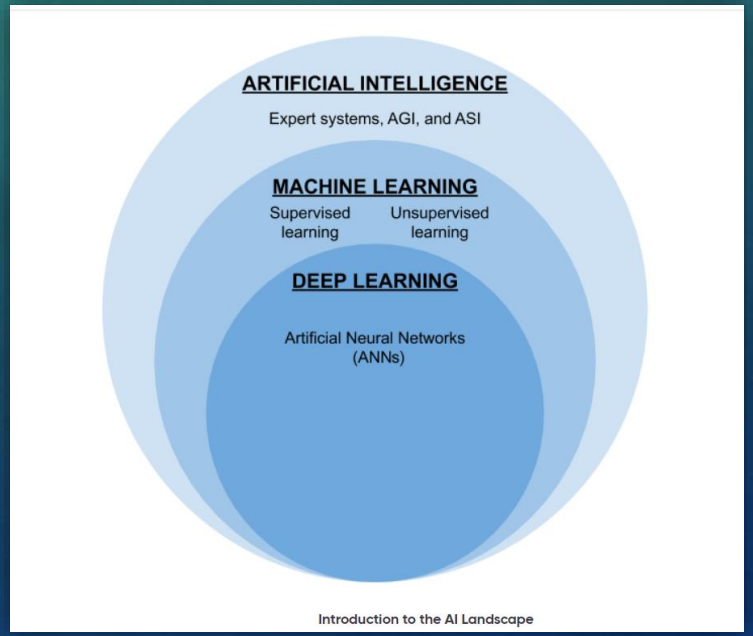
AI + BLOCKCHAIN

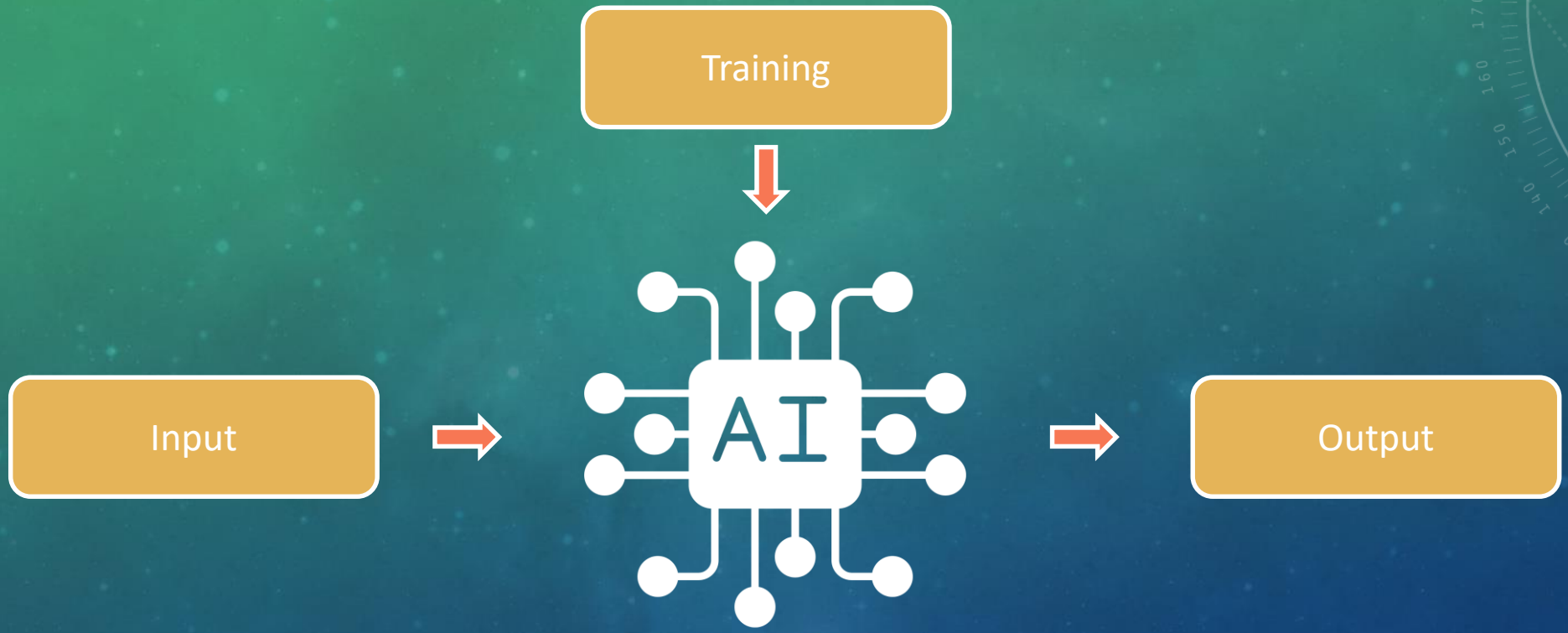
BY CODE EATER

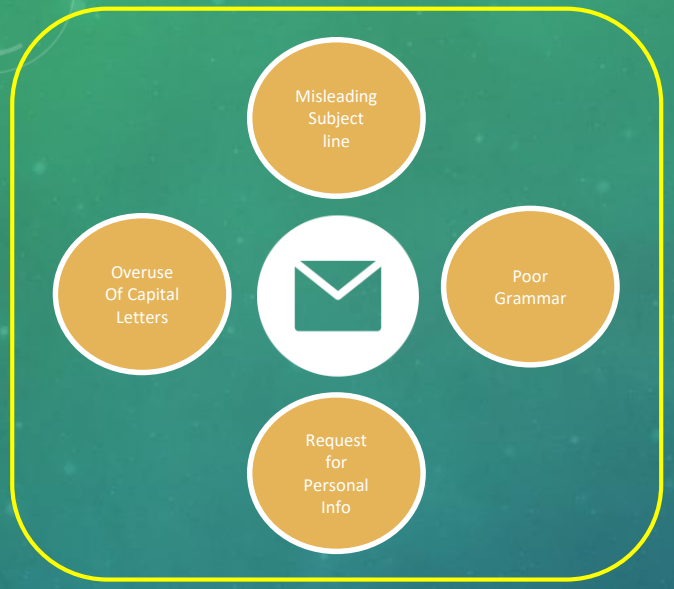
WHAT IS AI?

AI is the intelligence and capability exhibited by a computer to perceive, learn, and solve problems, with minimal probability of failure.



HOW AI WORKS?





Training Data

Mail Input

AI

Spam

Not Spam

HOW AI WORKS?

AI can predict results by analyzing patterns and relationships within a given dataset. It learns these patterns through a process called training, where it is exposed to a large amount of labeled data and adjusts its internal parameters to minimize the difference between its predictions and the actual outcomes.

Let's take an example of a spam email classifier. Suppose we have a dataset of thousands of emails, labeled as either "spam" or "not spam." The AI model can be trained on this dataset to learn the characteristics and patterns that distinguish spam emails from non-spam ones. It analyzes various features of an email, such as the sender's address, subject line, content, and attachments.

