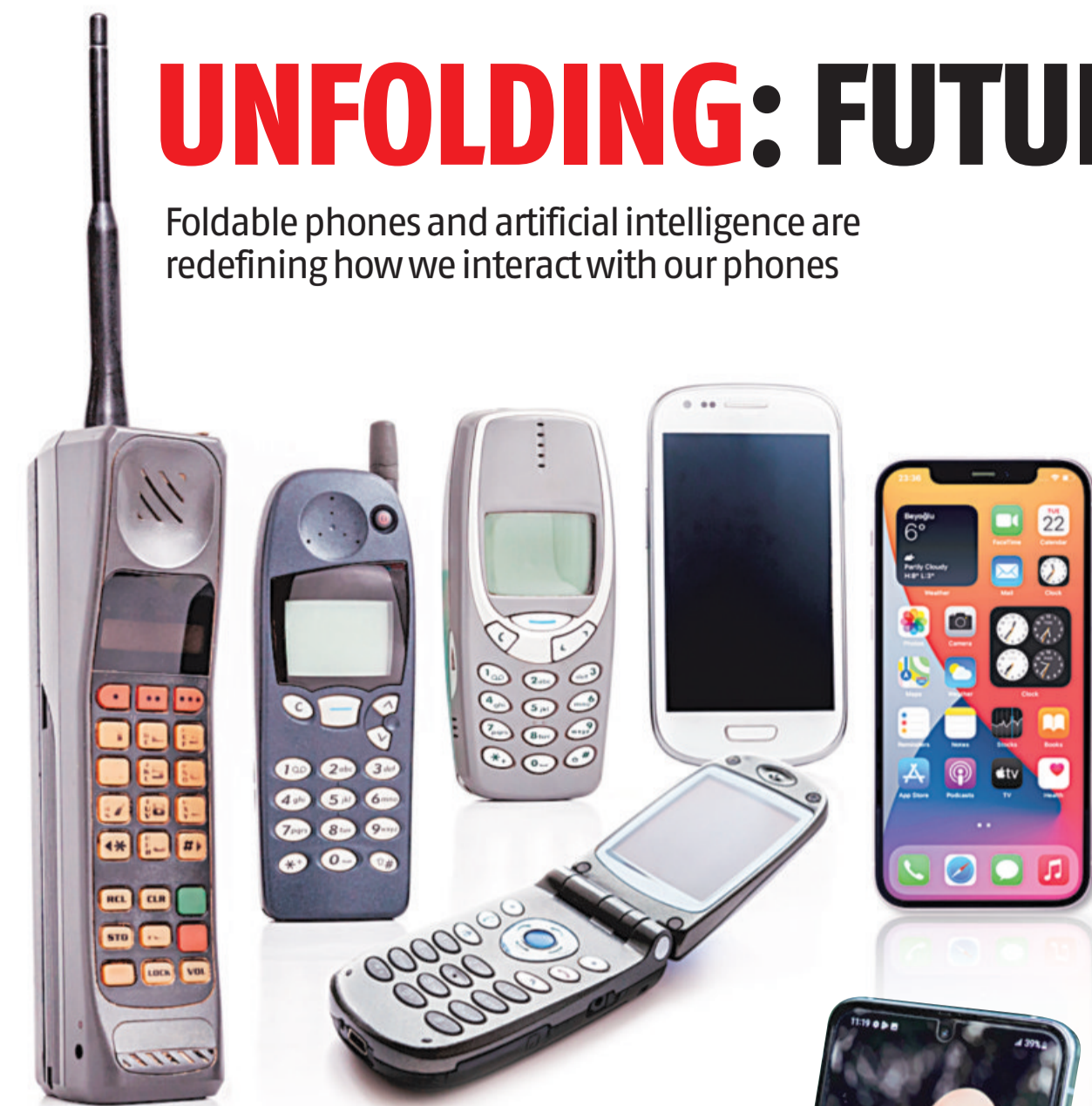


UNFOLDING: FUTURE OF SMARTPHONES

Foldable phones and artificial intelligence are redefining how we interact with our phones



ARYAMAN GUPTA
New Delhi, 20 October

In February 2008, the Netherlands-based Polymer Vision, a Philips subsidiary, announced the Readius. It was rollable and had a flexible e-ink display. Part portable media device, part e-reader, it ran into rough weather with the cheaper alternatives, such as Amazon's Kindle DX.

