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Global High-Tech Trends in “Silver Economy” Environment

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Silver World and Silver Economy: General Trends and Information



Silent global demographic and social revolutions:

- Global population growth rate fell behind 1% in 2020 from 2.28% peak in 1963. Current growth will be driven more by longevity
- Getting gray: rise of 50+ cohort in the structure of population in developed and emerging economies. More than 760 mio of 65+ seniors globally now and <1.5 billion in 2050 (UN, 2023)
- Global urban population overtook rural in 2006
- New Consumer class (\$12-20 per day) +130-150 mio every year, mostly in Emerging Asia (~40% of Asian population)

Strong economic impact:

- “Silver economy” <\$15 trillion in the beginning of 2020s, with USA and EU on top (<2/3 of global)
- Actual expenditures of seniors up to \$8 trillion with developed nations on top, strong rise of Asia

Silver High Tech: Digital in Focus



Estimates of “silver technologies” market (all solutions): ~\$1 trillion

New-old areas of innovation and technology development: pharma/biotech; traditional assistive/mobility; prospective – functional food, bioprinting...

Digital revolution of 2010s – change in Silver Tech interpretation and fast differentiation of markets (even in definitions: AgeTech, GeronTech / GeronInnovation...)

AgeTech – mostly digital solutions and/or technical solutions with strong digital bias – for consumers, service providers and (in future) for authorities

Most established AgeTech areas: emerging assistant technology (especially mobility) and medical

Potentially most fast growing: everyday life / personal

Sources: Soar et al., 2020; Alexander von Humboldt Institute and Foundation for Internet and Society, 2021; Ruggiero and Fatigati, 2021; Zekri, 2020; European Commission, 2018; WIPO, 2021; Can, Mita, 2020; Moscow Innovation Agency, 2020; Sippli et al., 2021; European Commission, 2021...

AgeTech

EVERYDAY LIFE / PERSONAL

- **Home care** – Smart House, digital assistants, Homebots / Social Assistive Robots (SAR), specialized home appliances, etc.
- **Digital mobility services** – incl. online support, self-driving
- **Consumer** – digital finance services, fraud protection, shopping, etc,
- **Sport and Entertainment** – e-tourism, Silver Metaverses, wellness, assistive and sport tech
- **Communication and social ties** – communication platforms and services, digital assistants, online service, emotionbots

