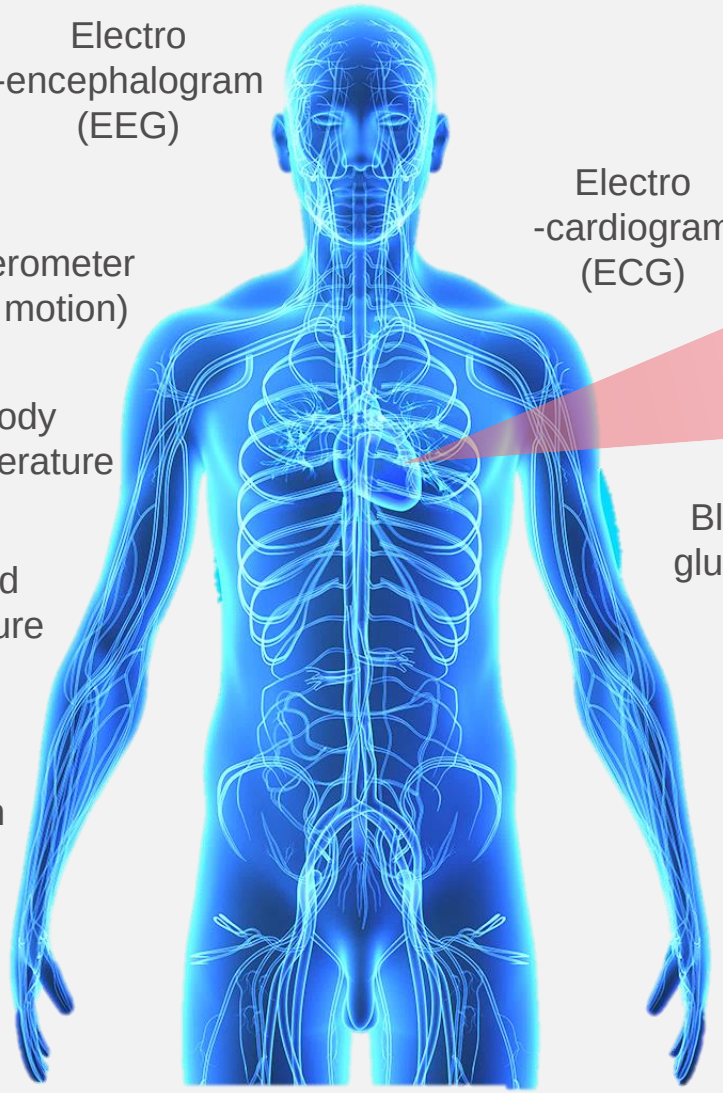
Real E-Skin

Junmin Suh, Ne Myo Han, Jihoon Kang
Massachusetts Institute of Technology

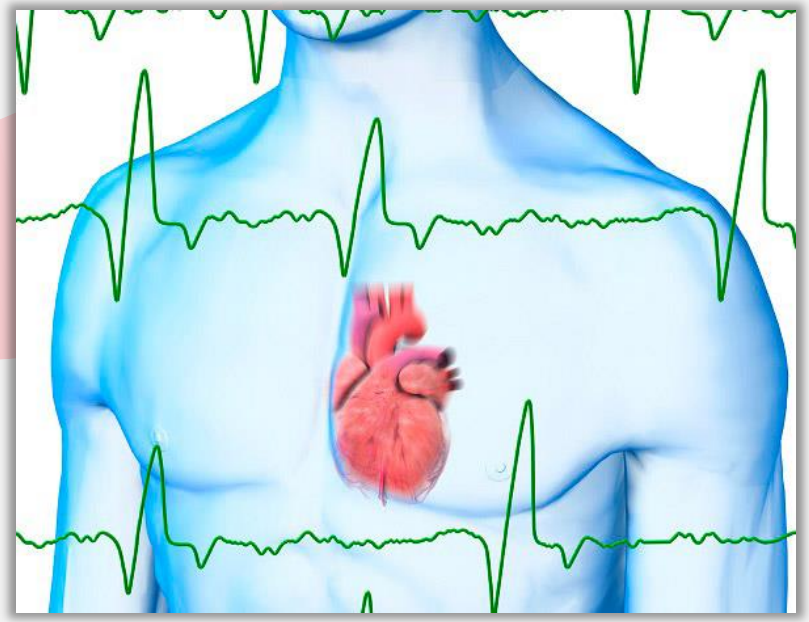
IDEA²

Target

People with need for continuous health monitoring



Cardiac dysrhythmia

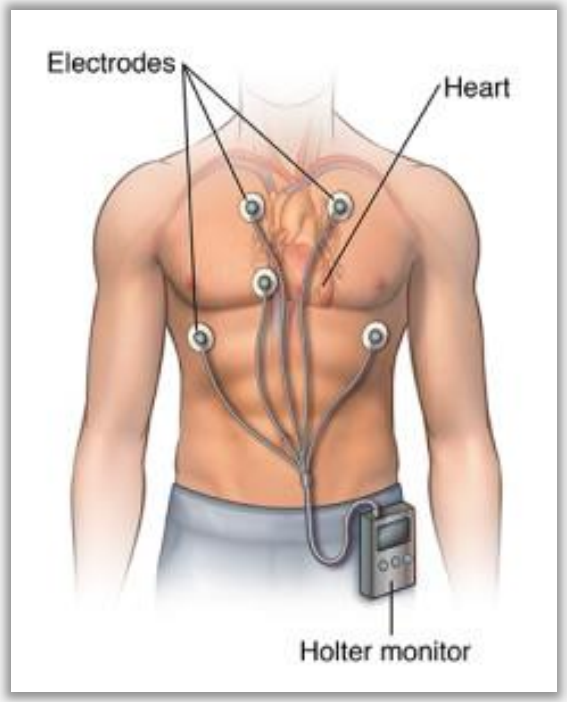


