

How It All Works

Follow the Information

This document is designed to support a presentation to the Kings Point Apple Club on May 14, 2025. It contains the replies generated by ChatGPT. It does not contain the slides from the presentation.

To use ChatGPT, one requires an account; both free and paid accounts are available. The requestor creates a “prompt” that contains the question or idea being presented to ChatGPT. ChatGPT returns its thoughts about the prompt.

The intent of this document is to provide backup to the presentation for those club members attending the meeting.

About ChatGPT-4o:

ChatGPT-4o (“o” for “omni”) is a version of OpenAI’s ChatGPT designed to deliver faster, more natural conversations across text, voice, and vision inputs. Built with advanced reasoning and understanding capabilities, it offers improved accuracy, responsiveness, and a broader ability to follow nuanced instructions compared to earlier models. ChatGPT-4o can assist with a wide range of tasks, including answering questions, drafting content, summarizing information, creative writing, and solving complex problems, making it a powerful tool for both personal and professional use.

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An Approach

ChatGPT originally provided an outline for a training course on how an iPhone works. I'm not sure that will do what I want. I'm going to use ideas from ChatGPT and try a few different approach.

What I'm thinking is that it is not important to understand how a computer works. It is important to understand how the system works.

It is reasonable to include high-level explanations of how AI can assist in developing relationships with data.

Prompt:

Instead of talking about the "computer", does it make sense to talk about what a computer system is actually doing? A computing device accesses information entered through applications, processing it to form meaningful relationships. These relationships involve customer-provided information as well as information provided by application developers. A user interface on the customer's device displays the relationships resulting from the application in a meaningful display.

Follow through by talking about information storage and access through a network. Where do the applications come from, and how does a customer obtain an application? Also, how does the customer learn about different applications? Include updating and bug fix issues. What does it mean to connect an application on a customer's device to the information?

Talk about why information lives in remote servers instead of in the customer's device. Introduce the concept of backup and the need for encryption, passwords, and high-speed networks.

Explain application updates and why they are necessary. Why do some applications cost money, and others do not?

ChatGPT-4o:

Below is an explanation that shifts focus away from abstract "computers" and instead describes what a computing system is really doing. This explanation is designed to clarify how devices like iPhones, iPads, and Apple Watches work with applications, networks, and remote data centers. It is structured around several key concepts.

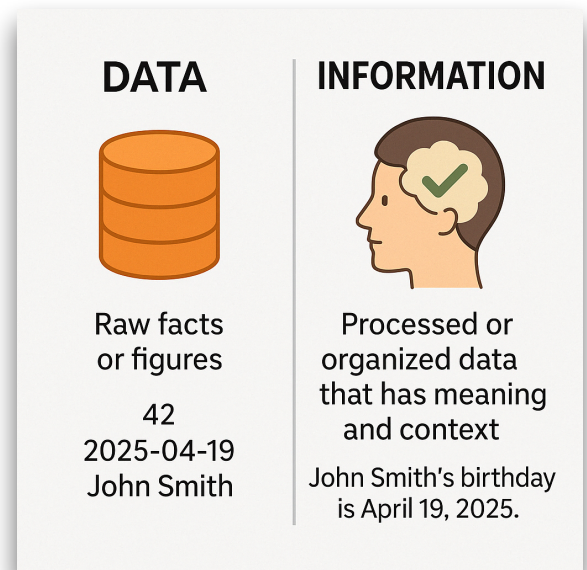
1. Processing Information: Input, Relationships, and Output

Data and Input

A computing device receives information—that is, data—entered by the user or provided automatically by software. This can include simple inputs like touch interactions, voice commands, or numbers entered via a keyboard.

Processing and Meaningful Relationships:

The device processes this raw data by using instructions built into its applications. These instructions look for relationships or patterns in the data. For instance, when you enter a contact's name and number, the application organizes that information and later displays it in your contacts list. In essence, the device takes bits of data and connects them with rules defined by the application.



