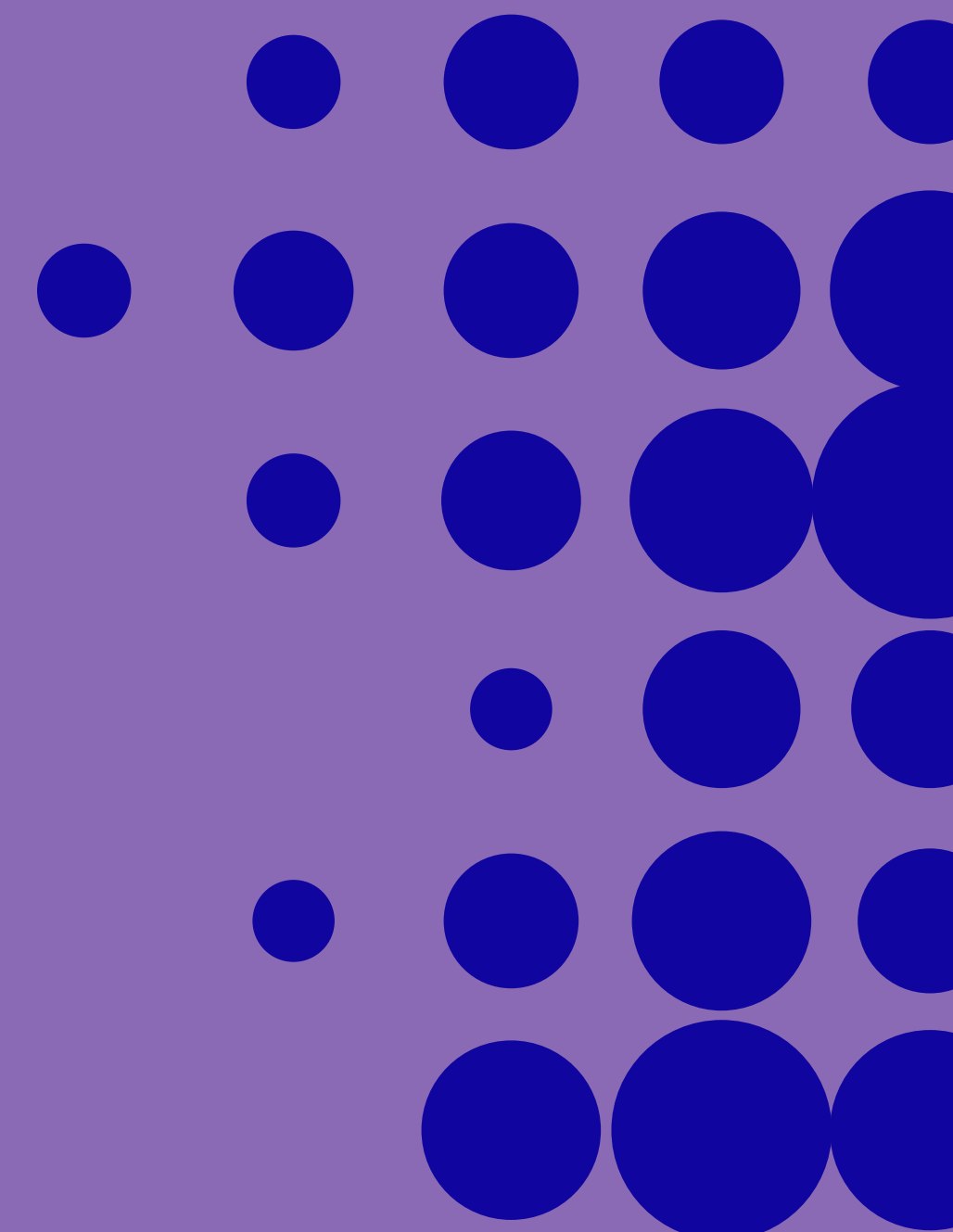

The future of Personal Devices

How will personal devices evolve beyond smartphones?
How will AI and wearables shape future user experiences?
What will drive differentiation and leadership in personal tech?

Summary

As personal tech moves beyond smartphones, AI, health, utility, and trust will define future leaders' strategies. Figure 1 presents Market opportunities and Strategic Imperatives.