Irregular heartbeat → **Fluttering in the chest**
Chest pain
Fainting
Dizziness

Image: Jacopo Cocchini @pngitem, Health Chosun

Limits in current approaches

Bulky measurement and restricted movement



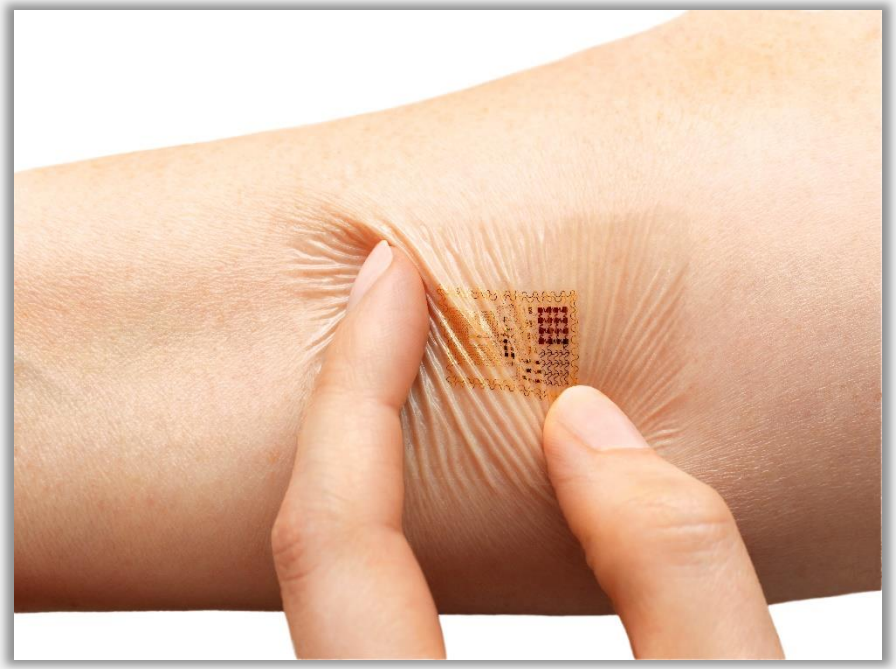
Holter monitor
(24 hours monitoring)

Smartwatch
(bulky and side effects)