Display on a User Interface:

Once the data is processed and organized into meaningful relationships, the information is presented through a user interface. The screen shows you icons, lists, or graphs that encapsulate what the device has understood from your inputs in ways that are easy to interpret.

2. Information Storage and Network Access

Local Versus Remote Data Storage

While some information is stored directly on your device (for quick access and offline use), a large part of the data lives in remote servers. These remote servers—often referred to as “the cloud”—are specialized computers maintained by companies. The reasons for using remote storage include:

- **Backup:** Your data remains safe if something happens to your device.
- **Scalability:** Remote servers can handle large volumes of data and many users simultaneously.
- **Security:** With robust encryption and management, remote servers can offer higher security.

Connecting Through a Network

High-speed networks (like Wi-Fi or cellular data) allow your device to communicate with these remote servers. When you use an app, your device sends a request over the network, the server processes or retrieves the needed information, and then it sends a

response back to your device. This connection means that applications can function even if the heavy lifting is done on a remote computer rather than your handheld device.

3. Origins and Discovery of Applications

Where Applications Come From

Applications are created by developers—individuals, companies, or organizations—who write the instructions that tell your device how to process your inputs and display the results. These applications are then published in app stores (for example, Apple's App Store). This marketplace is where customers download or purchase apps.

- **Learning About and Choosing Applications:** Customers learn about different apps from a variety of sources:
- **App Store Recommendations:** Curated lists, reviews, and ratings help indicate which apps work well.
- **Word of Mouth and Advertising:** Friends, family, or advertisements often point you toward useful apps.
- **Demonstrations:** Both online tutorials and in-person presentations can show how an application operates and what value it brings.

Connecting the Application to the Information

When an app “connects” to information, it means that the application is set up to talk to remote databases or servers via the network. For example, a weather app gathers current data from remote weather servers and displays it on your device. This connection involves protocols for securely sending data back and forth and ensures that you see up-to-date information.

4. Updates, Bug Fixes, and Application Maintenance

Why Updates and Bug Fixes Are Necessary

No application is perfect from the start. Developers routinely update applications to:

- **Fix Bugs:** Software can have errors that affect performance or even pose security risks.
- **Patch Vulnerabilities:** Security is an ongoing battle. Updates help protect your information by patching security flaws.
- **Improve Functionality:** As hardware or network capabilities improve, applications can be refined for faster and more reliable performance.
- **Add New Features:** Updates can also include new features that enhance the user's experience or introduce innovative ways to interact with the data.

The Process of Updating

Often, updating involves downloading a small package over your network. Your device then installs these changes, sometimes seamlessly in the background. This maintenance ensures that your applications continue to run efficiently and securely over time.

5. Understanding Remote Servers, Backups, and Security

Why Information Lives Remotely

Remote servers are used instead of storing everything on your device for several reasons:

- **Capacity and Efficiency:** Mobile devices are designed for ease of use and mobility. Remote servers have much larger storage capacities and processing power.
- **Reliability and Backup:** By keeping your data in remote servers, your valuable information is backed up. If your device is lost or damaged, your data remains safe.
- **Centralized Updates and Security:** Managing a few large servers is easier for maintaining security and consistent performance across many users compared to ensuring every device is individually secure.

Encryption, Passwords, and Secure Connections:

- **Encryption:** This is the process of converting your data into coded language so that it can only be read by someone with the correct key. It ensures that even if data is intercepted on its way between your device and a server, it remains unreadable.
- **Passwords:** Think of passwords as the keys to your digital information. They prevent unauthorized access to your accounts and data.
- **High-Speed Networks:** Fast networks are vital because they ensure smooth transmission of encrypted data without long delays. A high-speed connection makes user experiences fluid, as data is continually fetched from and sent to remote servers.

6. Free Versus Paid Applications

The Economics Behind Application

Some applications are free, while others cost money. There are several reasons for this:

- **Development and Maintenance Costs:** Creating robust, secure, and user-friendly applications often requires significant investment in terms of time, money, and expertise. Paid apps help developers recover these costs.

