

Unlocking Productivity and Efficiency with GenAI

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Get the Deck

<https://github.com/richieyuyongpoh/presentation/blob/main/UnlockingProductivityandEfficiencywithGenAI.pdf>

What will be covered?

- GenAI Fundamentals
- Leveraging Data Insights
- Automation and Streamlining Processes
- Collaborative Intelligence
- GenAI Future Trends and Opportunities

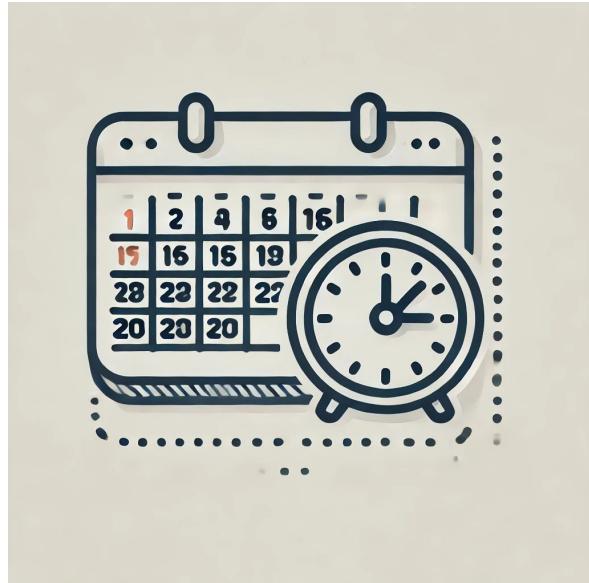
1: Introduction



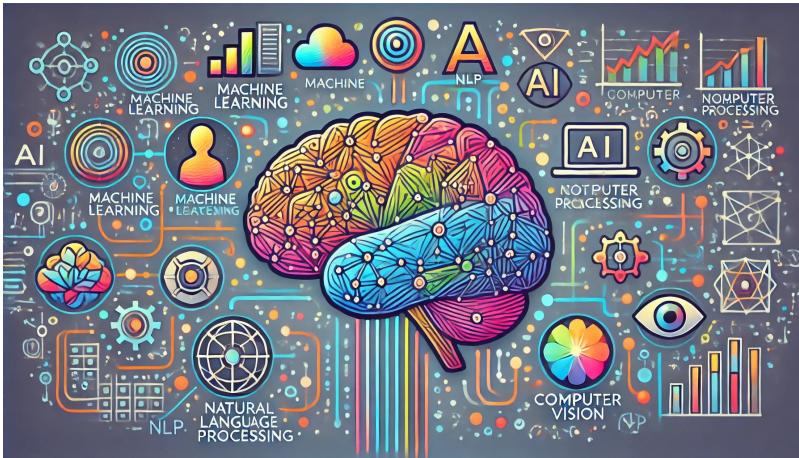
- Impact of COVID-19 on workplace dynamics
- Shift towards remote work and digital transformation
- Importance of productivity in the new work environment
- Strategies to enhance personal and team productivity
- Importance of time management and prioritization
- Tools and techniques for improving efficiency

1: Introduction

- Strategies to enhance personal and team productivity
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2: GenAI Fundamentals



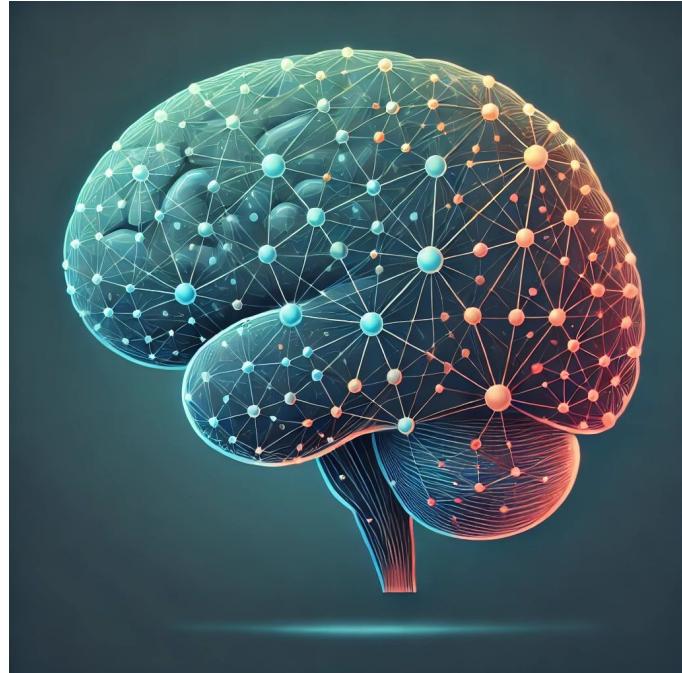
What is AI?