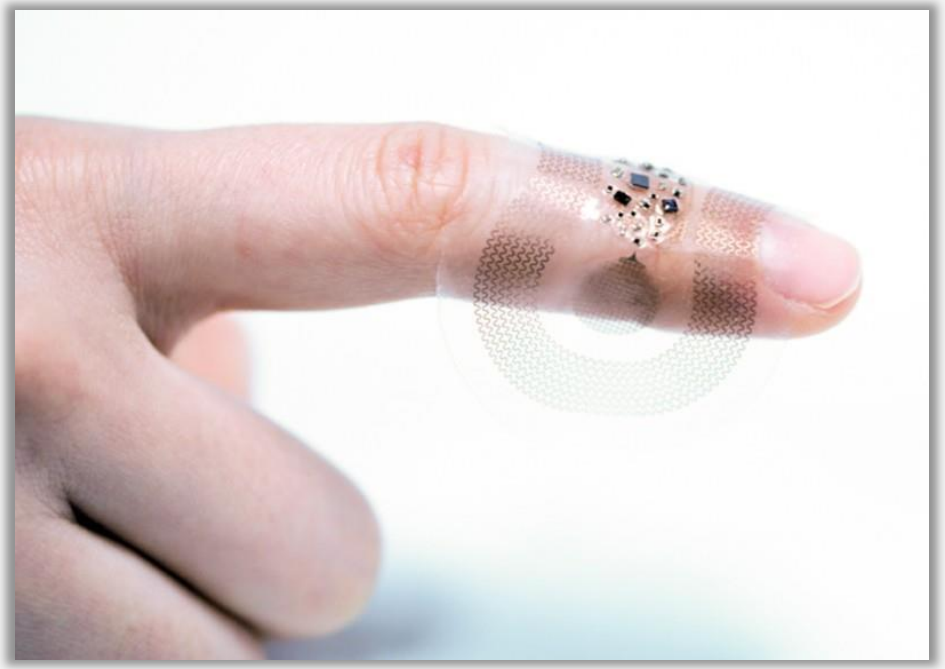
Image: FernandoCaseiro @ Apple Community, Scott Anfield @ Superwatches.com , Marian Cadiac Centre & Research Foundation webpage, Indiamart webpage

Limits in current approaches

Electronic skin (e-skin) but…



The MC10 Biostamp



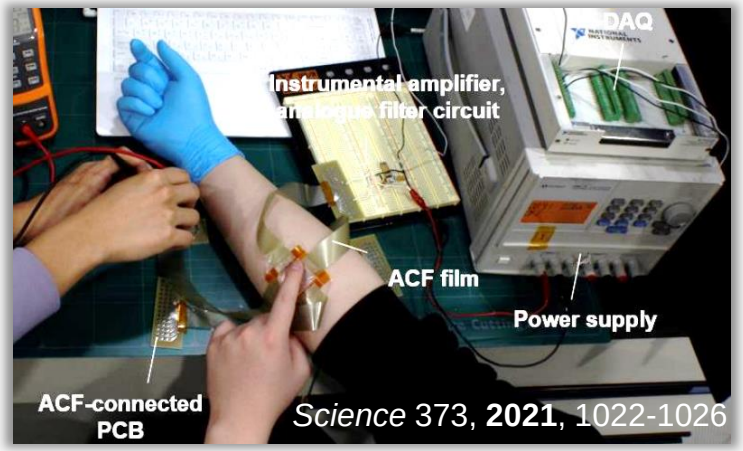
Northwestern University

Flexible, conformal e-skin developed, but…

One root and key cause

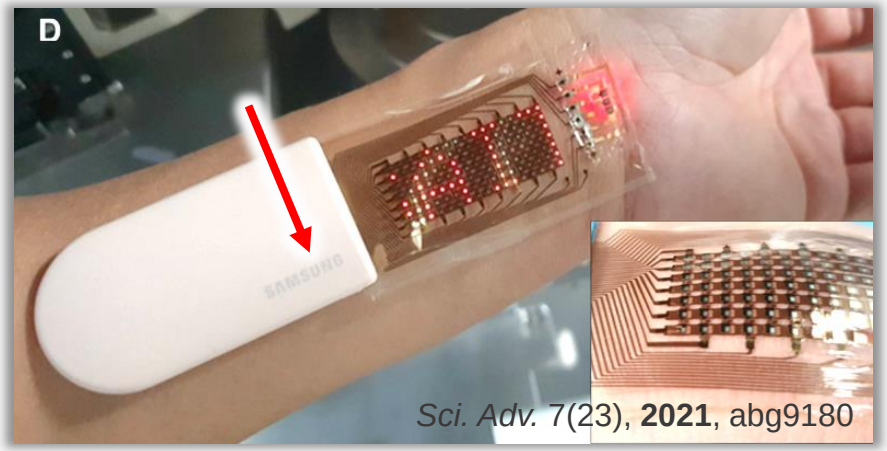
Inevitable wireless communication chips and batteries