Business Models:

- **Free Apps:** Often, free applications use other methods to generate revenue, such as advertisements, in-app purchases, or premium features that can be unlocked later. They might serve as entry points into an ecosystem.
- **Paid Apps:** When you pay upfront, you're often buying software that has fewer ads, more robust features, or superior customer support. The cost reflects the developer's investment and ongoing effort to update and secure the app.

Subsidies and Ecosystem Strategies:

Sometimes companies offer certain apps for free because they support revenue-generating activities in another area or are part of a larger ecosystem where the service is a benefit to device owners (e.g., free messaging or email services funded by other business activities).

Summary

In essence, a computing device is a tool designed to gather inputs, process them according to established relationships or rules, and display the resulting information in an intuitive way.

Applications—ranging from free to paid—are the means by which these systems interact with you. They connect with remote servers over high-speed networks to ensure your data is backed up, secure, and always current.

Regular updates and bug fixes are the maintenance tasks that keep these systems safe and efficient.

By understanding these core concepts, customers can appreciate not just how their devices function, but why they work the way they do and how the broader ecosystem of networks, security, and application development contributes to a reliable digital experience.

Impact on Retirees

Prompt:

What is the impact on retirees of having to learn to use computing devices? Seems to me that as we get older, we have more and more problems learning new things. Is the effort to learn how to use computing devices worth the effort?

ChatGPT-4o:

Learning to use computing devices as a retiree can indeed seem daunting at first, especially because aging can sometimes affect the speed at which we pick up new skills. However, the impacts of embracing technology go well beyond the initial learning curve, offering significant practical, cognitive, and social benefits. Here's a deeper look at the implications and why the effort is generally worthwhile.

Cognitive Engagement and Lifelong Learning

Mental Stimulation

Learning any new skill—including computing—challenges the brain. Regular mental exercise is known to help maintain cognitive flexibility and may even slow age-related decline. Engaging with technology is a form of lifelong learning that keeps the mind active. Studies suggest that learning new skills can help sustain neural plasticity, which is crucial for memory and problem-solving.

Boosting Confidence

Overcoming the hurdles of learning new technology can lead to a sense of accomplishment. When retirees become more comfortable with devices, they often report increased self-confidence and a willingness to tackle other areas of learning or hobbies.

Practical Benefits in Daily Life

Enhanced Communication

Devices like smartphones, tablets, and smartwatches open up a world of communication possibilities. Retirees can easily connect with family and friends through video calls, messaging apps, and social media. This connectivity reduces social isolation—a factor linked to better mental and emotional health.

Access to Essential Services:

Many services such as banking, telehealth, and government information are increasingly moving online. Learning to use computing devices enables retirees to handle these tasks independently, often from the comfort of their home. It also provides the means to quickly access emergency or health-related information.

Entertainment and Enrichment:

The digital world offers a vast repository of entertainment (streaming services, online games, e-books) and educational resources (online courses, virtual museum tours). This not only enriches daily life but also helps retirees stay mentally and socially engaged.

The Structure of Digital Systems: Why It Matters

Understanding the Bigger Picture:

Instead of focusing solely on the “computer” as a box of circuits, it’s helpful to view a computing system as an ecosystem that takes your input, processes it, and produces meaningful outcomes. For example, when you use an app:

- Your information is processed to establish relationships (like contacting a friend via a messaging app).
- The results of these processes are displayed on a user interface that is designed to be intuitive.

Remote Servers and Cloud Storage:

Much of the heavy lifting—data storage, processing updates, backup, and security—is handled by remote servers:

- **Backups and Security:** Data stored remotely is safer. If something happens to a device, your information remains accessible and secure.
- **High-speed Networks:** Connectivity ensures that your device isn’t working in isolation; it communicates with remote servers for real-time updates, information retrieval, and security patches.