Market opportunities & Strategic Imperatives

Market opportunities

- **Industry shift:** The personal tech landscape is poised for a paradigm shift. Stagnating smartphone upgrade cycles, inflationary pressures, and plateauing hardware innovation will open the door for disruptive technologies and new business models.
- **Ambient intelligence:** Wearables, enhanced with artificial intelligence (AI) and health monitoring, will transform personal devices into context-aware, proactive companions that integrate into users' routines. This will fuel user engagement and offer new sources of value.
- **Enabling technologies:** Investments in low-power AI chips, sensors, adaptive displays, natural interfaces, and edge computing are accelerating product innovation. These technologies enable the delivery of smarter, faster, and more energy-efficient devices.
- **Spatial computing:** Augmented reality (AR) is moving out of the novelty phase, with sleek smart glasses and practical applications poised to drive mainstream adoption. Design now matters as much as functionality, with aesthetics and comfort emerging as key differentiators.

Strategic imperatives

- **User-centric innovation:** Tech leaders must prioritize the development of user-centric AI and proactive device capabilities that anticipate needs and deliver personalized experiences. Ethical frameworks should guide every phase of innovation.
- **Regulatory readiness:** Regulatory requirements and consumer concerns around privacy are rising sharply worldwide. Companies that proactively address data security and comply with emerging legislation across different countries will be rewarded with lasting trust and a competitive edge.
- **Investment focus:** Investors must focus on companies driving the next wave of hardware and digital health breakthroughs, especially in AI chips, non-invasive brain-computer interfaces (BCIs), and AR. These will offer the strongest potential for lucrative returns.
- **Strategic alliances:** Building robust ecosystems and open platforms will be essential to capturing network effects. Strategic partnerships and cross-industry collaborations will be necessary to amplify market reach and accelerate the adoption of innovation.

Figure 1. Market opportunities and strategic imperatives.

Personal Tech Innovation Timeline

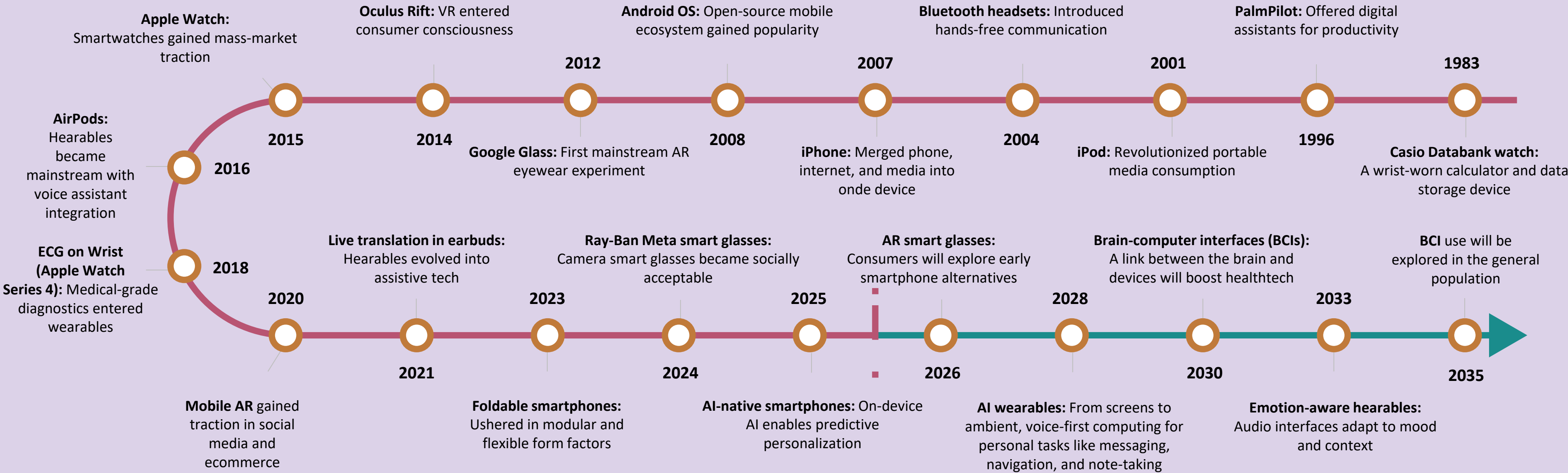


Figura 2. Personal tech Innovation timeline.

Emerging Technologies

Key enabling technologies for future personal devices

- **Figure 3** presents the key enabling technologies (such as ambient intelligence, connectivity, sensing, displays, interfaces, and edge silicon) that will reshape personal devices in the next decade.