Complex wiring for measurement



Science 373, **2021**, 1022-1026

Bulky battery for operation

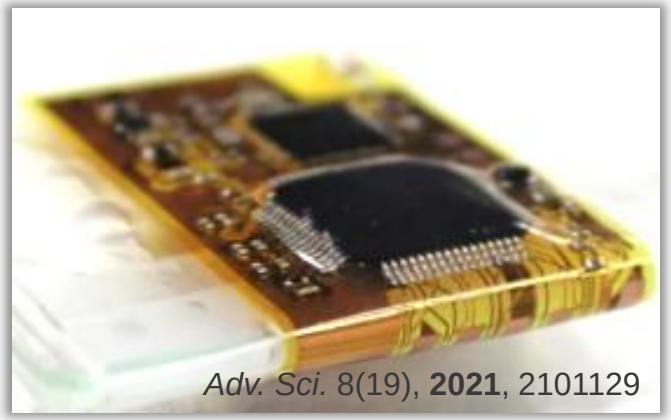


Sci. Adv. 7(23), **2021**, abg9180

Non-breathable platform

Adv. Sci. 7(15), **2020**, 200081

Limited flexibility



Adv. Sci. 8(19), **2021**, 2101129

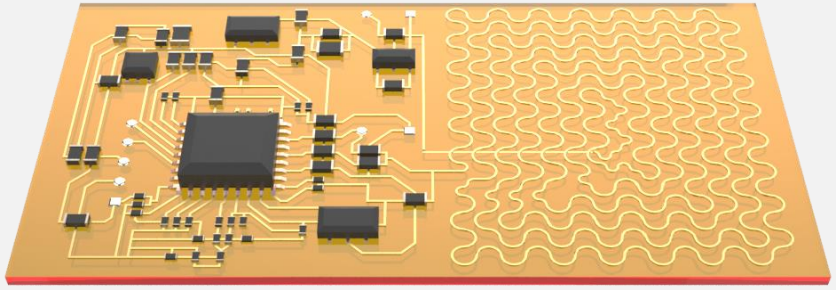
Limited functionalities

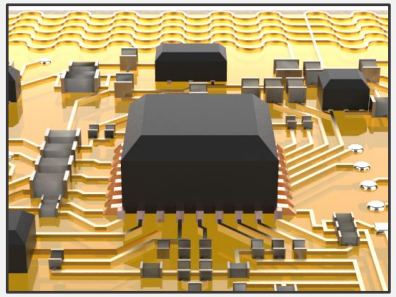
Nat. Electron. 2, **2019**, 361-368

Our Goal

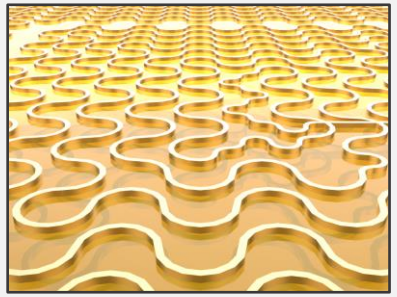
Wire-less, battery-less, chip-less e-skin = Real E-Skin