Learning in Context:

Understanding how applications are updated, how they connect to remote servers, and why encryption is necessary, helps demystify the digital world. These explanations can reduce frustration by showing that many processes are there to enhance security and efficiency rather than to complicate life.

The Economics and Evolution of Applications

Free vs. Paid Applications:

Some apps cost money while others are free due to different business models:

- **Paid apps** often reflect direct investment in development and ongoing support.
- **Free apps** may include in-app purchases or advertising, but they often serve as entry points into broader ecosystems.

The Role of Updates and Bug Fixes:

No software is perfect. Developers routinely release updates to fix bugs, patch security vulnerabilities, and improve functionality. Although updates might seem like an inconvenience, they are essential for keeping applications secure and running smoothly.

The Effort Is Worthwhile

Overcoming the Learning Curve:

It's natural for anyone—especially retirees—to find new technology challenging. However, tailored instruction, supportive communities, and user-friendly designs (like those on many modern Apple devices) help bridge the learning gap. Many community centers and retirement communities now offer tech classes specifically designed for older adults.

Long-Term Rewards:

The independence and enhanced quality of life that come from mastering these tools are significant. Being able to manage personal affairs, stay in touch with loved ones, and access entertainment and emergency services independently all contribute to a stronger sense of autonomy.

Continual Support and Adaptation:

The technology itself is evolving to become more accessible. Voice assistants, simplified user interfaces, and ever-improving security measures are designed with everyday users in mind, reducing the effort needed to become proficient over time.

Conclusion

While aging might naturally slow down the pace of learning new skills, the benefits of mastering computing devices far outweigh the challenges. The process offers cognitive stimulation, improved communication, secure access to essential services, and a way to stay connected in an increasingly digital world. With the right support and understanding, the effort to learn how to navigate this digital landscape is indeed a worthwhile investment in personal independence and enhanced quality of life.

AI: Prompt Engineering

Prompt:

I see a shift in how people are searching for information. Instead of using a search engine, they are using AI. What should I tell retired seniors about prompt engineering and writing prompts?

ChatGPT-4o:

When talking to retired seniors about “prompt engineering,” frame it less as technical jargon and more as learning to give clear, friendly instructions—just like writing a note or placing an order. Here’s what you can cover:

1. What Is a “Prompt”?

- **Everyday Analogy:** A prompt is like a question or request you hand to a helpful assistant. The clearer and more detailed you are, the better the response—just as you’d tell a person exactly what you want.
- **Why It Matters:** Modern AI tools (ChatGPT, Siri, etc.) aren’t mind readers. They work best when you guide them with enough context and specificity.

2. The Basics of Good Prompts

1. Be Specific

Instead of “Tell me about gardening,” say “Explain how to plant spring bulbs in pots on a sunny balcony, step by step.”

2. Provide Context

Mention your needs or limitations: “I have arthritis—what are low-effort gardening tools I can use?”

3. Set the Role or Tone

“Act as a friendly tutor and explain...” or “Write this in a clear, conversational tone suitable for beginners.”

4. Break Complex Tasks into Parts

If you need a lesson plan, ask first for an outline, then for slides or handouts.

3. Examples: From Vague to Useful

| Too Vague Prompt | Improved Prompt |
|---------------------------|---|
| “How do I use my iPad?” | “I’m new to iPads. Please explain how to check and reply to email, with each tap I need to make.” |
| “Help me write a letter.” | “Write a friendly thank-you note to a neighbor who brought me cookies. Keep it under 100 words.” |

4. Iteration Is Part of the Process

- **Try, See, Refine:** If the first response isn't quite right, you can say: "That's helpful, but can you make it shorter?" or "Please add more examples."
- **Follow-Up Questions:** Think of your conversation like a chat—you can drill down or ask for clarification at each step.

5. Tips for Seniors

- **Use Familiar Language:** Write prompts in the way you'd speak it out loud.
- **Keep It Simple:** One request at a time; avoid cramming too many questions into one prompt.
- **Save Your Favorites:** If a prompt gave a great answer, copy it into Notes or a document so you can reuse or tweak it later.
- **Practice Makes Perfect:** The more you experiment, the more you'll learn how to shape your requests for the best results.

