

Dữ liệu là gì?

- Bài thuyết trình cho VSCA –Văn Hóa Cao Niên Việt-Ashburton
 - Mai Trần
 - Bài thuyết trình tại hội trường, gồm 2 phần
 - Phần 1-ngày Tuesday 16/6/2026 từ 12:30pm -13:00pm
(Mobile Data, Internet Data)
 - Phần 2-ngày Tuesday 14/7/2026 từ 12:30pm-13:00pm
(Global Data, AI-generated Growth, Data Center)
- Sự tăng trưởng kinh ngạc của dữ liệu, trung tâm dữ liệu toàn cầu

Dữ liệu-Data là gì

1. **Dữ liệu (Data):** Là tập hợp các sự thật, thông số, chữ số, hình ảnh, âm thanh hoặc mô tả thô (chưa qua xử lý). Bản thân dữ liệu thô thường chưa có ý nghĩa rõ ràng cho đến khi nó được sắp xếp. **Dữ liệu (Data):** Là các yếu tố thô, rời rạc. Ví dụ: Các con số 38, 39, 40 đứng riêng lẻ chỉ là dữ liệu.
2. **Thông tin (Information):** Là dữ liệu đã được xử lý, tổ chức và đặt vào ngữ cảnh để có ý nghĩa. Ví dụ: "Nhiệt độ cơ thể của bệnh nhân là 39 Đây là thông tin (cho biết bệnh nhân đang bị sốt.39).
3. **Phân loại dữ liệu phổ biến, thường được chia làm hai loại chính**
 - a-Dữ liệu định lượng (Quantitative Data)** Dữ liệu thể hiện bằng con số, có thể đo lường hoặc đếm được. Chiều cao, giá tiền, số lượng hội viên...
 - b-Dữ liệu định tính (Qualitative Data)** Dữ liệu mô tả tính chất, đặc điểm không thể biểu diễn bằng số chính xác. Màu sắc, kết cấu, ý kiến khách hàng, tên gọi.
4. **Từ ngữ liên quan thường gặp**
 - A-Big Data: Dữ liệu lớn (tập hợp dữ liệu khổng lồ và phức tạp).
 - B-Data Analysis / Analytics: Phân tích dữ liệu.
 - C-Database: Cơ sở dữ liệu (nơi lưu trữ dữ liệu có tổ chức).
 - D-Data Storage: Lưu trữ dữ liệu.
 - E-Data Cloud, Data Center
 - Mobile (3G/4G/5G): Trong đời sống hàng ngày, người Việt cũng hay gọi dung lượng mạng di động là "data" (ví dụ: "Điện thoại hết data rồi").

THE GLOBAL GROWTH OF DATA

THE WORLD IS GENERATING MORE DATA THAN EVER BEFORE

DRIVERS OF DATA GROWTH



5G & MOBILE
CONNECTIVITY



CLOUD
COMPUTING



IOT & SMART
DEVICES



AI & MACHINE
LEARNING



VIDEO STREAMING
& SOCIAL MEDIA

GLOBAL DATA
CREATED ANNUALLY
175 ZETTABYTES
BY 2025



FROM 33 ZB IN 2018 TO 394 ZB IN 2030
OVER 11X GROWTH IN JUST 12 YEARS



90% OF THE WORLD'S DATA
WAS CREATED IN THE LAST
TWO YEARS ALONE



BY 2025, EACH PERSON
GENERATE ABOUT 400 GB
OF DATA PER DAY

Source: IDC DataAge 2025, Seagate, Statista

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Dữ liệu định tính (Qualitative Data)

- Dữ liệu định tính là loại dữ liệu mô tả các phẩm chất, đặc điểm hoặc thuộc tính thay các giá trị số. Nó thường *không phải là dữ liệu số* và được sử dụng để hiểu ý kiến, hành vi, kinh nghiệm và các nhóm đối tượng.
- Qualitative data is a type of data that describes qualities, characteristics, or attributes rather than numerical values. It is generally non-numerical and is used to understand opinions, behaviors, experiences, and categories.

Dữ liệu định tính thường được thu thập thông qua phỏng vấn, nhóm thảo luận, nhật cá nhân, ghi chép thí nghiệm, bản đồ, ảnh chụp và các quan sát hoặc ghi chép bằng văn bản khác. Ví dụ về dữ liệu định tính bao gồm màu sắc, thương hiệu, giới tính và phản của khách hàng.

- It is usually collected through interviews, focus groups, personal diaries, lab notes, photographs, and other observations or written records.
Examples of qualitative data include colour, brand, gender, and customer feedback.

Ví dụ dữ liệu định tính

- Ví dụ tiêu biểu- Qualitative Example

Eye color of participants: blue, brown, green, hazel

Customer feedback comment: "The interface is intuitive and user-friendly."