Conventional chip-based e-skin



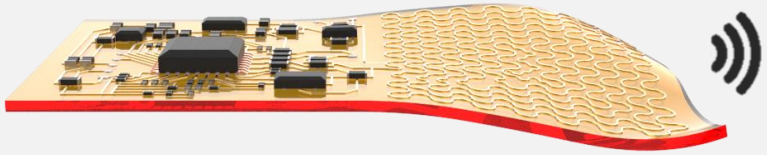


NFC/RFID chips



Antenna

Rigid chips

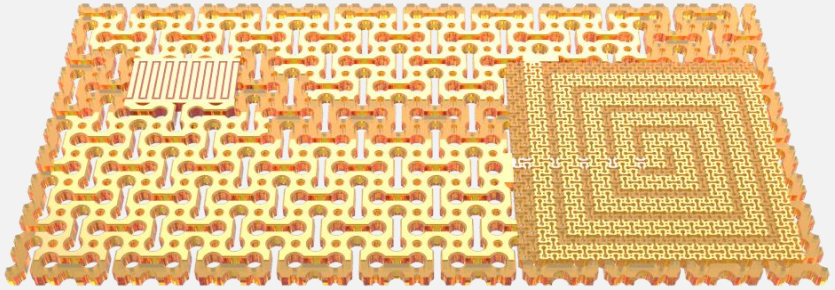


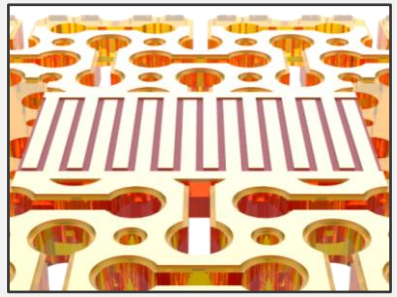
Non-stretchable

Stretchable

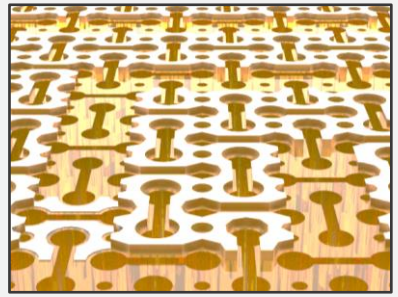
→ Low conformability and breathability

Our Real E-Skin

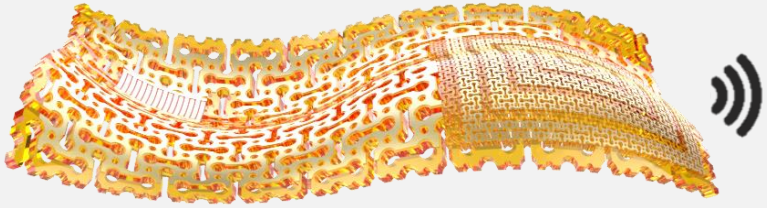




Sensor



Antenna

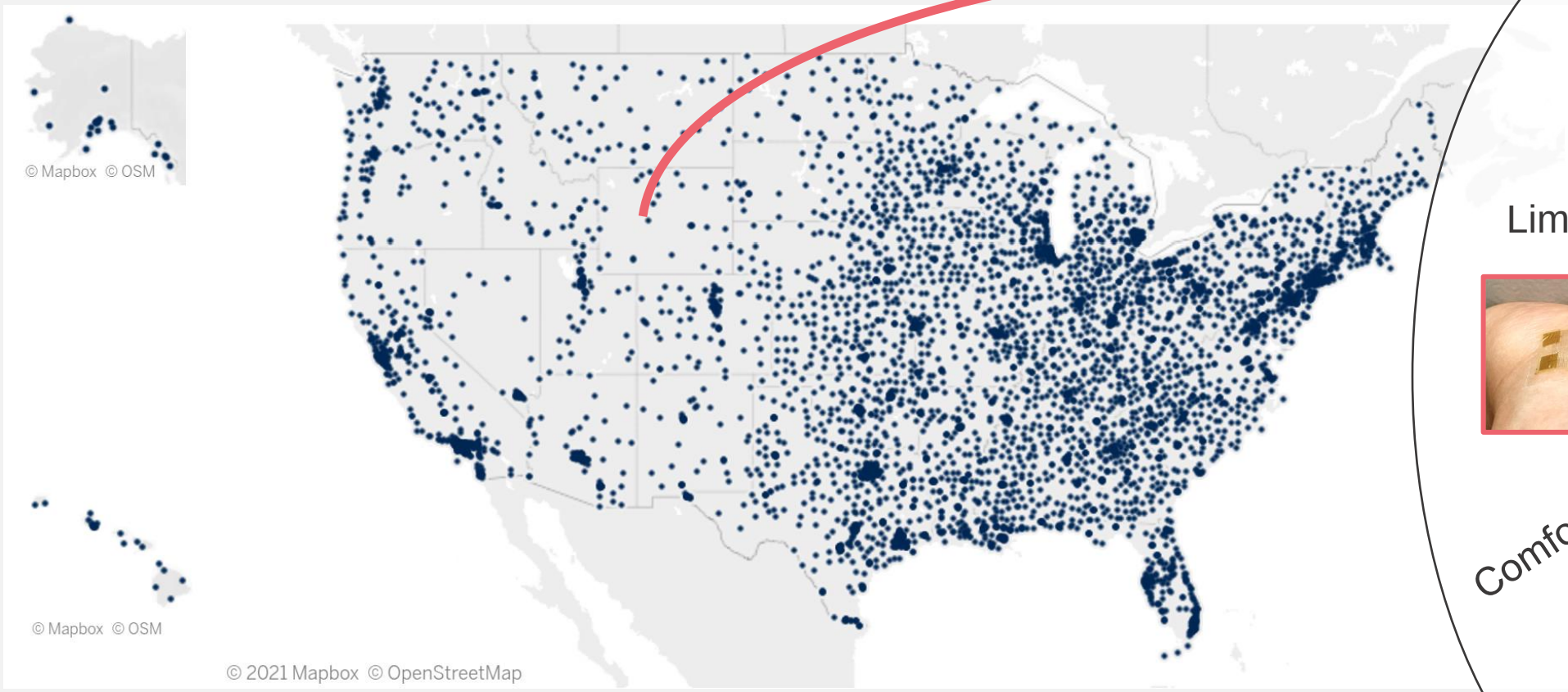


Highly stretchable and deformable