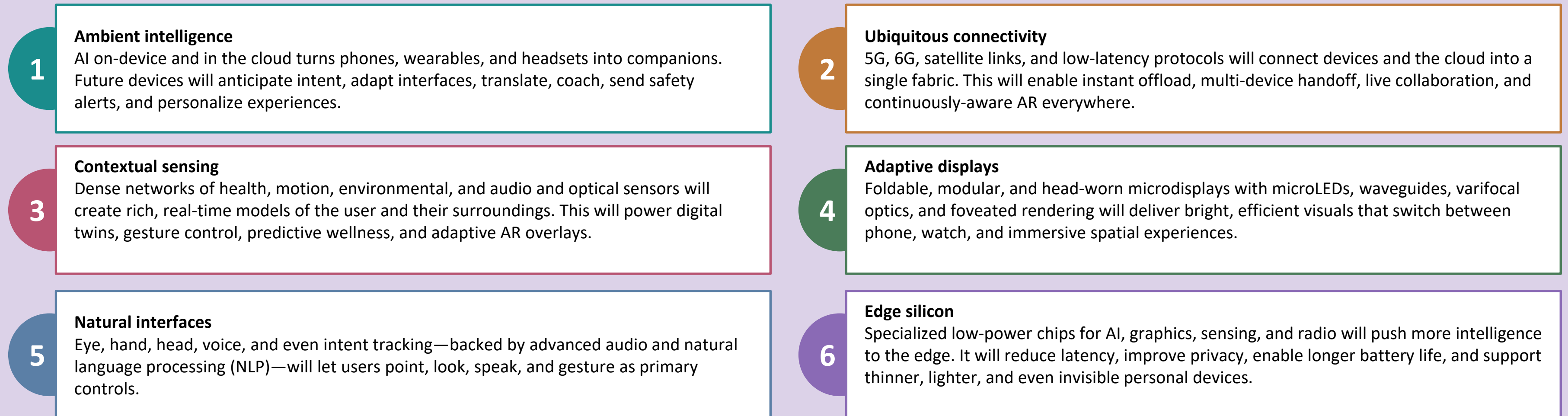


Figura 3. Key enabling technologies for future personal devices.

Emerging Technologies

Challenges to the development of future personal devices

- **Figure 4** presents the main challenges in the development of future personal devices, including safety, batteries, privacy, comfort, fragmented ecosystems, and connectivity.

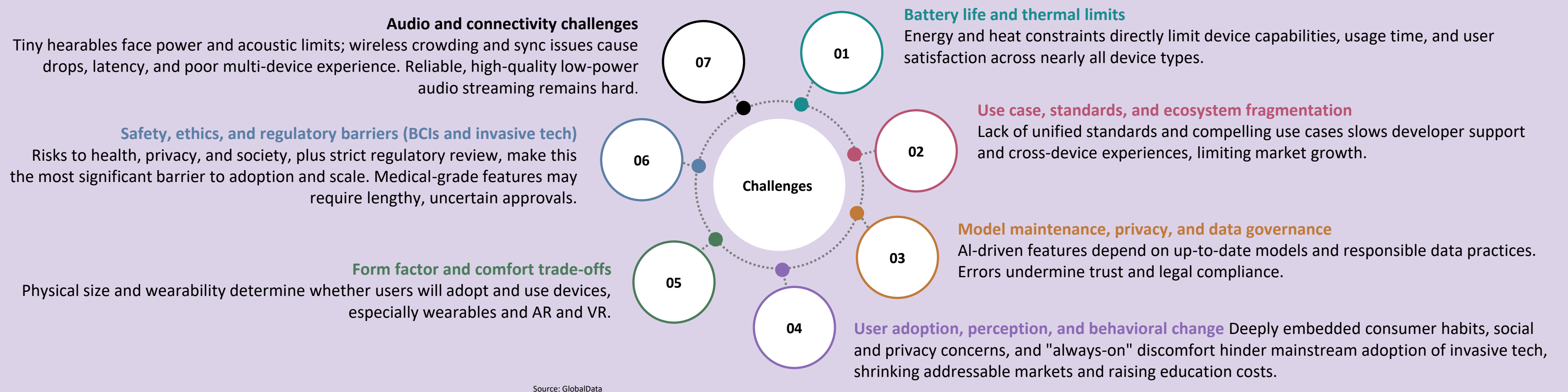


Figura 4. Challenges to the development of future personal devices.