6. Beyond Text: Adding Media or Examples

- **Show What You Mean:** Some AI tools let you upload a photo or screenshot along with your prompt—e.g., "Here's a picture of my home screen; how can I rearrange these icons for easier access?"
- **Reference Previous Answers:** "Earlier you suggested using the Mail app. Now, how do I set up filters in that app?"

7. Empowerment Through Prompting

- **Stay Independent:** With clear prompts, you can get tailored tutorials, recipes, troubleshooting steps, or even hobby ideas—all without needing to search through pages of generic web results.
- **Build Confidence:** As your prompts improve, you'll find AI feels more like a helpful companion than a black-box search engine.

Bottom Line:

Tell seniors that prompt engineering is simply the art of asking questions clearly. By treating AI like a friendly helper—giving it context, examples, and clear instructions—they'll get better, more relevant answers and feel more confident exploring technology on their own.

It's All About Information

Prompt:

Who owns information? Or is the question who controls information?

ChatGPT-4o:

When we ask “Who owns information?” versus “Who controls information?”, we’re really looking at two related—but distinct—aspects of data.

Information as an Intangible “Asset”

Information Isn’t a Physical Object

You can’t hold “data” in your hand—as you would a book or a piece of furniture. Instead, information consists of bits of code or records stored on devices or servers.

Why “Ownership” Is Tricky

In the physical world, ownership means you have the right to use, sell, or destroy something. With information, those rights are governed by a patchwork of:

- **Copyright and Intellectual Property Laws** (e.g. who wrote an email or took a photo)
- **Privacy Laws** (e.g. medical or financial data about a person)
- **Contractual Agreements** (e.g. terms of service you agree to when you sign up for iCloud)

Because of these layers, “owning” information really means “having legal rights to it.”

Legal Ownership: Who Has Rights to Your Data?

You, the Creator or Originator

- Anything you type, photograph, or record is yours under most copyright laws—so long as it’s your original work.
- Example: When you snap a photo with your iPhone, you own the copyright to that image.

Service Providers via Terms of Service

- When you store that photo in iCloud or share it on a social network, you usually grant the provider a license to store, back up, or even display it.
- You still “own” the photo, but Apple may have the right to keep a copy on their servers, back it up, or share it with other devices you authorize.

Third Parties and Regulations

- In some cases—medical records, for instance—laws determine who can see or control your data, and under what circumstances.

Practical Control: Who Really Holds the Keys?

Even if you “own” the data legally, **control** often depends on:

Where the Data Lives

- On your device vs. on Apple’s servers (the “cloud”).
- If it’s on your device, you can usually delete it outright.
- If it’s in the cloud, deletion may require going through Apple’s interface—and backups can linger for a while.

Who Manages Access

- **You** control who has your passcode, Face ID, or Touch ID.
- **Apple** controls the infrastructure: how iCloud encryption works, where their data centers are located, how they handle backups.

Technical Barriers

- Encryption can mean that even Apple can’t read certain data without your authorization.
- Conversely, if you lose your password and recovery keys, you may lose access—meaning you also lose control.

Data Controllers and Processors (a Useful Distinction)

In many data-protection laws (like Europe’s GDPR), organizations fall into two roles:

Data Controller

- Decides **why** and **how** data is processed.
- Example: You uploading photos to iCloud—you decide to back them up.

Data Processor

- Carries out the processing on behalf of the controller.
- Example: Apple storing and encrypting your photos in their data centers.

This framework shows that **control** (deciding what happens to the data) and **processing** (doing the technical work) can be split between you and the service.

Why the Distinction Matters for Seniors

Privacy and Security:

- Knowing you “own” your photos or messages helps you feel confident—they’re your creations.

- Understanding that Apple “controls” the servers reminds you to manage your passwords and encryption settings carefully.