During training, the AI model goes through iterations of making predictions and adjusting its internal parameters to improve its accuracy. It compares its predictions with the labeled data and updates its parameters to minimize the difference between the predicted and actual labels.

Once the model is trained, it can be used to predict whether new, unseen emails are spam or not. It applies the learned patterns and relationships to these new emails and generates a prediction based on its understanding of what constitutes spam. For instance, if the model identifies certain keywords, suspicious links, or other spam indicators, it might classify an email as spam.

It's important to note that the accuracy of AI predictions depends on the quality of the training data and the model's ability to generalize from that data. Regular updates and refinements to the model can improve its predictive capabilities over time.

WHAT AN AI CAN DO?

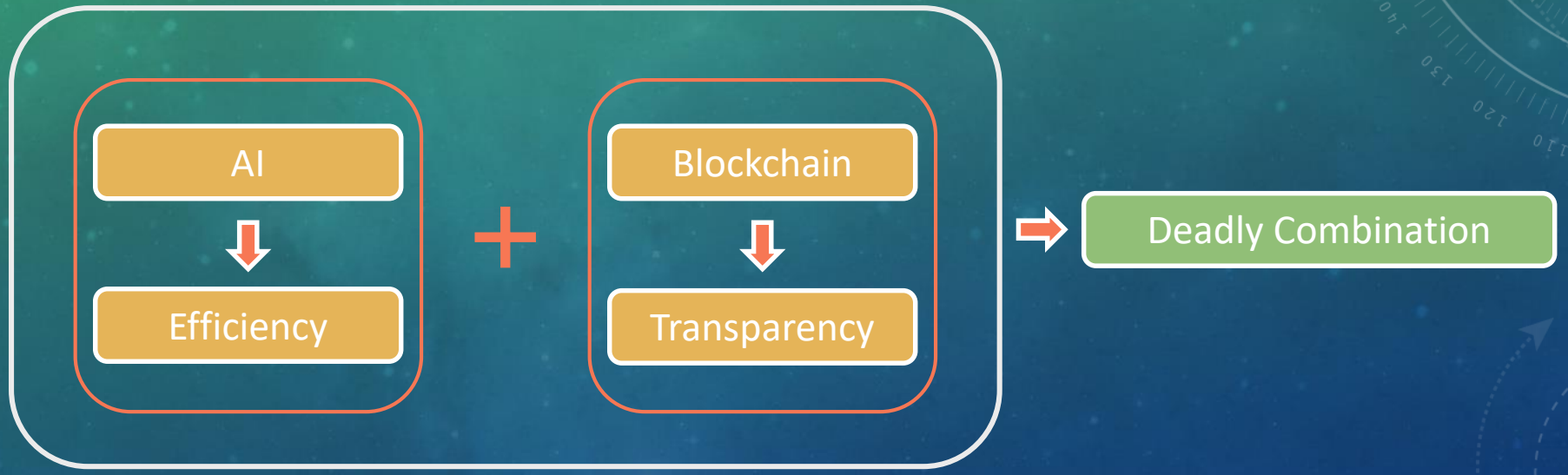
- Automated Decision Making
- Natural Language Processing (NLP)
- Image and Video Recognition
- Personalization and Recommendation Systems
- Autonomous Systems

WHAT AN AI CAN DO?