Current Landscape

Smartphones dominate the personal tech landscape

- Smartphones dominate the global consumer electronics landscape due to their unique combination of multi-functionality, mature ecosystems, and broad affordability across markets (**Figure 5**).
- With penetration expected to reach 95% in 2026, smartphones remain the primary digital interface for communication, entertainment, productivity, finance, and health—significantly ahead of any other device. This ubiquity far surpasses that of any other device category.
- No alternative device is currently positioned to displace smartphones in the near term. Wearables either rely on smartphones for core processing, connectivity, or management, or they lack the broad, universal utility required to become a standalone primary interface.
- Augmented Reality (AR), especially via smart glasses, offers the most plausible path to a post-smartphone future, but meaningful disruption remains distant. Hardware limitations, high costs, immature content ecosystems, and unclear mainstream use cases will hinder widespread adoption in the short- to medium-term.

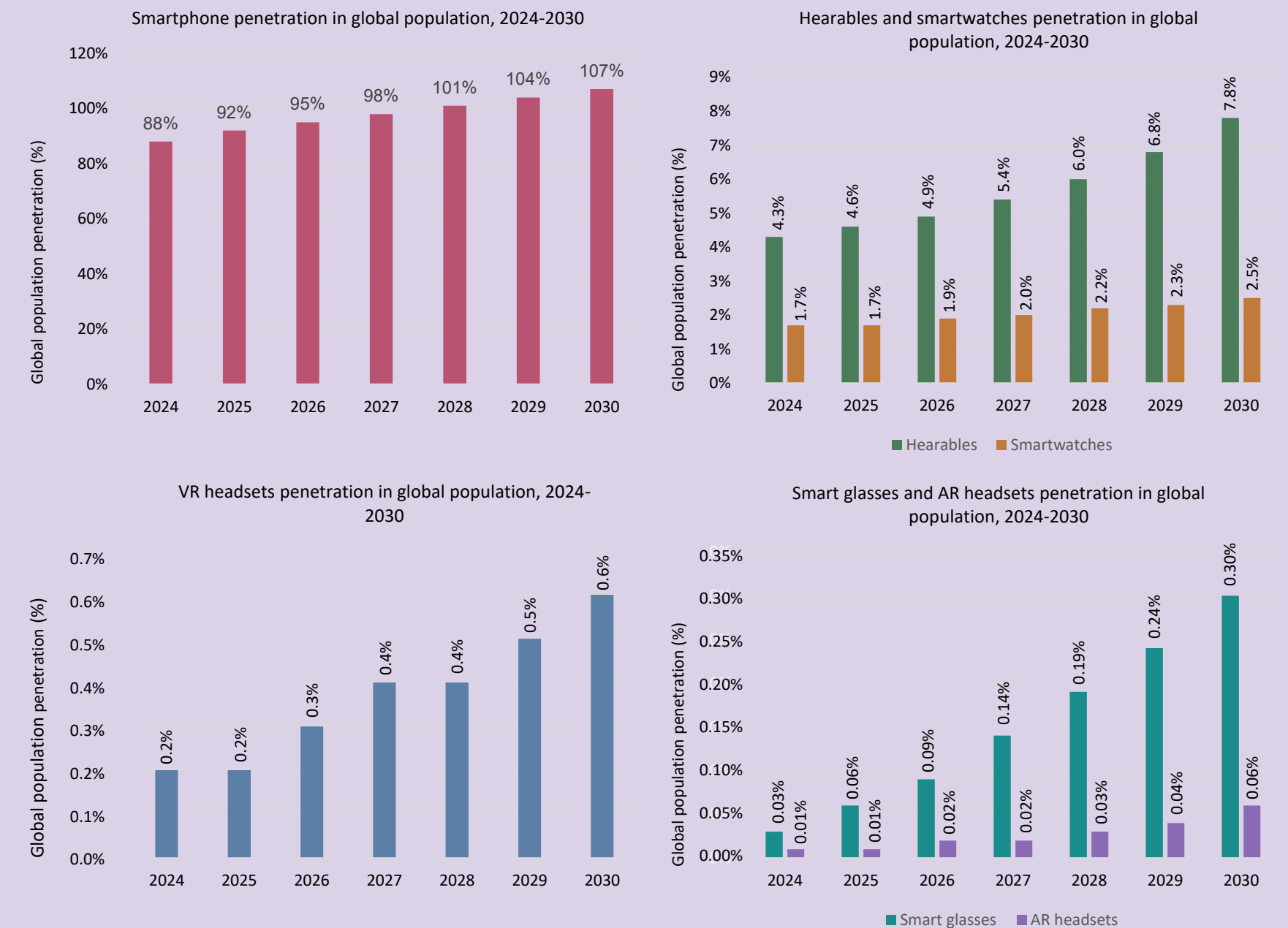


Figure 5. Global population penetration forecasts for smartphones, hearables, smartwatches, Virtual Reality (VR) headsets, and smart glasses/AR headsets (2024–2030).