→ Good conformability and breathability

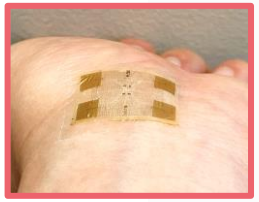
Which if solved

A new everyday health monitoring solution for general population



Map of Community Hospitals in the US
2019 AHA Annual Survey Database

Limited medical access



+ Real E-Skin

Comfortable!

Imperception!

Yeah !

Thank you

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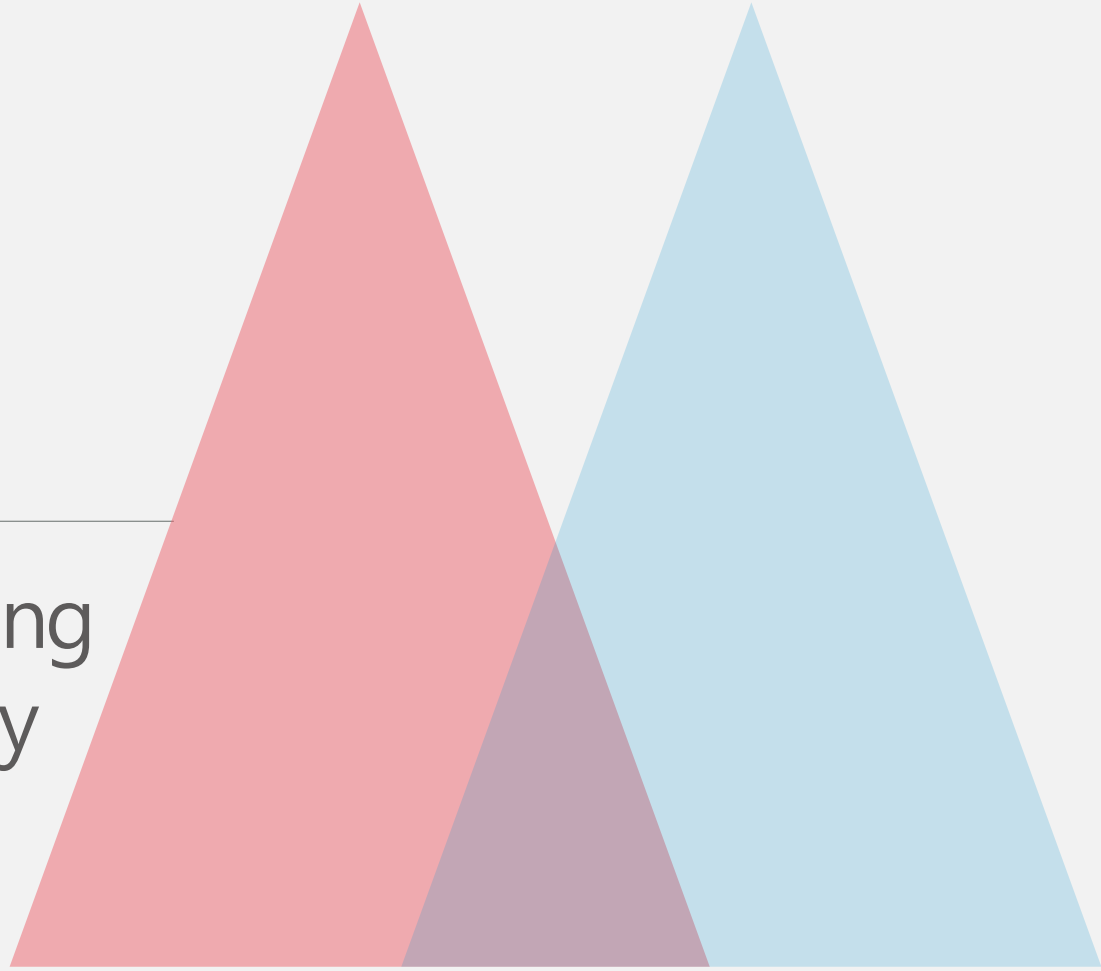

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