Backup and Recovery:

- You “own” your contacts list—but if it lives only in iCloud and you forget your credentials, you may lose control.
- Regularly review your Apple ID settings, enable two-factor authentication, and keep a written record of recovery keys if needed.

Sharing and Permissions:

- When you share an album or document, you’re temporarily **granting control** to someone else—so it pays to double-check share settings.

Bringing It All Together

- **Ownership** answers the question: “Whose legal rights are these?”
- **Control** answers the question: “Who can view, modify, delete, or share this data?”

In practice, both matter. As a retiree using iPhones and iPads:

1. **You own** the content you create.
2. **Apple controls** the systems that store and protect your data—subject to the promises in their terms of service and the safeguards they build (like encryption).
3. **Your choices** about passwords, sharing settings, and backups determine how much real control you—or anyone else—have over your information.

By understanding both concepts, you can make informed decisions:

- Choose strong, memorable passcodes (to keep control in your hands)
- Review sharing permissions periodically (to avoid unintentionally ceding control)
- Use iCloud backup wisely (so you retain ownership but benefit from Apple’s secure infrastructure)

Bottom Line:

Ownership gives you the (*legal*) rights to your information; control gives you the (*practical*) ability to manage it. Both are essential to feeling confident and secure in the digital world.

Information in Apple's Ecosystem

Prompt:

Apple uses iCloud to backup and sync information between Apple devices owned by the user. How does this help seniors?

ChatGPT:

iCloud's automatic backup and sync can be a game-changer for seniors by turning what used to be fiddly, error-prone chores into hands-off, reliable "set it and forget it" services. Here's how:

Peace of Mind with Automatic Backups

- **No More Manual Transfers** – iCloud backs up your iPhone or iPad nightly whenever it's locked, on Wi-Fi, and plugged in. You don't have to remember to plug into a computer or run a backup app.
- **Protection Against Loss or Damage** – If your device is ever lost, stolen, or breaks, you simply sign in on a new one and restore. All your photos, contacts, settings, and app data come right back — just like magic.

Seamless Continuity Across Devices

- **Always Up to Date** – Add a contact or jot down a note on one device, and it appears instantly on your other devices. No emailing yourself or manually copying files.
- **Hassle-Free Device Replacement** – When you upgrade from one iPhone to another, everything (layouts, passwords, app data) migrates automatically. There's no need to relearn where things live.

Reduced Cognitive Load

- **Password Management** – iCloud Keychain securely stores and autofills your passwords and credit-card info across devices. You don't have to memorize dozens of complex codes.
- **Centralized Storage for Photos & Documents** – Instead of worrying which device has which photos or files, everything lives in iCloud Photos or iCloud Drive. Searching for "Granddaughter's birthday picture" is the same on iPhone, iPad, or even a Mac.

Health and Emergency Benefits

- **Synced Health Data** – Your Apple Watch health readings (heart rate, activity rings, ECGs) automatically sync to your iPhone and, via iCloud, to any future devices or shared family members (with your permission).
- **Find My & Medical ID** – If you misplace a device, "Find My" helps locate it. And having your Medical ID in the Health app synced via iCloud means first responders can see critical info even if they don't have your phone unlocked.

Simple Family & Caregiver Sharing

- **Family Sharing** – You can share iCloud storage, purchased apps, subscriptions, calendars, and photo albums with family members without juggling separate accounts.
- **Remote Assistance** – A trusted child or caregiver can help troubleshoot your device remotely (e.g., via screen sharing apps) and see the same up-to-date files you see.

Security & Privacy Built-In

- **End-to-End Encryption** – Sensitive data (passwords, Health data, HomeKit settings) is encrypted so only you can read it. Even Apple can't see it.
- **Simple Controls** – You decide what to back up, what to share, and when.

