AUCHI POLYTECHNIC, AUCHI

DEPARTMENT OF COMPUTER SCIENCE (CYBERSECURITY OPTION)

SEMINAR PRESENTATION

TITLE:

UNDERSTAND HOW TO MANAGE EMERGING TECHNOLOGY ENVIRONMENT

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INTRODUCTION

The rapid growth of modern technologies has created new opportunities for innovation, automation, security, and efficiency in different sectors of society. However, these emerging technologies also introduce new challenges and require proper management to ensure they are used effectively and safely.

This seminar work explains what an emerging technology environment is, why it must be properly managed, challenges faced, and strategies for effective management.

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MEANING OF EMERGING TECHNOLOGY ENVIRONMENT

An Emerging Technology Environment refers to the ongoing introduction, development, and adoption of new and advanced technologies that are still evolving. These technologies are not yet fully mature but have the potential to transform industries and the way humans live or work.

Examples of emerging technologies include:

Artificial Intelligence (AI)

Blockchain Technology

Cloud Computing

Internet of Things (IoT)

5G Networks

Big Data Analytics

Robotics and Automation

Cybersecurity advancements

Managing these technologies is necessary to reduce risks and maximize their benefits.

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CHARACTERISTICS OF EMERGING TECHNOLOGIES

1. Innovative and Disruptive – They bring new solutions that can replace traditional methods.

2. Rapidly Changing – They evolve quickly due to constant research and development.

3. High Uncertainty – Their long-term effects and risks may not be fully known.

4. High Impact – They have the potential to transform industries and daily life.

5. Require New Skills – Professionals must acquire new competencies to use them.

6. Security Sensitive – They often introduce new cybersecurity risks.

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IMPORTANCE OF MANAGING EMERGING TECHNOLOGIES

1. To Ensure Security – Proper management helps reduce cybersecurity threats.

2. To Stay Competitive – Organizations adopt new technologies to remain relevant.

3. To Improve Efficiency – Emerging tools improve productivity and performance.

4. To Reduce Operational Risks – Good management prevents technology failures.

5. To Enhance Decision-Making – Technologies like AI and big data support accurate decisions.

6. To Comply With Regulations – Organizations must follow government policies on technology.

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CHALLENGES IN MANAGING EMERGING TECHNOLOGIES

1. Lack of Skilled Personnel – New technologies require specialized knowledge.

2. High Cost of Deployment – Implementation and maintenance can be expensive.

3. Cybersecurity Threats – Hackers target new systems with unknown vulnerabilities.

4. Rapid Change – Technologies evolve faster than organizations can adapt.

5. Data Privacy Issues – Cloud and IoT devices store large amounts of sensitive data.

6. Regulatory Uncertainty – Governments may not yet have clear legal frameworks.

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STRATEGIES FOR MANAGING EMERGING TECHNOLOGY ENVIRONMENT

1. Continuous Training and Skill Development – Staff must be trained regularly.

2. Risk Assessment and Management – Identify, analyze, and reduce technologyrelated risks.

3. Adopting Strong Cybersecurity Measures – Use encryption, firewalls, and strong authentication.

4. Gradual Implementation – Introduce new technologies step-by-step to avoid disruption.

5. Monitoring and Evaluation – Continuously monitor performance and update systems.

6. Following Industry Standards – Use best practices and guidelines provided by experts.

7. Budget Planning – Allocate funds for maintenance, updates, and staff training.

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IMPACT OF EMERGING TECHNOLOGIES ON ORGANIZATIONS

1. Improved Productivity

2. Enhanced Communication and Collaboration

3. Better Data Management

4. Faster Decision-Making

5. Reduction of Human Errors

6. Automation of Repetitive Tasks

7. Enhanced Customer Experience

8. Global Competitiveness

At the same time, poor management can lead to system failure, data breaches, loss of trust, and financial losses.

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RISKS ASSOCIATED WITH EMERGING TECHNOLOGIES

1. Cybersecurity Risks – Attacks on AI, IoT, or cloud systems.

2. Data Privacy Violations – Sensitive data may be exposed.

3. System Downtime – Failure of new technologies can disrupt operations.

4. Ethical Issues – AI may make biased or unfair decisions.

5. Job Displacement – Automation may replace human labor.

6. Financial Loss – If the technology fails or is mismanaged.

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BEST PRACTICES FOR MANAGING EMERGING TECHNOLOGY ENVIRONMENT

1. Develop a Technology Roadmap – Plan how technologies will be deployed.

2. Use Strong Access Control – Limit access to sensitive systems.

3. Regular System Updates and Patches

4. Compliance With Legal Requirements

5. Conduct Penetration Testing – Identify weaknesses in advance.

6. Backup and Disaster Recovery Plan

7. Promote a Security-Aware Culture – Train employees regularly.

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CONCLUSION

Emerging technologies offer great opportunities for growth, security, and innovation. However, without proper management, they can introduce major risks including cyber-attacks, data loss, and system failures.

To effectively manage emerging technology environments, organizations and individuals must adopt strong cybersecurity practices, conduct regular training, assess risks, follow regulations, and continuously monitor new developments.

Proper management ensures that these technologies benefit society and contribute to organizational success.

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