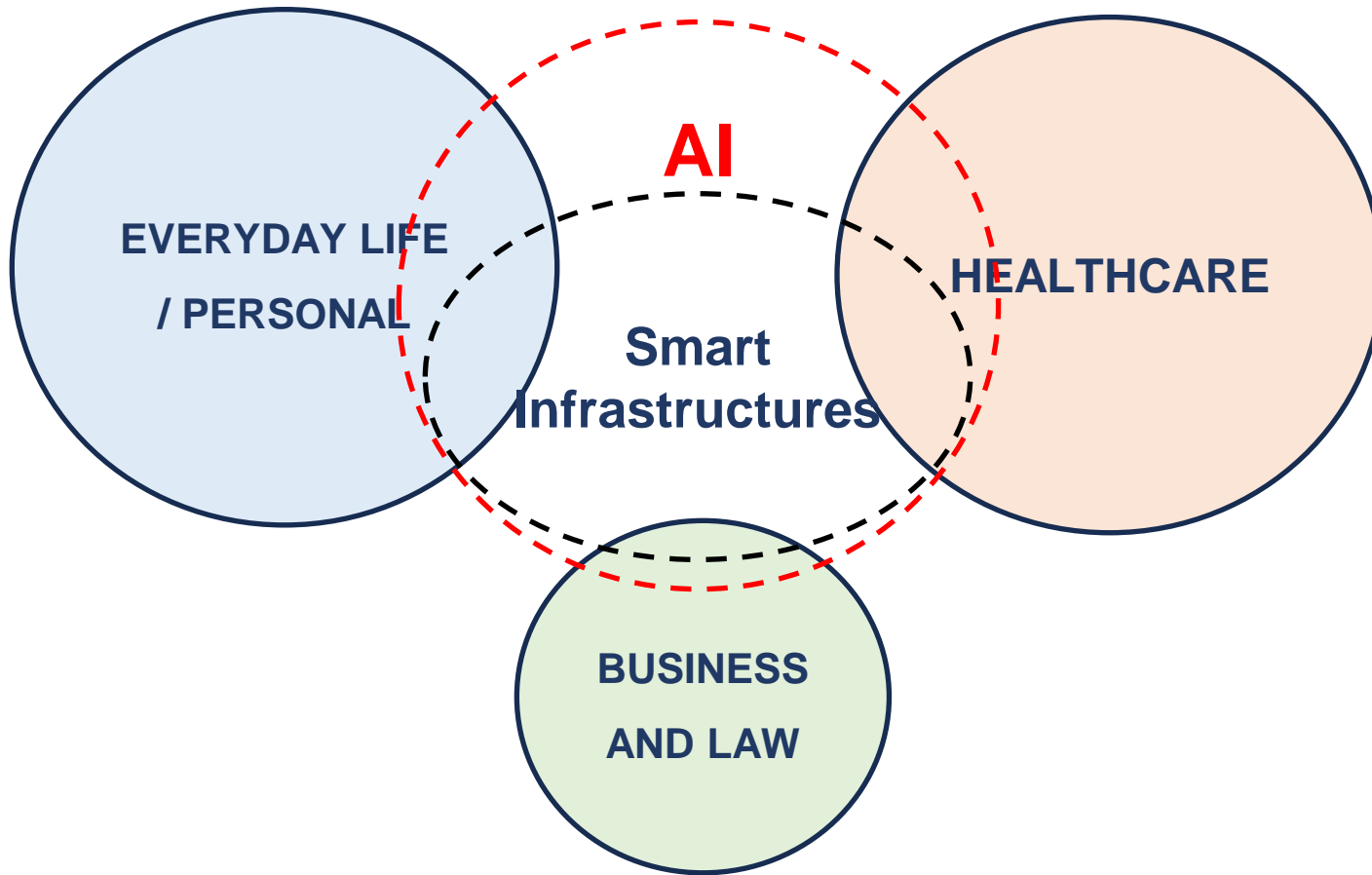
HEALTHCARE

- **Medical** – telemedicine and telemonitoring systems (also integrated in Smart House), distant support
- **Digital Assistive Technologies** – vision, hearing, enhanced mobility
- **Cognitive** - special education / retraining services, medical and sport devices and software

BUSINESS AND LAW

- **Sport and Entertainment**
- **Economic Activity** – special education / retraining services, olderpreneurship, digital finance, digital assistants
- **Supportive silver services** – digital law, finance / assets management

Generic Technologies for Silver Solutions: Predictably Smart



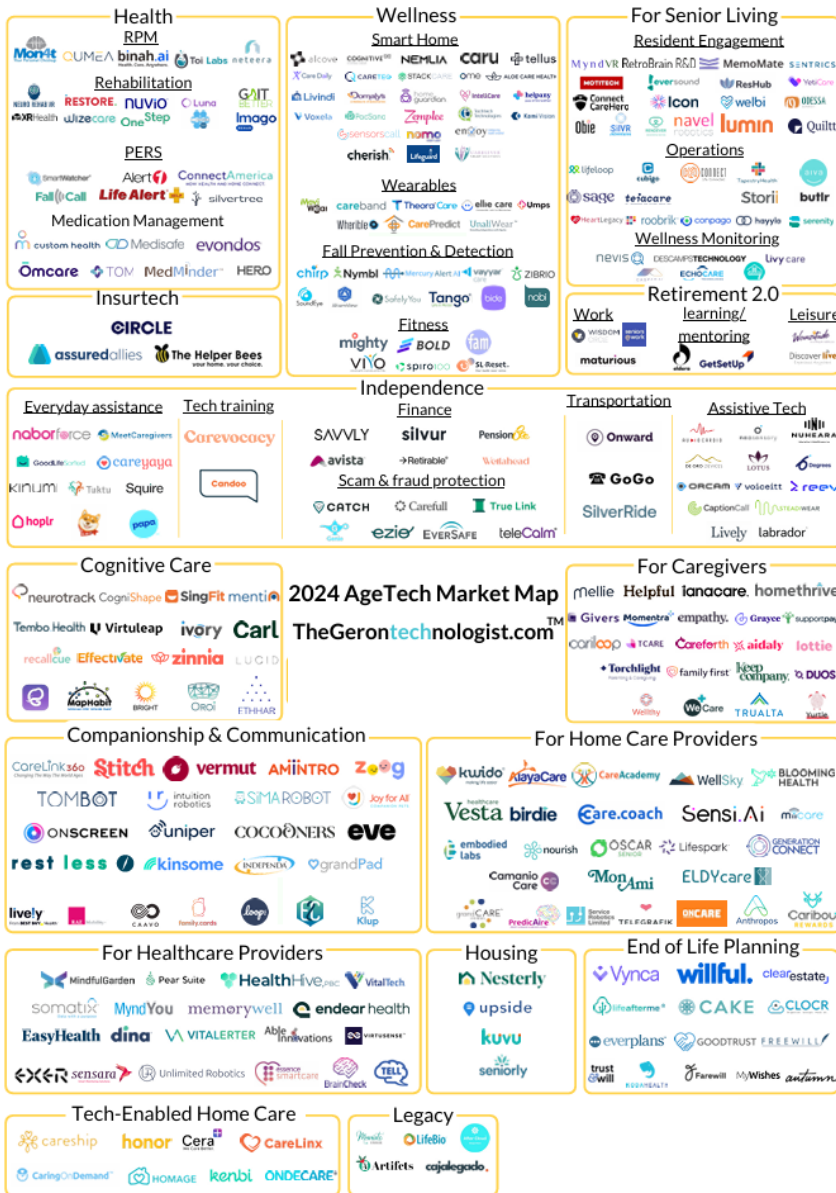
AI and Smart Infrastructures – generic technologies for all areas of AgeTech for the long-term period