Current Landscape

As innovation stalls, consumers become more discerning

- Consumers demand meaningful utility, seamless integration, and ethical design (**Figure 6**).

What's happening?



Smartphones: Established, but still dominant

Smartphones are central to communication, navigation, entertainment, and payments, but innovation is stalling. Longer upgrade cycles and high prices persist, while foldables appeal to prosumers despite durability concerns.



Smartwatches: From step counter to health guide

Smartwatches focus on fitness, health, and glanceable utility. Apple and Samsung Electronics lead the mainstream, while Garmin dominates fitness value, and Xiaomi and Amazfit are winning on value in Asia.



Hearables: The quiet revolution in the ear

Hearables have evolved into all-day devices for music, calls, and virtual assistants. Active noise cancellation (ANC) is now a staple feature, while comfort and ear health are emerging as critical differentiators.

What's coming?

AI-native experiences: Manufacturers are building AI into device architectures to enable proactive, context-aware assistance. (e.g., auto-scheduling meetings).

Modular hardware: Manufacturers are adopting replaceable and upgradeable components to improve sustainability and device longevity.

Zero-UI: Device makers are developing voice-, gesture-, and sensor-driven interfaces to reduce screen dependence for routine tasks.

Medical-grade sensors: Manufacturers are integrating clinical-grade health sensors to enable advanced monitoring and early detection.

Mental health integration: Device makers are embedding biometrics and AI to detect emotional states and cognitive fatigue.

Battery breakthroughs: Device makers are advancing battery technologies to achieve multi-day lifespans without sacrificing features.

Language translation: Device makers are building on-device and cloud-assisted audio translation and AI stacks to serve multilingual markets.

Biometric sensing: Manufacturers are exploring in-ear and body-based sensors (e.g., heart rate, temperature, EEG) to expand health and wellness use cases.

Context-aware audio: Device makers are integrating environmental sensing and adaptive audio to dynamically optimize sound based on surroundings.

Figura 6. Consumer expectations and emerging trends shaping the next generation of personal devices.

Current Landscape

The future of personal devices lies in ambient intelligence

- **Figure 7** presents the devices that will drive the shift from screen-centric to human-centric experiences.

What's happening?



AR and VR devices: From clunky to cool

VR remains niche for gaming and training, while AR is limited to mobile and enterprise use. Bulky, expensive headsets limit adoption as AI-powered AR smart glasses begin gaining early market momentum.



AI wearables: The rise of ambient intelligence

Early adopters are testing smart rings (Oura), AI pins (Humane), and smart glasses (Ray-Ban Meta) for health tracking, voice interactions, social media access, and discreet notifications.



Brain-computer interfaces: The invisible tech

BCIs are still largely experimental, concentrated in medical and research settings, while non-invasive electroencephalogram (EEG) wearables are emerging for meditation and focus enhancement.

What's happening?

AR glasses as smartphone companions: Device makers are positioning AR glasses as smartphone extensions for navigation, messaging, and digital overlays.

Social AR: Device manufacturers are developing shared AR frameworks to enable multi-user entertainment and event-based experiences.

Enterprise crossover: Device makers are targeting enterprises for collaboration, training, and field service to accelerate AR platform maturity and monetization.

Proactive coaching: Original equipment manufacturers (OEMs) are embedding biometric- and behavior-driven AI models to deliver interventions such as breaks, hydration, or focus techniques.

Cross-device intelligence: Device makers are designing wearables as nodes, enabling seamless AI coordination across phones, vehicles, and smart homes.

Privacy-first design: OEMs are using on-device processing, data controls, and opt-in frameworks to support always-on AI in line with regulations.

Thought-to-text: Manufacturers are developing non-invasive BCIs for thought-based input and accessibility.

Cognitive enhancement: OEMs are exploring neurofeedback and stimulation technologies to support memory, attention, and emotional regulation use cases.

Ethical safeguards: Device makers are building consent, data ownership, and privacy safeguards into BCI designs as the tech transitions beyond clinical settings.

Figura 7. The future of personal devices driven by ambient intelligence and human-centric experiences.

