BLOCKCHAIN TECHNOLOGY IN MODERN SUPPLY CHAIN MANAGEMENT

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INTRODUCTION

- Overview of Supply Chain Management (SCM)
- Importance of transparency and efficiency in global trade
- Introduction to blockchain technology
- Purpose of the presentation

WHAT IS BLOCKCHAIN?

- A decentralized digital ledger
- Immutable (cannot be altered once recorded)
- Transparent and secure
- Operates through distributed network nodes

TECHNICAL FOUNDATIONS OF BLOCKCHAIN

- Blocks and cryptographic hashing
- Consensus mechanisms (Proof of Work, Proof of Stake)
- Smart contracts
- Distributed ledger technology (DLT)

PROBLEMS IN TRADITIONAL SUPPLY CHAINS

- Lack of transparency
- Fraud and counterfeit products
- Delays due to manual documentation
- Poor coordination between stakeholders
- Limited traceability

HOW BLOCKCHAIN IMPROVES SUPPLY CHAINS

- Real-time tracking of goods
- Enhanced transparency and accountability
- Reduced fraud and counterfeiting
- Improved coordination among stakeholders
- Faster verification processes

REAL-WORLD APPLICATIONS

- Walmart – Food traceability and safety
- Maersk – Shipping and logistics optimization
- Nestlé – Ethical sourcing and transparency

BUSINESS BENEFITS

- Cost reduction
- Increased operational efficiency
- Improved trust among stakeholders
- Better regulatory compliance
- Enhanced customer confidence

IMPLEMENTATION CHALLENGES

- High initial setup costs
- Technical complexity
- Integration with legacy systems
- Regulatory and legal concerns
- Scalability issues

FUTURE POTENTIAL & CONCLUSION

- Increased adoption in global trade
- Integration with IoT and AI
- Smarter and more resilient supply chains
- Summary: Blockchain as a transformative innovation in Information Technology