AI has a wide range of capabilities and applications. Here are five points highlighting what AI can do:

- **1. Automated Decision Making:** AI can analyze vast amounts of data, identify patterns, and make informed decisions or predictions. It can assist in various domains, such as finance, healthcare, and logistics, by providing insights and recommendations to support decision-making processes.
- **2. Natural Language Processing (NLP):** AI can understand, interpret, and generate human language. NLP enables applications like chatbots, virtual assistants, language translation, sentiment analysis, and text summarization, improving communication and accessibility.
- **3. Image and Video Recognition:** AI can analyze and interpret visual content, enabling tasks like image classification, object detection, facial recognition, and video analysis. This has applications in fields such as self-driving cars, surveillance, content moderation, and medical diagnostics.
- **4. Personalization and Recommendation Systems:** AI can analyze user behavior, preferences, and historical data to provide personalized recommendations. This is seen in platforms like streaming services, e-commerce websites, and social media, enhancing user experiences and increasing engagement.
- **5. Autonomous Systems:** AI can power autonomous systems capable of performing tasks without human intervention. Examples include self-driving cars, industrial robots, drones, and automated machinery. These systems leverage AI algorithms to perceive and interact with their environment effectively.
- It's important to note that AI's capabilities are continually evolving, and new applications are being discovered as research and development progress in the field.