Type of cuisine served at a restaurant: Italian, Mexican, Thai

Fabric texture description: soft, rough, silky, bumpy

Mood recorded during an interview: anxious, cheerful, frustrated

Preferred smartphone brand: Apple, Samsung, Google

Political affiliation of voters: Liberal, Labor, Green ...

Flower species in a garden: rose, tulip, daisy, orchid

Ví dụ dữ liệu lượng tính

Ví dụ tiêu biểu-Quantitative Example

VSCA Age of participants: dưới 55, 55-65, 65-75...

Number of new members per month: 2, 4, 10...

Height of plants: 15.2 cm, 20.5 cm, 18.7 cm, 22.1 cm

Travel Expenses per week in dollars: \$10, \$20, \$50

Temperature recorded daily: 10°C, 15°C, 20°C, 30°C

Test scores out of 100: 85, 92, 78, 88, 96

Time taken to cook daily dinners: 30 sec, 50 sec, 59.8 sec

Number of website visits per hour: 45, 60, 55, 70, 48

Data (Dữ Liệu) là gì, Cái gì đã sáng tạo ra dữ liệu

Data Unit	Size (Bytes)	Size (Approx.)
Bit (b)	1	-
Byte (B)	8 bits	-
Kilobyte (KB)	1,000 bytes	10^3 bytes
Megabyte (MB)	1,000,000 bytes	10^6 bytes
Gigabyte (GB)	1,000,000,000 bytes	10^9 bytes
Terabyte (TB)	1,000,000,000,000 bytes	10^{12} bytes
Petabyte (PB)	1,000,000,000,000,000 bytes	10^{15} bytes
Exabyte (EB)	1,000,000,000,000,000,000 bytes	10^{18} bytes
Zettabyte (ZB)	1,000,000,000,000,000,000,000 bytes	10^{21} bytes
Yottabyte (YB)	1,000,000,000,000,000,000,000,000 bytes	10^{24} bytes



Key Statistics:

- 2023:** ~120 Zettabytes (ZB) of data created globally. *(One ZB = 1 trillion gigabytes)*
- 2025 (Projection):** Over 180 ZB—driven by IoT and real-time analytics.
- 2030 (Projection):** Exceeding 600 ZB, doubling roughly every 2-3 years.

Key Drivers of Growth:

- More people online (5+ billion)
- Higher resolution (4K/8K video, high-res imagery)
- Real-time streaming (live video, gaming, telemedicine)
- AI & Machine Learning (training models consume enormous datasets)

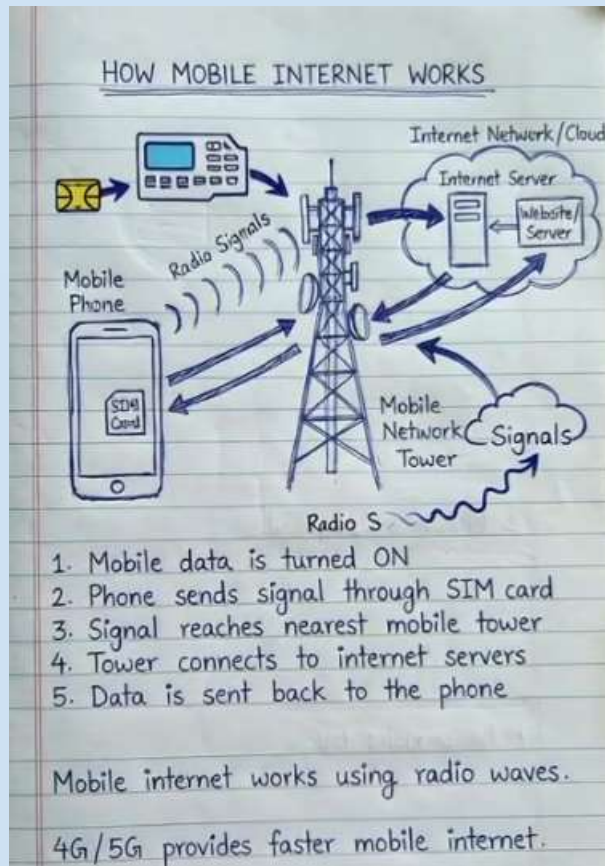
Bottom Line: Over 90% of the world's data was created in the last two years alone.