Device Trends

Smartphones will power a wearable revolution

- Power will not be in the specs. It will be determined by the experience. The race for faster processors and better cameras is fading. The next frontier of differentiation lies in seamless, AI-powered experiences. Think foldable screens that expand the workspace, rollable displays that vanish into a pocket and software that adapts to user life, not the other way around. Smartphones will be judged not by their processor or cameras, but by how effortlessly they integrate into a user's lifestyle.
- From app launcher to intelligent ally. Today's smartphones are cluttered with siloed apps, forcing users to juggle experiences and notifications. Tomorrow's will be driven by a unified AI assistant that orchestrates these services end-to-end, surfacing what matters and handling the rest. Beyond voice commands, agentic AI will book meetings, filter messages, and manage to-dos before users ask, making the phone proactive and deeply personal.
- Power will not be in the specs. It will be determined by the experience. The race for faster processors and better cameras is fading. The next frontier of differentiation lies in seamless, AI-powered experiences. Think foldable screens that expand the workspace, rollable displays that vanish into a pocket and software that adapts to user life, not the other way around. Smartphones will be judged not by their processor or cameras, but by how effortlessly they integrate into a user's lifestyle.
- Repairability and ethics are gaining ground. People are tired of throwaway tech. A growing wave of consumers is demanding devices that last longer, use less energy, and respect their right to repair. Brands like Fairphone are leading the charge, with modular designs that let users swap out parts instead of tossing entire devices. As regulations and consumer awareness mature, repairability and sustainability factors will become a significant differentiator, appealing to the values-driven demographic and potentially forcing industry-wide change to reduce e-waste and extend device lifecycles.
- The smartphone is no longer the star. It will power the wearable revolution. The smartphone as we know it—a singular, all-in-one device—is evolving into a powerful central hub in a larger, interconnected ecosystem. Smart glasses, hearables, and other smart devices will not replace smartphones over the next 10 years, but they will extend their computing, interface, and orchestration capabilities. The smartphone will be the brain, handling the heavy lifting of processing, storage, and connectivity, while wearables deliver immersive, hands-free experiences.

Device Trends

Smartphone differentiation is driven by contextual AI and multi-context devices

The smartphone market will be driven by diversification of form factors, enhanced power resilience, and regulatory frameworks governing AI data (**Figure 8**).

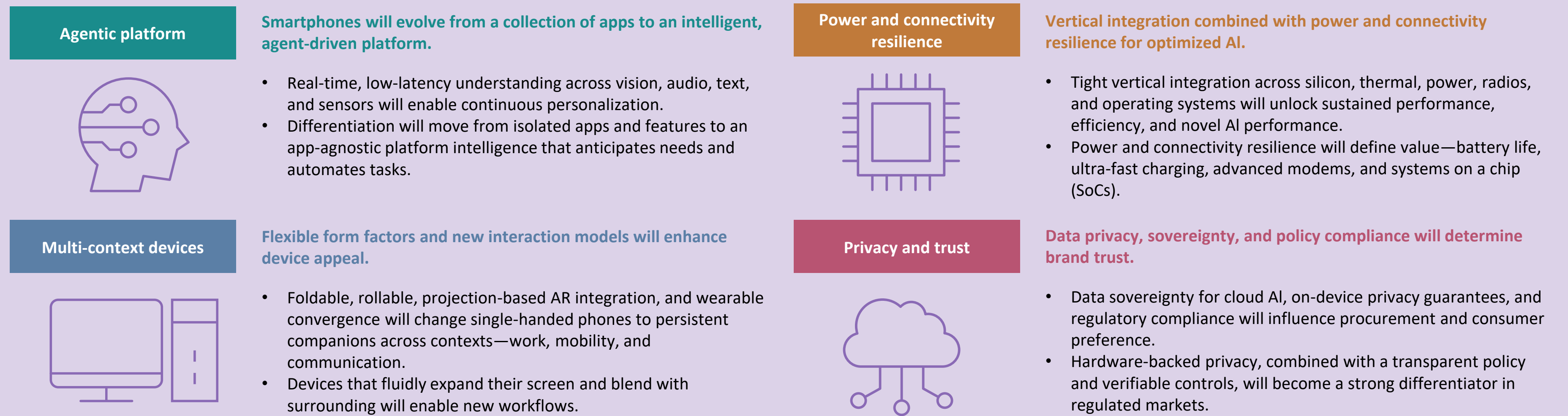


Figura 8. Key drivers of smartphone differentiation, including contextual AI, multi-context devices, power resilience, and privacy.

Device Trends

VR was yesterday; AR is the tech of today and the future

The convergence of hyper-realistic content and advances like micro-OLED displays and powerful AR and VR- specific chipsets mean the core tech hurdles for high-quality, practical experiences are dissolving.

