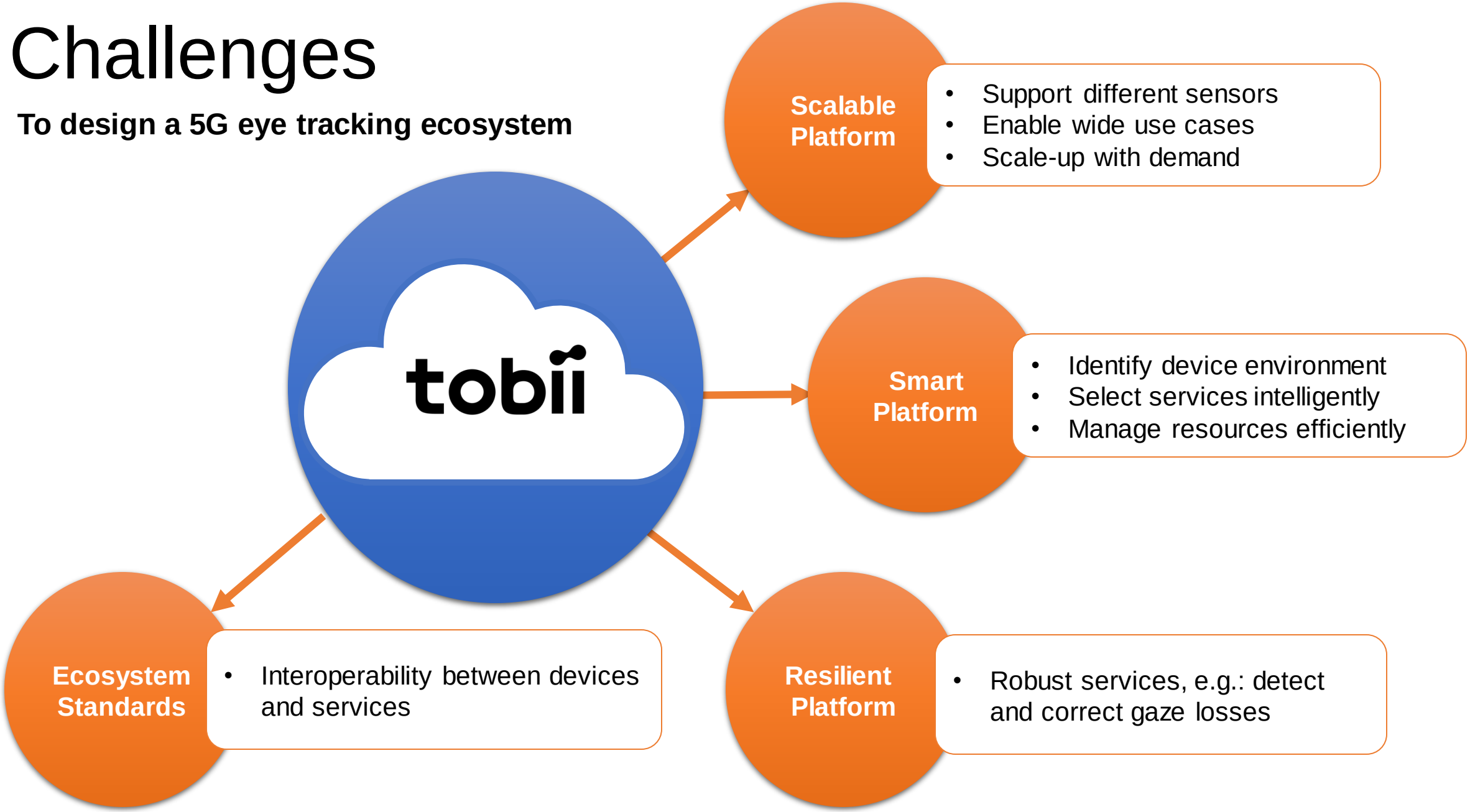

Let's keep an eye on the future of eye tracking with 5G

Thank you for listening