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# **1.** Apple Intelligence, the new AI coming to iPhones, iPads, and Macs

### Why in News?

At the 2024 recent Apple Worldwide Developers Conference (WWDC), the iPhone maker introduced Apple Intelligence, which is the company's personal intelligence system that brings generative AI to the centre of iPhone, iPad, and Mac experience.

The tech giant has claimed that Apple Intelligence will help set a new standard for privacy in AI and a system that has personal context at the heart of its offerings.



### What is Apple Intelligence?

Apple has described its new AI as a personal intelligence system that has been built for iPhone, iPad, and Mac. It combines the capabilities of generative AI models with personal context to deliver personalised intelligence — which means that it understands user behaviour and comes up with appropriate responses. It is like ChatGPT

but with more contextual awareness — it knows the user's likes and dislikes, online preferences, will keep a tab on their calendar, etc.

## What can Apple Intelligence do?

Apple Intelligence lets users improve their writing and communicate with more ease. Apple is bringing systemwide Writing Tools that are built into iOS 18, iPadOS 18, and macOS Sequoia. These tools will allow users to write, rewrite, proofread, and summarise text almost anywhere they write including Notes, Pages, Mails, and even third-party apps.

Apple says that 'Writing Tools' backed by Apple Intelligence will help users feel more confident in their writing. For example, the 'Rewrite' feature shows users different versions of what they wrote. These versions adjust the tone to suit their audience and the task at hand. On the other hand, the 'Summarise' feature lets users select text and have it condensed into easily consumable paragraphs, bulleted points, tables, or a list.

When it comes to 'Mail', Apple Intelligence makes it easier to manage emails. Features like Priority Messages show a new section at the top of the inbox with the most urgent emails. Owing to AI integration, users can now see summaries of emails without needing to open them. Another feature, 'Smart Reply' gives suggestions for quick responses and it will also identify questions in an email to ensure everything is answered.

# Apple Intelligence makes Siri the ideal assistant

With Apple Intelligence, Siri is now more contextually aware and comes with richer languageunderstanding capabilities. Powered by AI, the virtual assistant is more natural, contextually relevant, and more personal. Apple claims that Siri can follow along if a user stumbles over their words and it can maintain context from one request to the next. Also, now Siri comes with a brand-new design with glowing light around the edge of the screen to indicate Siri is active.

Apple Intelligence also brings something known as 'onscreen awareness' to Siri. This essentially means Siri can take actions with all that is visible on the screen. For example, if a friend sends the user their new address, the user can simply say "add this address" to their contact card and Siri will follow.

# What about security?

Contextual awareness means that Siri will be aware of all your activity, and that brings to the question of privacy and security. Apple has said that Apple Intelligence has been designed to protect user privacy at every step. It is integrated right into iPhone, iPad, and Mac through on-device processing.

Relevance: GS Prelims; Science & Technology Source: Indian Express

# 2. How SpaceX's Starship can revolutionise space travel and exploration

### Why in News?

Elon Musk-owned SpaceX's Starship rocket accomplished its first fully successful test flight last week, with both its booster and spacecraft making a gentle splashdown after an hour-long sub-orbital space flight. This was SpaceX's fourth attempt to launch the mammoth Starship.

Starships' booster (called Super Heavy) detached from the upper section (or the Starship spacecraft), to make a soft landing in the Gulf of Mexico. The spacecraft, however, travelled halfway around the planet to make a controlled splashdown in the Indian Ocean.

This test flight brings SpaceX one step closer to its aim of building a fully and rapidly reusable rocket system. Once entirely operational, Starship can redefine space travel and exploration for the benefit of astronomy and planetary science.

### But first, what is Starship?

Starship is a two-stage heavy lift-off vehicle designed to carry crew or/and cargo to Earth orbit, the Moon, Mars, and beyond. Put together, the rocket system is nearly 120 metres tall, making it the largest rocket ever flown — taller than even the Saturn V (111 m), which took Neil Armstrong to the Moon. For perspective, the Qutab Minar is 72.5 m tall.

The Super Heavy booster consists of 33 Raptor engines that can produce 74 meganewtons of thrust. NASA's biggest currently-operational rocket, the Space Launch System (SLS), generates 39 meganewtons off the pad. Saturn V delivered some 35 meganewtons of thrust off the pad. These Raptor engines use a 3.6:1 ratio of liquid oxygen (the oxidiser, a chemical which reacts with the fuel to cause combustion) and liquid methane (the fuel).

According to SpaceX, upon the project's completion, the Super Heavy will be fully reusable, and capable of re-entering Earth's atmosphere after a mission to land at the launch site.



# How can Starship reduce the cost of space travel?

One of Starship's biggest selling points is that it will drastically bring down the cost of space travel. Three main features will allow this.

First, the Starship is eventually expected to be able to carry up to 150 tonnes of payload to low-Earth orbit, and at least 100 tonnes to the Moon and Mars. This is more mass than humankind has collectively soft-landed on the lunar surface so far.

Two, SpaceX is developing the Starship's upper stage in such a way that it can be refuelled in Earth orbit by other Starships. In theory, this will allow it to operate like

an aeroplane that can be refuelled and put out in the air quickly.

Three, the Starship rocket system is designed to be entirely, and rapidly reusable. Unlike in the case of other launch systems, Starship's principal hardware elements are not discarded — either by being dropped in the ocean or allowed to burn up — but rather brought back to the ground so that they can be used again.

Even NASA's reusable Space Shuttle spacecraft used a disposable external fuel tank and reusable thrusters which had to be recovered from the sea, examined, and refurbished after every use. Even the shuttle itself often took months to get running again.