In 2009, Polymer Vision went bankrupt. Its failure kept the canvas blank for four years until Samsung, in 2013, picked up the foldable gauntlet. The South Korean giant, during its Consumer Electronics Show that year, presented several concepts of smartphones with flexible displays under the codename, Youm. Down the road, there were other attempts to break open the market, such as ZTE's Axon M and Royole Flexpai, but they did not catch on.

At the 2019 Mobile World Congress, Samsung announced the Galaxy Fold. Its design was derived from 2014's Galaxy Note Edge, which was Samsung's first commercial device with a curved display.

The Galaxy Fold met with scepticism, related to display failures, and Samsung shelved its release. Still, it spurred announcements from Huawei, Xiaomi and Motorola, which had their own foldable phones in the works. In 2020, Samsung launched the Galaxy Z Flip series.

Since then, several smartphone makers have jumped into the fray, including Oppo, Vivo and Google. This week, OnePlus unveiled its maiden foldable device, the OnePlus Open, priced at ₹1,39,999.

As the launches have come, the market has expanded. Until 2020, shipments of foldable smartphones were hardly a few thousand. The next year, more than 100,000 were sold. And in 2022, foldable shipments crossed the 500,000 mark, out of the overall smartphone market of 144 million, according to estimates from the International Data Corporation (IDC).

Today, foldable phones are becoming the mainstay in India's ultra-premium smartphone segment, where prices move upwards of ₹40,000. The foldable segment makes up less than 1 per cent of the overall smartphone market. However, in 2023, until August, it is 13 per cent of the ultra-premium category, according to data from Counterpoint.

Foldable phone shipments are likely to cross 1 million next year, and their share of the premium smartphones could touch 35 per cent by 2025.

The allure

The foldable form factor has emerged as a critical differentiator in the market.

"In the ultra-premium segment, owning a foldable provides differentiation value as even iPhones are now widely owned," says Prachir Singh, senior analyst with Counterpoint Research, a technology market research firm.

It is not just novelty; foldable phones have opened up interesting use cases, owing to their capability of acting as alternatives to laptops and tablets, be it for work, entertainment, or gaming.

"In the premium segment, the ultimate aspiration is to own an iPhone. However, Android brands can excite and entice customers using the fold form factor," says Faisal Kawoosa, founder and chief analyst at research firm Techarc.

A lot will depend on affordability and hardware. The flexible displays needed for foldable phones, the system-on-a-chip, and body materials drive up manufacturing costs.

"UI and pricing are the two areas where smartphone companies can differentiate themselves from competition," Singh adds.

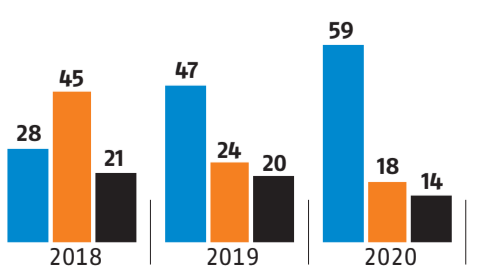
The barrier

Some consumers say they are concerned about the durability and longevity of foldable phones – concerns brands try to address with each new iteration. Meanwhile, the market remains skewed in favour of large companies

THE PREMIUM CLUB

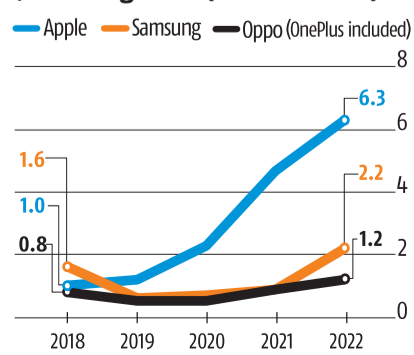
Market share for \$500+ segment

■ Apple ■ Samsung ■ Oppo (includes OnePlus)



Source: IDC

Shipments (in millions) for \$500+ segment (GST excluded)



Pixel dust: AI is making phones intuitive, creative

KHALID ANZAR
New Delhi, 20 October

Integration of artificial intelligence (AI) in smartphones has been going on for years to enhance imaging and establish new functionalities, such as text extraction from images and documents, training virtual voice assistants, improving voice call quality, and conserving power based on usage patterns.