Perspective supportive trends:

- service robotics, including SAR (also EmotionBots)
- neurotechnologies and implanted digital solutions
- VR / metaverse
- cybersecurity

Need for technology convergence for the future: social innovation and humanitarian / social sciences as part of the AgeTech equation?

AgeTech Actors and Ecosystems: Active Growth, Humble Numbers



Growing number of startups, but still insufficient investments (peak at up to ~\$1.5-2B in 2018, ~0.4% of total venture investments)

Several, but still not extensive national and international initiatives:

- China, EU programs / projects;
- Moscow municipal initiatives
- Zamora Digital Silver Economy Digital Innovation Hub (DIHDSE; EU/Spain)
- UK National Innovation Center for Ageing (UK NICA)
- IFC - Silver Economy Initiative for Latin America and the Caribbean

Business and financial sector: modest interest in new areas. Case of assistive tech (general): corporations are key investors in both conventional and emerging assistive technologies (48 and 60% of all patents respectively) – but mostly in hearing and vision

New, but not sizable cohort of investors in new/advanced AgeTech emerges from other industries, incl.:

- Amazon, Apple, Google (USA), Tencent (PRC), etc. - smart appliances / assistants
- Toyota (Japan) – investments in short-distance mobility vehicle and digital care companion startups
- Best Buy (USA) – Great Call service acquisition for \$800mio
- ÖAMTC (Austria) – “120 Ventures” Startup Studio
- National and regional banks (Italy) – “Next Age” Accelerator (at AC75 Startup Accelerator), Sanpaolo Innovation Center

Insurance companies: surprisingly less visible

Why Not Revolution? Impediments for the AgeTech



Problems both on sides of supply and demand; market situation is far from “creative destruction”

Business / Technology

- Early stage of technological development
- Underinvesting in comparison with other emerging areas
- Not mature ecosystems (also an impediment for culture and institution-building)
- Overconcentration of incumbent market leaders on conventional assistive technology
- Lack of PPP schemes

Market

- No mature business models for emerging technology
- Digital and Silver as recent trends
- Healthcare / social security systems: not yet a crisis

Social / Psychology

- Seniors lack digital skills and in-depth digital literacy
- Sustained nature of existing social and cultural models for Silver Demand
- Social and self-acceptance of New Longevity
- Lack of socialization (loneliness)

Regulatory and technical issues

- Insurance/healthcare programs
- Healthcare bureaucracy and regulations
- Privacy
- Patenting
- Sandboxes and living labs, etc.)

+Emerging Asia – only recently part of a bigger Silver market system

Recommendations



- **New national strategies and international cooperation**
- **PPP models, friendly regulatory – and financial framework (“Silver” bonds? “Grey” innovation sandboxes?)**
- **National supporting R&D and VC...**
- **...but also social innovation (and social engineering?) and kulturträger activity**

...New innovation frontier: Silver competence-exploiting strategy

active innovative/science seniors, compensating deficit in “unsexy” jobs and supporting legacy systems (back to tech-enhanced “traditional” active longevity and supporting socialization and cognitive)



Thank you for attention!

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