According to some estimates, the Starship will be able to deliver cargo up to 100 tonnes to Mars for just \$50 million. The Space Shuttle, which was retired in 2011, used to cost \$1.5 billion to lift only about one-quarter of what Starship will, and only into low Earth orbit, according to a report by ABC News.

# How does this benefit science?

Over the years, the biggest hurdle to space exploration, and the commercialisation of space travel has been the inability of launch vehicles to carry heavy payloads. This requires carrying lots of fuel (hence a bigger rocket), and is a very expensive endeavour.

Starship's capability to carry heavy payloads, while being extremely cost-effective, promises to change that.

For instance, scientists will be able to launch much larger space telescopes, which could be built out of cheaper but heavier materials. They will also be able to send bigger equipment in future Moon and Mars missions, such as a full-sized drilling rig, which can drill up to a kilometre. This will give scientists unprecedented access to the interior of the Moon and Mars, where useful resources are believed to be present.

As Starship is capable of returning to Earth, it would also be able to bring back huge amounts of samples from the Moon and other planets, which could help scientists unlock numerous mysteries about our solar system and the origin of life.

The rocket system is central to NASA's Artemis program, which aims to put astronauts back on the Moon by 2030. It is also supposed to take astronauts to Mars before the end of the next decade.

# What are the challenges?

But before these 'benefits' can be actualised, SpaceX needs to prove that Starship is safe and reliable, while keeping costs low, as per its promise. Historically, this has been a major challenge for space flight programmes.

For example, the major criticism of NASA's Space Shuttle programme was that the incremental cost of its reusable space shuttles turned out to be much more expensive than expendable rockets, despite the latter not being reusable.

Relevance: GS Prelims & Mains Paper III; Science & Technology Source: Indian Express

# 3. Significance of Maldives' pro-China President Muizzu's New Delhi visit

### Why in News?

The President of Maldives, Mohamed Muizzu, was one of seven leaders from India's neighbourhood who attended Prime Minister Narendra Modi's 3.0 swearing-in at Rashtrapati Bhavan. Muizzu's presence was significant, given the way he has positioned himself politically vis à vis India, and the crucial strategic aspect to the India-Maldives relationship.



### The 'India Out' candidate

Muizzu came to power on November 17 last year on an 'India Out' plank. The India Out campaign had begun in 2020 as the Maldives opposition's protest against then President Ibrahim Solih's policies that were perceived to be friendly towards New Delhi, but had soon turned into a movement against India's alleged military presence in the archipelago, which both the Solih government and India denied.

During his presidential campaign, Muizzu repeatedly vowed to send back "foreign soldiers". Within hours

of being sworn in, he demanded the withdrawal of all Indian military personnel from Maldives.

Consequently, the final batch of Indian soldiers — who were stationed in the Maldives to operate and maintain two helicopters and three Dornier aircraft India had previously gifted to the country — were replaced by civilians in May.

### Muizzu's pro-China tilt

Like his mentor, former President Abdulla Yameen Abdul Gayoom, under whose rule (2013-18) the India-Maldives relationship deteriorated severely, Muizzu has openly aligned his country with China, India's geopolitical rival in the Indian Ocean.

In January, Muizzu broke with a Maldivian tradition to choose Beijing over New Delhi for his first foreign visit as President. He met President Xi Jinping, and signed 20 agreements covering areas ranging from tourism to social housing and e-commerce.

In March, Maldives signed an agreement with Beijing to obtain free "non-lethal" military equipment and training from China — the first ever military deal between the two countries.

The Chinese influence in the Maldives has increased steadily over the past couple of decades. The island nation is part of China's Belt and Road Initiative, which has led to an influx of Chinese money and a strengthening of the relationship between the two countries — at the expense of India.

Muizzu's presidency and the anti-India sentiment fanned by sections of the Maldivian political class is a culmination of this process.

## A historical relationship

For India, the Maldives is a crucial ally, important to secure its maritime periphery and to keep an eye on the larger Indian Ocean region where China is making aggressive moves. The archipelago lies barely 70 nautical miles (130 km) from Lakshadweep's Minicoy Island, and some 300 nautical miles (560 km) from India's west coast. Several important commercial sea lanes run through the islands.

Regardless of Muizzu's pro-China, anti-India posturing, the Maldives cannot simply "let go" of India. It is heavily dependent on Indian imports in almost all important sectors, from food to life-saving medicines, and aircraft used in search and rescue missions.

India has rushed to the Maldives' aid in many crises — from being the first to send in help after the 2004 tsunami to airlifting drinking water to the country after a desalination plant broke down in 2014. During the Covid-19 pandemic, India sent medicines, masks, gloves, PPE kits, vaccines, and other aid.

The Indian Army played a crucial role in thwarting an attempted coup in Malé (Capital of Maldives) in 1988.

### Chance of a fresh start

At a time when relations between India and the Maldives are at a low, Muizzu's visit sends an encouraging signal. Some groundwork for a reset in the relationship has been done over the past couple of months.

In April, India approved the highest-ever export quotas for essential commodities — eggs, potatoes, onions, sugar, rice, wheat flour and pulses, river sand and stone aggregates — to Maldives for 2024.

In, Maldives Foreign Minister Moosa Zameer met External Affairs Minister S Jaishankar in New Delhi — the first high-level visit since Muizzu came to power. The two leaders had "extensive discussions" on "bilateral relationship" and "regional security issues".

Relevance: GS Prelims & Mains Paper II; Bilateral Relations Source: Indian Express