Apple, the American technology giant, has employed AI in its Photos app to categorise albums based on subjects in photos. Similarly, the South Korean electronics manufacturer, Samsung, has utilised AI in the camera app to optimise colours, contrast, and depth for subjects in the frame. China's Xiaomi, Realme, Vivo, Oppo, and OnePlus have employed AI to add beauty filters to portraits.

But today, AI's criticality to the smartphone industry is more evident than ever. "A significant push for AI in the smartphone space is crucial, as hardware alone is no longer a substantial differentiating factor," says Tarun Pathak, research director at Counterpoint Research.

One of the reasons AI has become prominent, alongside device specifications, is the emergence of generative AI.

Pixel dust

The United States-based software giant, Google, has been emphasising AI-driven software enhancements, a key characteristic of the Pixel series since its inception in 2016. Google took the lead again by introducing the Pixel 8 series with a focus on generative AI and on-device AI appli-

cations.

"AI was mentioned numerous times during the Pixel 8 launch event. Clearly, this is where Google believes it can significantly differentiate and advance the Android ecosystem," says Pathak.

Google has integrated generative AI experiences at the operating system level. For example, its experimental photo-editing tool, Magic Editor, allows users to customise photos by repositioning and resizing subjects in the frame or by enhancing the background with a simple tap. Traditional photo editing tools, on the other hand, involve a time-consuming process.

Google announced at the Pixel 8 series launch event that its custom-built Tensor G3 chip was designed to accelerate AI workloads and could run distilled versions of its text- and image-generating models. This implies that tools available on the Pixel 8 series utilise on-device AI to deliver innovative experiences. One such tool is Best Take, accessible through Google Photos, which uses an on-device algorithm to create a blended image from a series of photos, ensuring that everyone in the frame looks their best.

In isolation, these may appear as intriguing AI-related developments in the smartphone space. However, analysts advise caution regarding the potential consequences.

"Generative AI holds the promise of ushering in a transformative era of innovation and personalisation, potentially enabling smartphones to become remark-

ably intuitive, creative, and tailored to consumer needs and preferences. That said, smartphone OEMs would need to strike a fine balance towards responsible AI adoption to avoid potentially contributing to the rise of deep fakes and misinformation," says Prabhu Ram, head of Industry Intelligence Group at CyberMedia Research.

Decisive integration

Now that Pandora's box has been opened, analysts anticipate that AI integration in smartphones will increasingly become a natural progression for brands to remain competitive. As consumer expectations evolve, AI capabilities could be decisive in the market.

"The infusion of AI in smartphones has transitioned from being a mere choice to an imperative. With Google positioning the Pixel 8 as the phone for the AI era, others will seek to step up their AI game to stay relevant in a hyper-competitive market," says Ram.

Analysts believe smartphone manufacturers will forge partnerships with generative AI leaders such as Microsoft, Google, and Meta to run native applications on their devices starting in 2025.

"We anticipate that major smartphone OEMs, including the Chinese manufacturers, will begin running native generative AI apps in 2025, leading to a new set of apps that focus on on-device AI, which is likely to become more popular. Developers will also play a crucial role in this," says Pathak of Counterpoint.