- AI enables computers to simulate human intelligence and problem-solving.
- AI is used with sensors, geolocation, robotics, etc.
- Examples include digital assistants, GPS, autonomous vehicles, and generative AI.
- Types of AI:
 - a. Weak AI (Narrow AI) for specific tasks.
 - b. Strong AI (AGI and ASI) for human-like intelligence (theoretical).
- Sub-disciplines: Machine learning and deep learning.
- Generative AI: Uses deep learning to create new content from raw data.
- AI Applications: Speech recognition, customer service, computer vision, supply chain, weather forecasting, anomaly detection.

2: GenAI Fundamentals

2024 AI Index Report

- AI surpasses humans in some tasks but lags in others.
- Industry leads AI research.
- Training costs for AI models are skyrocketing.
- The U.S. dominates AI model production.
- Generative AI investment has surged.
- AI enhances productivity and quality of work.
- Scientific progress is accelerating due to AI.
- AI regulations in the U.S. are increasing.
- Public concern about AI is rising.



3: How GenAI Works



Generative AI Overview

- **Definition:** Generates new content from various inputs like text, images, sounds, etc.
- **Mechanism:** Uses neural networks to identify data patterns.
- **Learning Approaches:** Unsupervised and semi-supervised learning.
- **Examples:** GPT-3 for text, Stable Diffusion for images.

Evaluation Criteria

- **Quality:** High-quality output essential for user interaction.
- **Diversity:** Captures data variations to reduce bias.
- **Speed:** Fast generation for real-time applications.

3: How GenAI Works



Model Types

- **Diffusion Models:** High-quality output, slow sampling.
- **VAEs:** Faster, less detailed outputs.
- **GANs:** High-quality, domain-specific data generation.
- **Transformer Networks:** Text-based applications, self-attention, and positional encoding.

Applications

- **Language:** Essays, translations, genetic sequences.
- **Audio:** Music, speech recognition.
- **Visual:** 3D models, image editing, virtual reality.
- **Synthetic Data:** Training AI models when real data is unavailable.

3: How GenAI Works



Challenges

- **Infrastructure:** High compute requirements.
- **Sampling Speed:** Latency in generation.
- **Data Quality:** Need for high-quality, unbiased data.
- **Licensing:** Issues with data usage rights.

Benefits

- **Content Creation:** New, human-like content.
- **Efficiency:** Improves AI systems' accuracy.
- **Data Analysis:** Uncovers hidden patterns.
- **Automation:** Saves time and resources.

4: Leveraging Data Insights

Importance of High-Quality Data

- Essential for accurate business decisions impacting success.
- Prioritizing data quality is crucial for informed decision-making.

Impact of Low-Quality Data

- Leads to skewed results and misguided decisions
- Example: Misinterpretation of location data can result in targeting the wrong audience.
- High-quality data prevents such errors and ensures better business outcomes.



4: Leveraging Data Insights

Cost of Low-Quality Data

- Raw data, though cheaper, is often low-quality and problematic.
- Requires extensive processing to remove fraudulent and duplicate signals.
- Processing raw data is time-consuming and costly.
- Using high-quality, processed data from the start avoids unnecessary expenses and inefficiencies.

Ensuring Data Integrity and Quality

1. **Determine Use Case:** Define the business problem and required insights.
2. **Use Reliable Data Sources:** Choose reputable sources with accurate data.
3. **Cleanse and Validate Data:** Remove incorrect or irrelevant data and check accuracy.
4. **Monitor Data Quality:** Regular audits to check for errors and maintain accuracy.



4: Leveraging Data Insights

A Better Way to Put Your Data to Work



Challenge: Companies struggle to fully utilize data due to evolving technologies, emerging data types, and increasing data volumes.

Ineffective Strategies:

- **Big Bang Approach:** Centralized data lake without aligning with business use cases.
- **Grassroots Approach:** Individual teams creating isolated, customized data pipelines.

4: Leveraging Data Insights

A Better Way to Put Your Data to Work



Effective Strategy: Treat data like a product, allowing customization for different users.

- **Benefits:** Reduces implementation time, lowers costs, and enhances data governance.

Data Product Model:

- **Components:** High-quality, ready-to-use data sets.
- **Applications:** Customer views, digital twins, etc.
- **Consumption Archetypes:** Digital apps, analytics, reporting, sandboxes, and external sharing.

