

Al Smartphone White Paper

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AI has empowered many industries, but the user experience on mobile devices remains complicated

AI has empowered many industries





How can AI empower users to focus on more meaningful tasks and live a more interesting life?

Fast-paced lives, fragmented time... Users want technology that frees up their energy and creativity

Phone use needs to be more efficient



Mission of AI smartphones : Solve the problems of fragmentation and admin tasks, so that users can focus on themselves and their value

Technology drives the evolution of mobile phones, enabling more productivity and creativity

Feature phones

Smartphones

Capacitive touchscreens revolutionized the form factor and the user interface

Next-gen Al smartphones

Large models are transforming the way we use devices again



2008 OPPO A103 First mobile phone: Smiley Face

Music phone Defines a new industry form



2013 2013 ColorOS OPPO N1 Integrates hardware, software, and services Camera phone



2023 OPPO Find X6 First phone with main cameras



2024 OPPO Find X7 Leading the industry toward next-gen Al smartphones

Al opens up endless possibilities in the user experience; OPPO and our industry peers have the opportunity to define what the Al phone will be

What makes AI smartphone?



Full-stack transformation and ecosystem restructuring of AI smartphones



Characteristics of AI smartphones

Open ecosystem of user-generate service

Context-aware, personalized AI OS

All-new multimodal UIs

Native Al agents

Device hardware supporting generative AI

Open ecosystem in both native components and user-generated agents



The open ecosystem of services built on LLMs for AI smartphones will include native service components provided by vendors and AI agents customized by users. For example, AndesGPT as a large model and Breeno as a customized agent.

Smart device manufacturers should build platforms for maximum openness in the AI services ecosystem



The industry should set standards and ensure zero barriers to entry for developers, so that users can shape the ecosystem they want

Zero-code development | Everyone can define their own agents



Streamlined app development process with easy prompt definition, data import, and selection of plug-ins

Quick connection with data lakehouses, databases, and local files to enlarge the knowledge base for models A wide range of plug-ins such as Q&A, online search, lakehouse query, database query, document analysis



Supports JavaScript embedding and API calls to models

Context-aware, personalized AI OS



The AI OS breaks out of the rigid vertical silo for everyone to have their own customized AI assistant, delivering the benefits of AI to all

All-new multimodal Uls





The new user interface on an AI smartphone makes it a personal assistant at hand, more than just a consumer electronic device



Native AI agents learn and adapt to user preferences to deliver an intuitive user experience

Example | Personal assistant: From standardized to personalized, from single-modal to multi-modal

An Al-powered personal assistant can understand complex needs and provide smarter, better, personalized services

Example: OPPO Find X7

Trends



Speeches | Social media texts | Resumes | Slides outlining UI is in Chinese

Multimodal conversation

Natural conversation Multimodality integrated to OS Understanding voice, text, imagery, files, and video Control with voice and gestures

Trustworthy, useful, personalized

Guardrails for content | Hallucination eliminated | Complex reasoning Task scheduling | Services ecosystem | Customization | Personalized answers & recommendations User-specific memory

Content generation

Al text | Al voice | Al images | Al video | Creativity tools | Productivity tools | Fun personalized skills

The era of AI smartphones has arrived, and will transform the speed and ease of content creation

Example | System apps: Now tackling complex tasks easily, evolving to cross-device AI

Multimodal AI built into the OS simplifies the process of using the phone

Example: OPPO Find X7



Al Summarizer

Al Eraser

Generate call summaries in one click Call logs | Call summaries | To-dos | Sync notes |

Snap photos, remove objects, and

generate the background in one step

Smart circling | Removal | Background generation

Step 1: Add-on Al features (single-mode, single data source)

Al given discretion over interfaces and controls: power button, voice, Aqua Dynamics, ubiquitous service cards, image settings, text, video, and audio can be accessed by single-modal Al.

Step 2: Al embedded into OS (multimodal, single data owner/multiple data sources)

Images, text, video, and audio are combined to generate something new. For example, text and audio can be used to generate call summaries. The Al assistant understands and generates data and invokes personal services.

Step 3: Cross-device AI (multi-dimensional data, multiple data owners/multiple data sources)

Accurately identifies user's intentions using data from multiple sensors on multiple devices; makes intelligent decisions on service orchestration using data provided by different suppliers.

Cross-device AI experience enables seamless transitions between the digital and real worlds

 Market State

 Market State

 Market State

 Market State

Before

After

Device hardware supporting generative AI

Accurate understanding of user intentions



Current hardware does not yet support the new model; new SoCs and in-memory computing architectures will emerge

Benefits of AI smartphones: A personal assistant that provides intuitive interaction, context-aware intelligence, personal companionship, and reliable security



User value: Protection for personal data and reliable answers

Reliable security | Innovate to secure data, algorithms, and content; alignment with our values

Security compliance and ethical risks related to AI technology

Impact on user privacy

Privacy disclosure

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Impact on country governance

Sensitive information compromises national security

Misinformation stirs up the public sentiment

knowledge gaps

Infringements during AI training

Challenges in delivering Al benefits to all and bridging

Impact on user experiences

Generation of offensive information

Generation of outdated or inaccurate information

Generation of unwanted content

Build secure, friendly AI with technology

Data security

Focusing on security, compliance, and objectivity of source data used in training

Security of source data

Compliance of source data

Objectivity of source data

Content security

Ensuring that compliant and satisfactory content is generated

Traceability of generated info

Labeling of generated content

Evaluation criteria for generated info

Algorithm security

Developing attack/defense and model calibration schemes

Al firewalls

Attack/defense and evaluation system

Enhancement with knowledge graphs

Values alignment

Building a complete calibration system to ensure consistency with human values

Reinforcement learning from human feedback (RLHF)

Constitutional AI for smart scenarios

Shipments of next-gen AI smartphones forecasted by IDC (global market)

IDC forecasts 170 million next-gen AI smartphones to be shipped in 2024, representing almost 15% of the total smartphone market.



*Next-gen AI smartphones use SoCs capable of running on-device GenAI models more quickly and efficiently and have an NPU with at least 30 TOPS performance. Examples of on-device GenAI include Stable Diffusion and various large language models (LLMs).

Read more on IDC AI Smartphone Definition

♦IDC | **OPPO** AI Smartphone White Paper

Shipments of next-gen AI smartphones forecasted by IDC (Chinese market)

IDC's forecast suggests that the share of next-gen AI smartphones in the Chinese market will surge after 2024 to over 50% in 2027, amounting to 150 million units, as chipsets and user scenarios will iterate swiftly.



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Next-gen AI smartphones will transform the global smartphone industry

- 2024 onward, next-gen AI smartphone sales will explode, creating a wave of phone sales.
- Flagship phones will be an important driver of next-gen AI smartphones in the early stages.
- 16 GB RAM will be the minimum spec for next-gen AI smartphones. SoCs and other hardware also need to be upgraded.
- Upgraded storage, displays, and cameras on next-gen AI smartphones will lead to changes in hardware and higher costs. Manufacturers may increase the ASP by leveraging technological innovations and AI-related selling points.
- Generative AI will spark a burst of new apps, which will in turn bolster AI smartphone sales. AI apps deployed on smartphones will offer more utility compared to existing apps.
- Chip makers, OEMs, and industry players will accelerate the transformation of user scenarios, advancing the development of next-gen Al smartphones.

Next-gen AI smartphones will transform content creation

Al interactivity integrating hardware, software, and services



Personal creativity will become a habit, anytime, anywhere

Al smartphone ecosystem outlook



OPPO will be an open, collaborative contributor as we kickstart the era of AI smartphone

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