Bottom Line

For retired seniors, iCloud turns the complex tasks of backing up, syncing, and securing digital lives into an almost invisible service. It reduces the risk of data loss, cuts out repetitive manual steps, and keeps all devices working together smoothly—so you can focus on what matters, not on managing files.

Value of Information

Prompt:

How is the value of information determined?

ChatGPT:

The “worth” of a piece of information isn’t fixed—it depends entirely on context, need, and how it improves a decision or outcome. Here are the major factors that determine the value of information:

Relevance to a Decision or Goal

Decision-Making Impact

Information is most valuable when it helps you choose better. For example, a weather forecast is worth the trouble of checking if it helps you plan a safe outing.

Expected Value of Information (EVI)

In decision theory, you can quantify value as the amount you’d be willing to pay to reduce uncertainty. If knowing tomorrow’s rain probability saves you a slip-and-fall injury (or lets you cancel an expensive outing), that forecast has high EVI.

Timeliness and Freshness

Perishability

Some information loses value quickly. A stock price or traffic report is only useful “right now.” By contrast, a family photograph retains its emotional and practical worth indefinitely.

Latency vs. Usefulness

If a report on your bank balance arrives three days late, its practical value for controlling your spending plummets.

Accuracy, Completeness, and Trustworthiness

Garbage In, Garbage Out

Partially wrong or misleading data can be worse than none at all, because it may lead you to make poor choices.

Source Credibility

Information from a trusted, authoritative source—your doctor’s lab results or Apple’s system-status alerts—commands higher value than an unverified rumor.

Cost of Acquisition and Processing

Marginal Cost vs. Benefit

On digital devices, copying a file is almost free, so raw data often has negligible “production” cost. But collecting, cleaning, and analyzing that data (say, compiling all your medical history into a usable summary) can be labor- and technology-intensive—and worth paying for.

Subscription & Licensing Fees

Premium news services or specialized software charge because they’ve invested in gathering or refining data that you can’t easily obtain yourself.

Scarcity and Exclusivity

Unique Insights

If only one weather station offers hyper-local forecasts for your retirement community, that data becomes more valuable to you.

Competitive Advantage

For a business, customer-behavior analytics can be invaluable if they’re hard for competitors to replicate.

Context and Personal Utility

Subjective Value

A digital copy of your granddaughter’s artwork may be priceless to you—though it has no market price.

Emotional vs. Economic Worth

Information often carries sentimental or emotional value that transcends its monetary or decision-making utility.

Key Takeaway

Information is only as valuable as the difference it makes. Its worth derives from how well it reduces uncertainty, matches your needs right when you need it, and is accurate and accessible without prohibitive cost. By considering relevance, timeliness, accuracy, acquisition cost, exclusivity, and personal utility, you can judge whether a piece of information is “worth” seeking out or paying for.

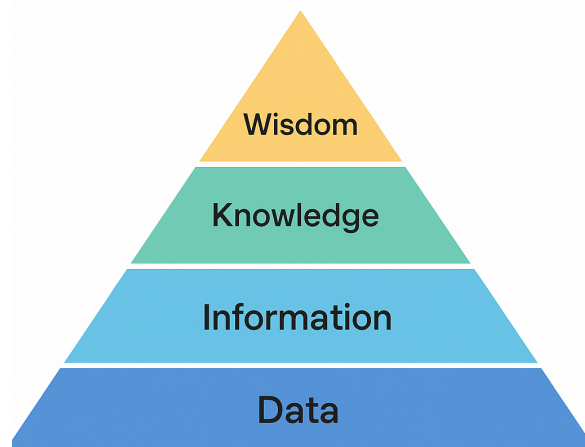
AI Is Knowledge not Information

Prompt:

A conventional computer system relates data, producing information. An LLM AI application does not relate data and does not produce information. Instead, an LLM returns knowledge. When I think of knowledge, it is related information with the addition of an intangible—let's call it experience. If this is a valid way to think about it, classical systems and AI systems produce very different outputs.