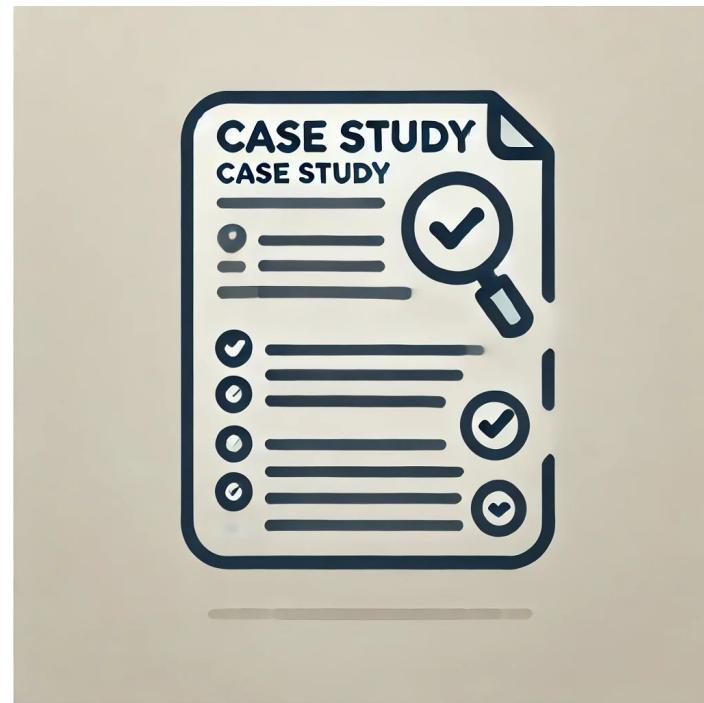
Management: Data product managers within business units, supported by a central excellence center.

Performance Metrics: User engagement, application usage, ROI

5: Case Study: Data Insights

How GenAI can Help Transform Digital Health

- **Amplified Experience:** Enhances digital contact centers.
- **Intelligent Workflows:** Improves financial and operational management.
- **Advanced Analytics:** Enables clinical recommendations and targeted interventions.
- **Streamlined IT:** Modernizes code and infrastructure.
- **Business Model Reinvention:** Supports better patient care, reduces costs, and increases productivity.
- **Employee Engagement:** Allows focus on high-value tasks.
- **Starting Points:** GenAI assists in customer service, risk assessments, and backend IT functions.



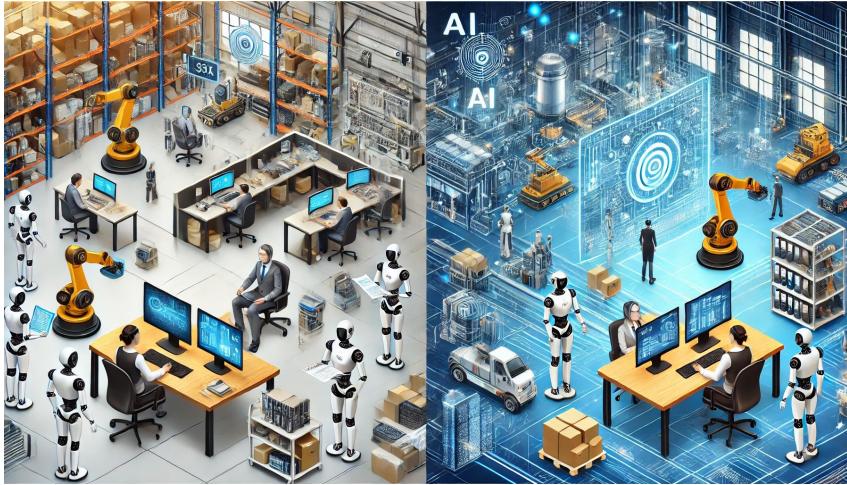
6: Automation and Streamlining Processes



Role of GenAI in Automation

- **Definition and Overview:**
 - Generative AI (GenAI) involves using artificial intelligence to automate tasks traditionally performed by humans, enhancing efficiency and reducing errors.
- **How GenAI Automates Processes:**
 - By learning patterns from large datasets, GenAI models can predict outcomes, generate content, and make decisions.
- **Examples of GenAI in Automation:**
 - Chatbots for customer support
 - Predictive maintenance in manufacturing
 - Intelligent document processing in finance and retail

6: Automation and Streamlining Processes



Types of Tasks Suitable for Automation

- **Repetitive Tasks:**
 - Data entry
 - Scheduling and reminders
- **Data-Heavy Tasks:**
 - Data analysis and reporting
 - Data cleansing and preparation
- **Decision-Making Tasks:**
 - Fraud detection
 - Inventory management

6: Automation and Streamlining Processes



Tools and Technologies Enabling Automation

- **Robotic Process Automation (RPA):**
 - Software robots that emulate human actions on digital systems.
- **Machine Learning Platforms:**
 - Platforms that provide tools for building, training, and deploying AI models.
- **Intelligent Automation Solutions:**
 - Combining RPA with AI to create smart workflows.