AI has become prominent with the emergence of generative AI

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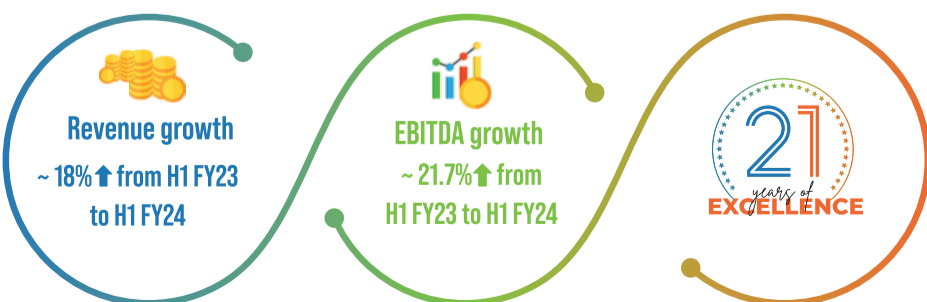
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Extract of Unaudited Financial Results for the Quarter and Half year ended on 30th September, 2023 (₹ in lakhs)

S.No.	Particulars	Standalone						Consolidated			
		Quarter Ended		Half year ended		Year Ended	Quarter Ended		Half year ended		Year Ended
		Sep 30, 2023 (Unaudited)	Jun 30, 2023 (Unaudited)	Sep 30, 2022 (Unaudited)	Sep 30, 2023 (Unaudited)	Sep 30, 2022 (Unaudited)	Mar 31, 2023 (Audited)	Sep 30, 2023 (Unaudited)	Jun 30, 2023 (Unaudited)	Sep 30, 2023 (Unaudited)	Mar 31, 2023 (Audited)
1	Total Income from Operations	35,030.80	38,136.63	35,343.39	73,167.43	61,862.48	1,62,914.96	35,220.67	38,232.73	73,453.40	1,62,914.96
2	Profit/(Loss) before exceptional and extraordinary items and taxes	3,186.56	3,010.51	3,457.75	6,197.07	5,353.99	15,663.63	3,030.86	2,938.67	5,969.53	15,663.35
3	Profit/(Loss) before taxes (after exceptional and extraordinary items)	3,190.46	2,993.22	3,417.36	6,183.68	5,293.96	15,638.90	3,034.76	2,921.38	5,956.14	15,638.62
4	Profit/(Loss) after taxes (after exceptional and extraordinary items)	2,340.25	2,201.36	2,545.23	4,541.62	3,923.77	11,606.36	2,143.76	2,127.18	4,270.96	11,606.08
5	Total Comprehensive Profit/(Loss) for the period	2,329.87	2,201.36	2,545.23	4,531.24	3,923.77	11,581.97	2,133.38	2,127.18	4,260.58	11,581.69
6	Paid-up Equity Share Capital (face value of Rs.10/- each)	2,210.70	2,210.70	2,100.20	2,210.70	2,100.20	2,210.70	2,210.70	2,210.70	2,210.70	2,210.70
7	Reserve (excluding revaluation reserve)	NA	NA	NA	NA	NA	29,228.95	NA	NA	NA	29,228.68
8	Basic Earnings per share	10.59	9.96	12.12	20.54	18.68	53.90	9.70	9.62	19.32	53.89
9	Diluted Earning per share	10.52	9.90	12.12	20.42	18.68	53.84	9.64	9.56	19.20	53.84

- Notes:**
- The above is an extract of the detailed format of quarterly and half yearly ended financial results as on 30th September, 2023 filed with the Stock Exchange under Regulation 33 of the SEBI (LODR) Regulations, 2015. The full format of the Financial Results are available on the Stock Exchange websites (www.bseindia.com & www.nseindia.com) and on the Company website (www.refex.co.in).
 - The Financial results of the company have been prepared in accordance with the Indian Accounting Standards (IND-AS) notified under Sec.133 of The Companies Act, 2013.
 - Figures have been re-grouped/re-classified to make them comparable to the figures wherever necessary.
 - The above unaudited results were reviewed by the Audit Committee and approved by the Board of Directors in the meeting held on 20th October, 2023.



Place: Bengaluru
Date: 20th October, 2023
For Refex Industries Limited
Anil Jain
Managing Director
DIN: 00181960