403 triệu Tetrabytes /ngày

SMARTPHONE CONNECTIVITY GUIDE FOR SENIORS



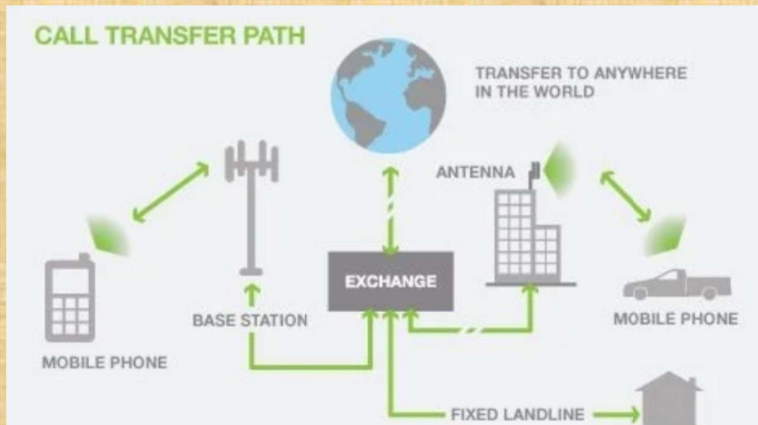
Mobile Data Là Gì ?



- Mobile data connects your phone to the internet through your mobile carrier.
- Works almost anywhere there is cellular coverage.
- Uses your monthly data allowance.
- Examples:
 - o Web browsing
 - o Maps and navigation
 - o Email
 - o Video calls
 - o Streaming music and videos

Think of mobile data as internet access delivered through mobile phone towers. Unlike Wi-Fi, it works while you're travelling, shopping, or walking outdoors.

So sánh Mobile Data Với Wi-Fi



Uses data plan

Works outside home

Usually faster?

Costs extra?

Battery usage

Mobile Data Wi-Fi

Yes No

Yes Sometimes

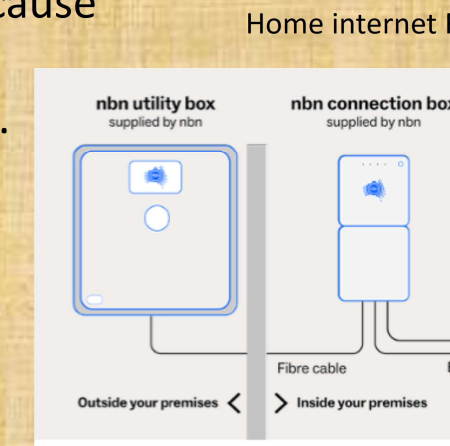
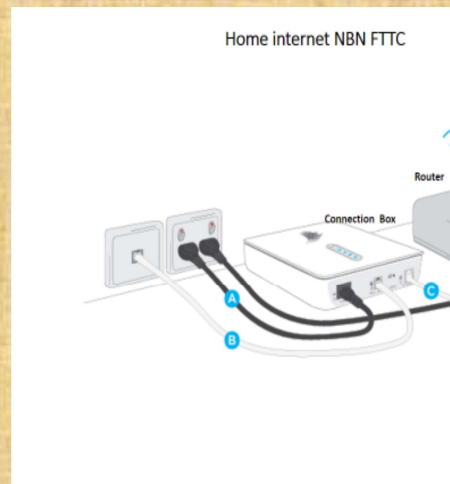
Depends Often

Can Usually included

Higher Lower

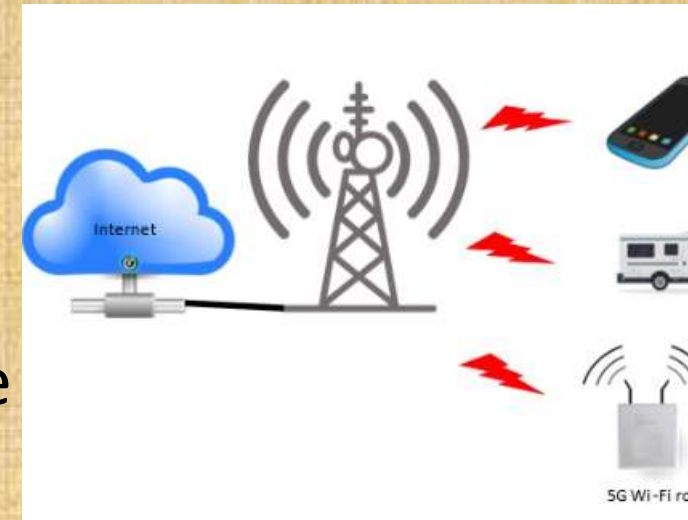
Wi-Fi is generally preferred whenever available because it does not consume your mobile data allowance.

Mobile data is useful when you're away from Wi-Fi.



When Should You Use Mobile Data?

- Good Situations
 - ✓ Navigation while driving
 - ✓ Looking up information while away from home
 - ✓ Messaging and email
 - ✓ Emergency situations
 - ✓ Banking when no trusted Wi-Fi is available
- Mobile data is valuable when you're out and about and need reliable internet access. It is often safer than connecting to unknown public Wi-Fi networks.