6: Automation and Streamlining Processes



Challenges and Considerations

- **Implementation Complexity:**
 - Requires significant planning, integration, and customization.
- **Data Privacy and Security:**
 - Ensuring that automated processes comply with data protection regulations.
- **Change Management:**
 - Managing the transition for employees and addressing concerns about job displacement.
- **Continuous Monitoring and Maintenance:**
 - Automated systems need regular updates and monitoring to ensure optimal performance.

7: Practical Examples of Automation

Intelligent Automation

Real Estate:

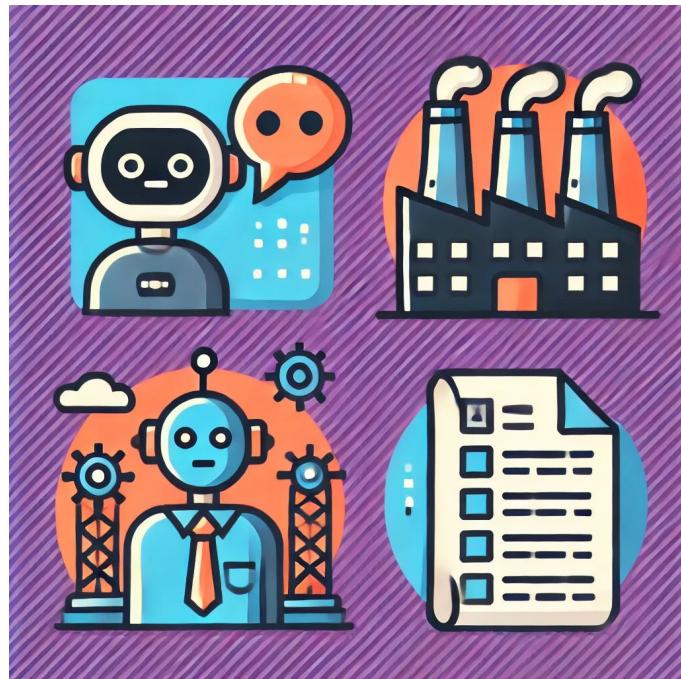
- Bots provide initial responses to buyers and value properties.
- Forecast loan defaults and automate loan approval processes.

Production:

- RPA automates inventory management and assembly line tasks.
- Analyzes and selects vendors using OCR and data analytics.

Trends:

- Cognitive automation mimics human behavior using NLP and neural networks.
- Hyperautomation maximizes process automation across organizations.



8: Collaborative Intelligence



Definition: Collaborative intelligence combines human and artificial intelligence to enhance decision-making and productivity.

Benefits:

- Improves problem-solving by leveraging AI for data analysis.
- Enhances creativity and innovation through human-AI partnerships.
- Streamlines processes and increases efficiency.

Implementation:

- Foster a culture of collaboration.
- Invest in AI tools and training for employees.
- Ensure continuous learning and adaptability.

9: GenAI in the Workplace

The Future of Work

- **AI's Impact:** AI has the potential to create new jobs and industries.
- **Job Evolution:** Automation will lead to the evolution of existing roles, requiring new skills.
- **Skill Development:** Emphasis on continuous learning and upskilling to adapt to AI-driven changes.
- **Collaboration:** Human-AI collaboration will enhance productivity and innovation.
- **Economic Growth:** AI can drive economic growth through increased efficiency and new opportunities.
- **Challenges:** Addressing ethical concerns and ensuring equitable job distribution is crucial.



10: GenAI Future Trends and Opportunities



- **Emerging Trends in GenAI:** Edge AI, AI and Hyperautomation
- **Ethical AI and Responsible Use**
- **Advancements in GenAI Technologies**
- **AI in Creative Fields**
- **Preparing the Workforce for AI Integration**
- **Long-Term Benefits and Competitive Advantages**

11: Demo

<https://www.richieyyptutorialpage.com>

1. [Simple FAQ Demo](#) - Using Embeddings
2. [FAQ](#) - Using MySejahtera FAQ as an example
3. General [Data Science](#) Chatbot
4. [Sentiment Analysis](#)
5. [Text2SQL](#)
 - a. General Script Writing
 - b. With Schema