- *Bulky headsets are giving way to lightweight smart glasses.* The adoption of AR and VR hinges on form factors that balance immersion, comfort, and social acceptance. Bulky headsets are giving way to lightweight smart glasses and passthrough AR devices. Products like Apple Vision Pro and Ray-Ban Meta smart glasses signal a shift toward devices that extend the smartphone ecosystem. The industry is moving beyond high-fidelity visual immersion toward context-driven utility, favoring devices that respect public privacy. The future form is not a gadget, but a tool for fashion, productivity, and social engagement, all in one.
- A shift from 2D screens to 3D spatial interfaces. Hand, eye, and voice control will become prevalent. Entertainment will evolve from passive consumption to active participation (e.g., VR social spaces, hyper-immersive gaming, live events). AR will make every surface interactive (e.g., a desk becomes a dashboard, a wall becomes a canvas). Entertainment will be personalized, persistent, and participatory, with AI-generated worlds adapting to users' mood, interests, and online interactions.

- Utility first, followed by entertainment and social. Interoperable content ecosystems will be the decisive factor in sustained growth. The future ecosystem is not app- centric; it is experience-centric, powered by user-generated worlds and adaptive AI companions. Killer uses will include remote collaboration (replacing office screens with 3D workspaces), industrial training, and virtual commerce (experiential shopping). For consumer engagement, user-generated content (UGC) platforms that make creation intuitive and accessible, along with immersive social experiences and franchise intellectual property (IP) in gaming and media, are essential for frequent use.
- AR will come into its own as an interface for work, play, and communication. Smart glasses will become ubiquitous, with immersive computing as common as smartphones are today (**Figure 9**).

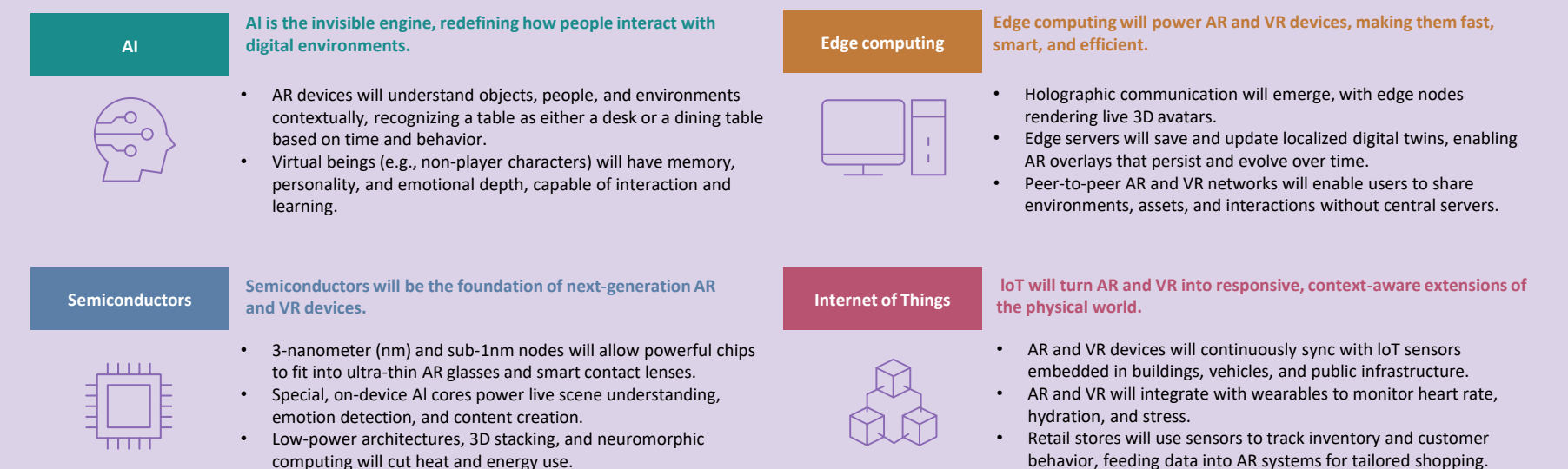


Figura 9 Key technologies enabling the widespread adoption of augmented reality (AR) and immersive computing.

The Future

Investment opportunities will appear as technology evolves (Figure 10).