Recently deployed, satellite communications technology



Starlink from SpaceX, alongside with other internet service providers Telstra, Optus, Vodafone

When Should You Use Wi-Fi Instead?

Better on Wi-Fi

- ✓ Streaming movies
- ✓ Downloading updates
- ✓ Uploading photos
- ✓ Video calls
- ✓ Backing up your phone
- ✓ Downloading large files

Activities involving large amounts of data are usually best done over Wi-Fi to avoid exceeding your mobile plan

Smartphone Activity	Relative Data Usage	Approximate Data per Hour	
4K video streaming (e.g., YouTube, Netflix)	Very High	7–10 GB	3840×2160
HD video streaming (1080p)	High	1.5–3 GB	
Video calling (e.g., Zoom, FaceTime, WhatsApp)	Medium–High	0.5–1.5 GB	
Music streaming (e.g., Spotify, Apple Music)	Medium	40–150 MB	
Social media scrolling (videos & images auto-play)	Medium	30–100 MB	
Web browsing (text + images)	Low–Medium	10–30 MB	
Online gaming (e.g., PUBG, Genshin Impact)	Low–Medium	20–50 MB	
Messaging (text only; e.g., WhatsApp, iMessage)	Very Low	< 1 MB	
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Understanding Coverage Areas

Where Mobile Data Works Best

- Cities and towns
- Major highways
- Shopping centres
- Airports

Possible Weak Coverage

- Rural areas
- Mountains
- Underground locations

How to Check Data Usage on iPhone

How to Check Data Usage on iPhone (iOS)

- Steps

How to Check Data Usage on Android

- Steps
- 1. Open Settings
- 2. Tap Network & Internet
- 3. Select Mobile Network
- 4. Tap Data Usage
- 5. Review app usage

The exact names may vary slightly depending on the phone brand, but most Android phones provide similar data monitoring tools.

Ways to Reduce Mobile Data Usage

- Helpful Tips
- ✓ Use Wi-Fi whenever available
- ✓ Download videos at home
- ✓ Limit automatic app updates
- ✓ Turn off autoplay videos
- ✓ Use data-saving modes
- ✓ Disable background app refresh

Small changes can dramatically reduce data consumption and help keep your monthly bill under control.

Enable Low Data Mode

📱 **On an iPhone (iOS)**

Apple's built-in feature is called "Low Data Mode," and you can turn it on for your cellular connection and for specific Wi-Fi networks.

Here are the steps to enable it:

- **For Cellular Data:** Head to **Settings > Cellular > Cellular Data Options > Data Mode**, then select **Low Data Mode**.
- **For a Wi-Fi Network:** Go to **Settings > Wi-Fi**, tap the **Info (i)** icon next to your connected Wi-Fi, and toggle on **Low Data Mode**.

When Low Data Mode is active, your phone will pause background app refreshes, reduce streaming quality, and stop automatic downloads and iCloud backups to save on cellular data.

Low Data Mode

-  On an Android Phone
- The main tool on Android is called "Data Saver." While the path can vary slightly between manufacturers, the core feature is universal.
- Manufacturer Path to Enable "Data Saver"
- Samsung & Most Others Settings > Connections > Data Usage > Data Saver
- Google Pixel & Stock Android Settings > Network & Internet > Data Saver
- You can also search for "Data Saver" in your Settings app to find it quickly. This feature will reduce background data usage, limit automatic updates, and may lower the quality of streams

Tips for viber and whatsapp to reduce data consumption

- **App-Specific Tips (Viber & WhatsApp)**
- In addition to your phone's system settings you can also adjust settings inside the messaging apps to reduce their data consumption.
-  **Saving Data in Viber**
- Open the **Viber** app.

Extra data saving tips

- **A Few Extra Data-Saving Tips**
- These small changes can also make a surprising difference over the course of a month:
- **Check Background App Refresh:** On iOS, you can turn off for specific apps (Settings > General > Background App Refresh). On Android, you can restrict background data on an app-by-app basis (Settings > Apps > [app name] > turn off "Background data").
- **Disable Automatic Video Playback:** Stop videos on social media apps like Facebook, Instagram, and TikTok from playing automatically. You can usually find this setting within each app's preferences.

Staying Safe on Public Wi-Fi

Staying Safe on Public Wi-Fi

- Do
 - ✓ Use trusted networks
 - ✓ Verify the network name
 - ✓ Use secure websites (https)
- Avoid
 - ✗ Entering sensitive information on unknown Wi-Fi
 - ✗ Connecting to suspicious "free" networks
 - ✗ Sharing personal information unnecessarily

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Conclusion & Key Takeaways

- **Remember**

- Use Mobile Data

 - When travelling

 - For navigation

 - When trusted Wi-Fi isn't available

- Use Wi-Fi

 - At home

 - For streaming