BLOCKCHAIN AND AI



APPLICATIONS

- Healthcare
- Supply chain
- Financial Services
- Media
- Real Estate

HEALTHCARE ISSUES

- EMR privacy and security
- Drug Formulation
- Predictive Healthcare

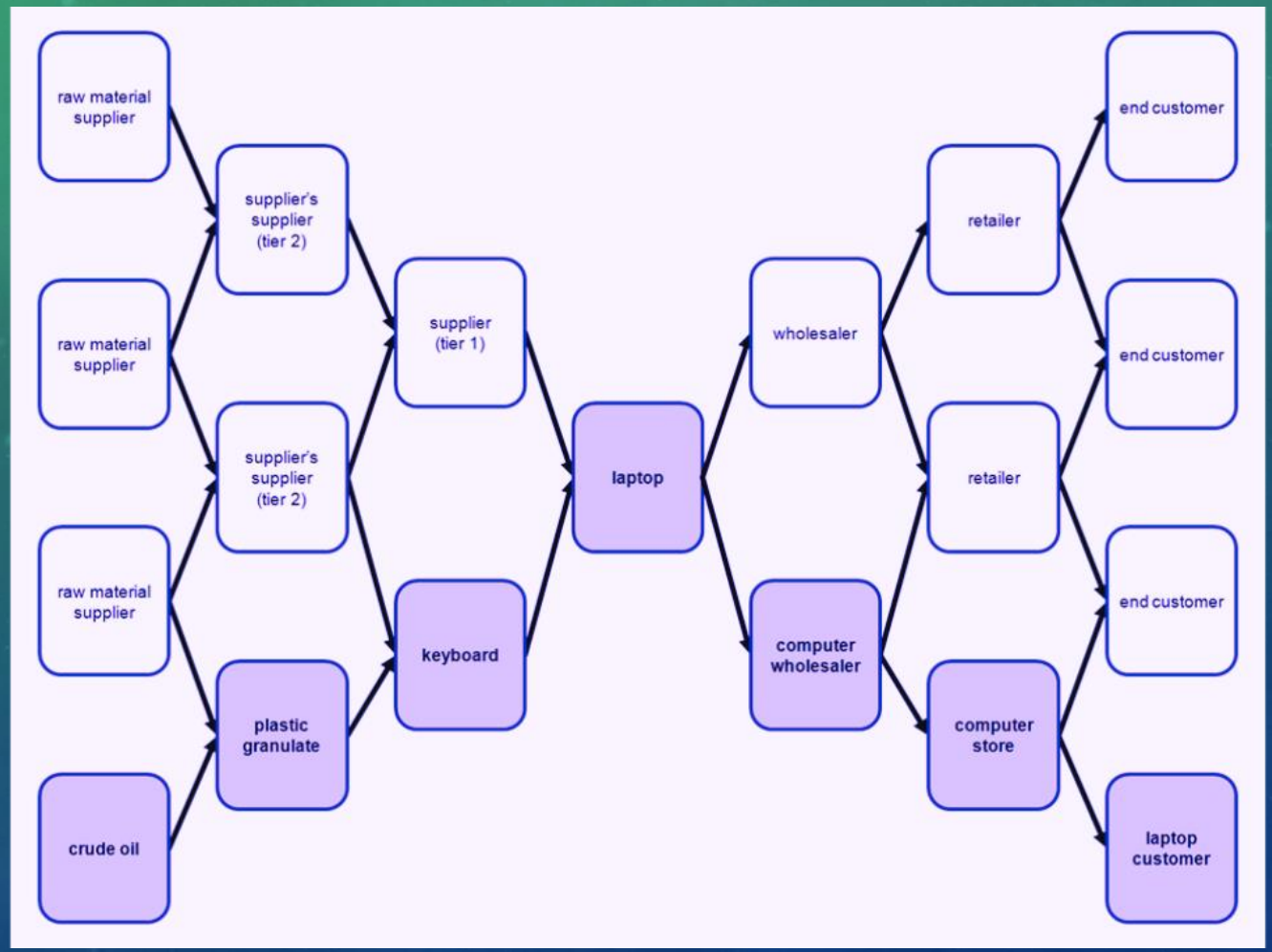
CASE STUDIES IN HEALTHCARE

The following list includes some of the blockchain-based initiatives being started by active enterprises and startups alike in the healthcare domain:

- **IOTA eHealth**: IOTA eHealth is a solution-based initiative spearheaded by the IOTA Foundation that offers features such as Remote Patient Monitoring, Patient Health Data Exchange, and ensuring clinical research data integrity is supported by the IOTA ledger. You can learn more about IOTA eHealth at https://www.iota.org/verticals/ehealth.

- **IBM blockchain**: IBM blockchain research groups are reportedly researching a solution to prevent counterfeit drugs using a permissioned blockchain and a special mobile interface. The solution reportedly hosts a blockchain network, wherein participants on the network are certified and authorized to perform transactions, as well as track and verify them. You can learn more and catch the latest actions being made on the current efforts at http://www.research.ibm.com/haifa//dept/services/bc-iot.shtml.

SUPPLY CHAIN



SUPPLY CHAIN ISSUES

- Operational costs
- Security
- Real-time visibility

CASE STUDIES IN SUPPLYCHAIN

- **IBM Sterling Supply Chain Suite**: Powered by IBM Watson, this cloud-based digital business network provides real-time intelligence and actionable recommendations. This suite offers a wide range of features across supplier management, inventory management, and order management. It is also notable that the suite offers an open platform and a developer hub for building tailored solutions in the supply chain using blockchain and AI. You can learn more about their product and offerings here: https://www.ibm.com/in-en/supply-chain.
- **OpenText**: With the aim of making supply chains more connected, collaborative, intelligent, and secure, OpenText is working on an autonomous and intelligent supply chain that can be used to apply AI, IoT, and blockchain. You can learn more about their product and offerings here: https://www.opentext.com/info/ai-iot/connected-supply-chain#form.

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FINANCIAL SERVICES ISSUES

- Bank Accessibility Issue
- Frauds
- Lack of Process Automation

CASE STUDIES IN SUPPLY CHAIN

Here are some of the applications that either use blockchain or AI in order to address some of the issues in BFSI mentioned earlier:

- **Teradata**: Teradata is a California-based corporation well-known for its data analytics products for the financial services industry. There is an interesting case study where deep learning and AI were used to detect sophisticated fraud and reduce the false positives at a reputed bank. Compared to the traditional rules engine, which reportedly detects about 40 percent of total fraud, Teradata's analytic solution increased the rate to as high as 80 percent. The solution also drastically reduced the false positives by 60 percent and increased true positives by 50 percent. The champion/challenger method is used to ensure that the best deep learning model is used in real-time for detecting fraud.
- You can find out more about the solution by reading Teradata's case study document at, https://www.teradata.co.uk/Resources/Case-Studies/Danske-Bank-Fight-Fraud-With-Deep-Learning-and-AI.

- **Nuo Network**: Nuo is a peer-to-peer network of lenders and borrowers that enable crypto-backed loans. Lenders can provide their cryptocurrencies for an interest rate, while borrowers can raise loans against collateral at a discounted price of the pledged asset, followed by a payment of a premium at the end of the loan's term. Also, it is important to note that Nuo Network is non-custodial, meaning that the wallets with funds in them are not in direct or indirect control of the company. This is enabled by using the Ethereum blockchain, where smart contracts are used to trade **Ethers** (**ETH**) and ERC20 tokens. You can find out more about their products and offerings here: https://nuo.network/index.html.

THANK YOU

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