Ambient intelligence (2025 – 2030)	Spatial interface (2030 – 2035)	Bio-integration (2035 – 2045)	Neuro-digital symbiosis (2045+)
Low-power edge AI chips • Tiny AI processors that deliver high performance under one watt for smart wearable devices. AI-first wearable software • Software and sensors that turn raw sensor data into smart, helpful features for wearables. AI model optimization tools • Tools to shrink and compress AI models so they can run efficiently on low-power edge AI chips. Interoperability and governance • Neutral connectors, APIs, and shared data rules so devices can safely share info across platforms (like Matter). Privacy-safe computing • Tools like federated learning and homomorphic encryption that let devices process health and personal data locally without exposing user privacy.	Spatial OS platforms • Core spatial OS that combines vision sensing, AI, and digital object placement in one layer. High-efficiency AR displays • Waveguides and micro-displays that deliver FOV (>40 degrees) and 12+ hours of battery life. Cognitive load AI and biosensing • Sensor-fusion AI that uses eye-tracking, biometrics, and brain signals to control AR alerts. Premium AI agent services • Platforms selling trusted, on-device AI agents that give private, personalized help for a subscription fee. Multi-modal and BCI interfaces • Simple, non-invasive brain-signal and gesture tech for discreet, hands-free control.	High-fidelity non-invasive BCI • Advanced brain-signal devices that can track emotion, attention, and intent without surgery. Physiological AI platforms • Subscription AI services that use body data to give proactive, tailored health support. Neuro-privacy and brain data • Secure tools that protect brain data, allow only read-only access, and follow neuro-privacy rules. Multi-modal intent software • AI software that combines signals from glasses (eyes, voice) and body data to perform smart, context-aware actions. Health and compliance software • Software that tracks, checks, and shares body sensor data while meeting strict global health and privacy rules.	Metabolic synthetic bio systems • Sensors that use metabolism for energy, enabling internal, self-powered, perpetual monitoring. High-bandwidth thought BCI • Brain interfaces that send data at very high speeds for instant, silent, thought-based control. Longevity and body optimization • AI services that use constant brain and body data for personal health and lifespan plans. Neuro-data control and auditing • Security tools that allow only verifiable, read-only neuro-data access and block unauthorized write-level neural influence. Ethical neuro-regulation tech • Compliance tools that help set and enforce global rules to enforce ethical red lines for cognitive augmentation and data sovereignty.

Figura 10. Investment opportunities across emerging technology phases, from ambient intelligence to neuro-digital symbiosis.

Evolution of personal devices is fundamentally driven by the pace of tech advancement. The baseline scenario represents the current trajectory. However, accelerated development and novel innovations will propel personal devices into either the optimistic scenario (driven by faster advances) or the speculative scenario (driven by significant, transformative advances) (Figure 11).

Tema	Baseline scenario (Most likely)	Optimistic scenario (Fast progress)	Speculative scenario (Breakthrough)
Smartphone	Remains the central AI hub until 2035; wearables will handle more proactive tasks	Wearables take over most daily interactions; smartphones become secondary device	Smartphone replaced entirely by 2035; smart glasses become universal
Interoperability	Standards like Matter and expanded APIs enable multi-device context sharing	Global context standards unify homes, cars, and wearables	True ambient intelligence: environment reacts automatically to user intent
AR glasses adoption	Mainstream around 2034–2038, featuring 8–12 hours battery and practical use cases	Mass adoption by 2032–2034; 12+ hours battery; near-smartphone replacement	Glasses supported by neural AR and complemented by bio-integrated sensors
Spatial OS	Persistent digital objects and physical world anchoring for everyday use	High-fidelity 3D twins and intelligent scene understanding	Continuous live digital twin of entire surroundings with precision
Cognitive load management	Eye tracking and biometrics regulate notifications	Non-invasive intent sensing predicts needs before action	High-bandwidth neural interfaces dynamically allocate attention
BCI (non-invasive)	Low bandwidth (stress, focus, attention)	Medium bandwidth (basic intent prediction)	High neural communication fuel thought-UI
Bio-integrated sensors	Early micro-sensors for medical and sports use	Soft bio-wearables that continuously monitor key biometrics	Fully internalized “body OS” with metabolic energy harvesting
Energy and power	Battery life and edge compute advances	Advanced micro batteries and optical efficiency	Self-powered biological devices (no batteries)
Revenue model	Hardware sales and AI subscriptions, sold separately, as well as, in bundles	AI-first ecosystems with premium cognitive services, available via subscriptions	Longevity, personalized health OS, and neuro-wellness subscriptions
Governance	Expanded privacy rules and sensitive data protections, focus on ethical use of AI	Global neuro-rights standards; strong user sovereignty	Thought-level security becomes fundamental human right

Figura 11. Future scenarios for the evolution of personal devices, from baseline trends to breakthrough innovations.



Are you interested in learning more about The Future of Personal Devices?
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