ChatGPT-4o:

Your intuition maps nicely onto the classic **DIKW pyramid** (Data → Information → Knowledge → Wisdom). Here's how your framing aligns—and where it breaks down into a useful teaching analogy:



1. The DIKW Pyramid in Brief

1. **Data:** Raw facts (e.g. sensor readings, keystrokes)
2. **Information:** Data given structure or relationships (e.g. “John’s phone number is 555-1234”)
3. **Knowledge:** Information combined with context and “experience” (e.g. knowing which number to call in an emergency)
4. **Wisdom:** Deeper insight about when—or whether—to act on that knowledge

2. Classical Systems → Information

- **Rule-Based Processing:** Traditional programs follow explicit instructions (if-then logic, queries, formulas) to **relate** data.

- **Deterministic Outputs:** Given the same input and code, the same information is produced every time.
- **Example:** A spreadsheet sums your expenses and reports “You spent \$200 on groceries last week.”

3. LLMs → Knowledge-Like Outputs

- **Pattern-Based Generalization:** LLMs are trained on vast text corpora, implicitly “experiencing” billions of examples.
- **Probabilistic Generation:** They don’t just fetch facts—they synthesize plausible responses, analogies, or suggestions that weren’t explicitly programmed.
- **Example:** Ask “How can I cook with leftover rice?” and the LLM might propose recipe ideas, adaptations, and tips that feel like culinary wisdom.

4. Why “Experience” Matters—and Why LLMs Aren’t Human

- **Human Experience:** In people, experience is conscious, grounded in perception and reflection.
- **LLM “Experience”:** A statistical imprint of text patterns, not true understanding or awareness. It can simulate advice or insight but can also confidently “hallucinate” falsehoods.
- **Takeaway:** LLMs *mimic* knowledge by stitching together patterns; classical systems *produce* information by following exact rules.

5. Different Outputs, Different Uses

| Aspect | Classical System | LLM-Based AI |
|-------------------------|----------------------------|-----------------------------------|
| Generation Style | Deterministic, rule-driven | Probabilistic, pattern-driven |
| Output Quality | Precise but narrow | Flexible but occasionally flawed |
| Best For... | Calculations, data lookups | Drafting text, brainstorming, Q&A |

6. Is This Framing Helpful?

- **Yes, as a Teaching Tool:** It helps learners distinguish *what* is happening under the hood:
- Classical = “Here’s the information computed exactly as programmed.”
- LLM = “Here’s a synthesized response drawing on model ‘experience.’”
- **But Remember the Caveats:** Both systems ultimately manipulate bits, and LLM “knowledge” can’t replace expert judgment or factual verification.

Bottom Line

Viewing classical systems as **information factories** and LLMs as “**knowledge**” synthesizers is a valid—and pedagogically powerful—analogy. It highlights why LLMs can feel more creative or insightful, even though their “experience” is really statistical pattern-matching rather than true human understanding.

Another view of DIKW Pyramid (GROK 3)

The DIKW Pyramid is a model that illustrates the hierarchical relationship between **Data**, **Information**, **Knowledge**, and **Wisdom**. It’s often used in information science and knowledge management to explain how raw data can be transformed into actionable insights. Here’s a breakdown of each layer:

1. **Data:** Raw, unprocessed facts or figures without context (e.g., numbers, words, or symbols like “25°C”).
2. **Information:** Data that has been processed, organized, or structured to provide meaning (e.g., “It’s 25°C outside today”).
3. **Knowledge:** Information that has been analyzed, understood, and applied within a specific context (e.g., “25°C is warm, so I’ll wear a t-shirt”).
4. **Wisdom:** The ability to make sound judgments based on knowledge, often involving insight, experience, and ethical considerations (e.g., “Given the warm weather and my plans, I’ll also bring sunscreen”).

The pyramid suggests a progression: data becomes information through processing, information becomes knowledge through understanding, and knowledge becomes wisdom through judgment and experience. Some versions include an additional layer, **Insight**, between Knowledge and Wisdom, but the classic model focuses on these four.