

Management Information System

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12. The Future Manager's Toolkit

Learning Objectives

By the end of this session, students should be able to:

- Explain the major challenges facing future managers,
- Describe digital leadership,
- Analyze future work trends,
- Apply systems thinking,
- Identify MIS competencies, and
- Create a lifelong learning plan

Opening Case: Kodak vs Netflix



Source: <https://x.com/Pipkinresells/status/1869399096244801740/photo/1>

Kodak invented digital photography but failed to transform its business model.



Source: https://www.youtube.com/watch?v=_P5hB-qVILQ

Netflix embraced digital technology and disrupted the entertainment industry.

Why do some organizations adapt while others fail?

Why Traditional Management Is No Longer Enough

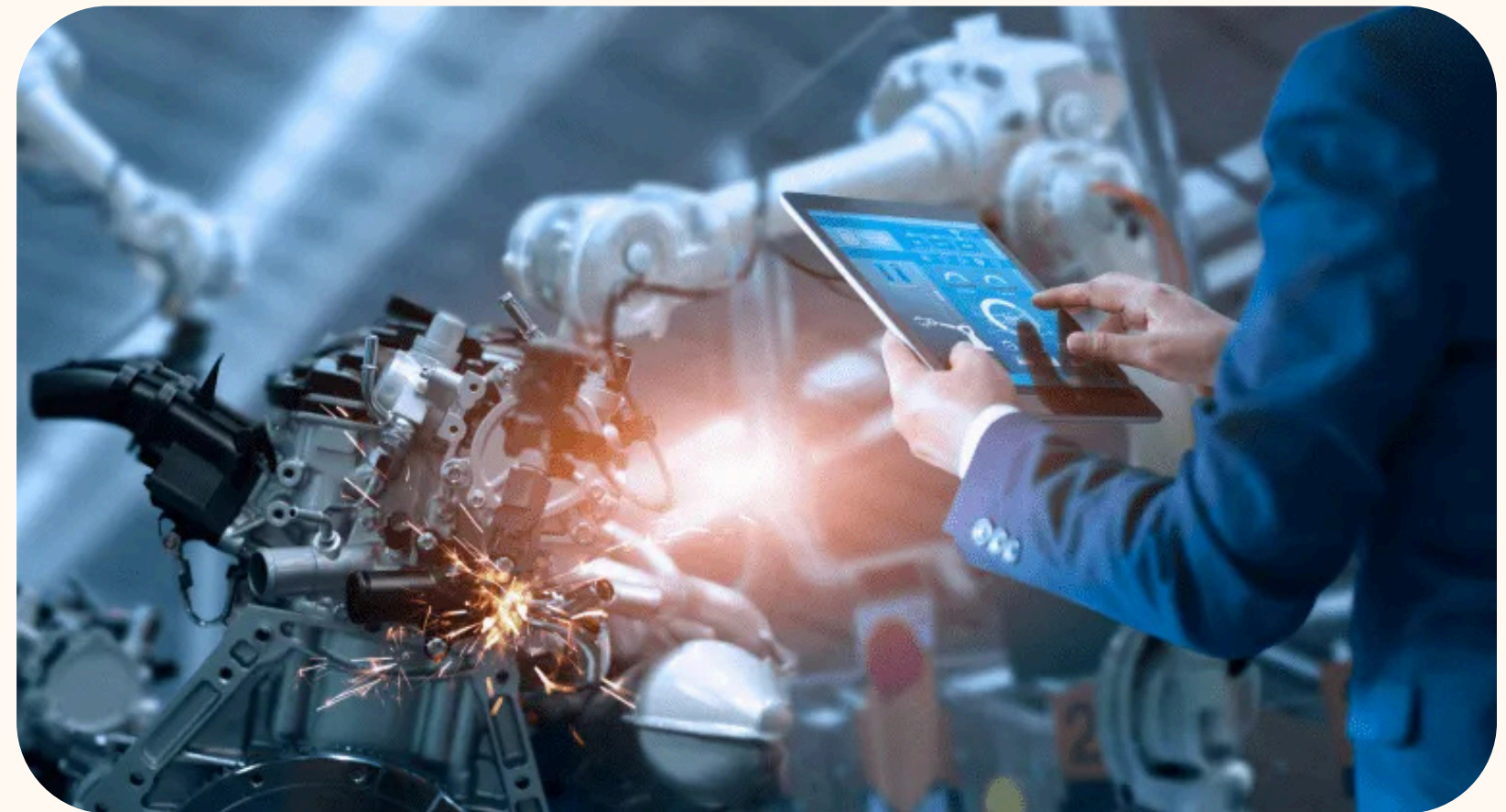
The Era of Extreme Disruption

Technology changes faster than organizational structures.

Managers today face:

- Artificial Intelligence (AI);
- Automation;
- Cybersecurity risks;
- Digital disruption; and
- Rapidly changing customer expectations.

Technical knowledge alone is no longer enough.





What skills will future managers need that previous generations did not?

The Exponential Gap

Technology improves exponentially while organizations often change gradually. This creates a gap between what technology can do and how quickly organizations adapt.



The Failure Gap

The widening space between these lines represents systemic failure. As processing speeds and cloud capabilities scale vertically, linear organizations face existential risk.

Core Solution: Managers must design agile, socio-technical processes to match technological acceleration.

Consequences of the Exponential Gap

- Missed opportunities.
- Slow innovation.
- Declining competitiveness.
- Customer dissatisfaction.
- Difficulty responding to disruptive competitors.



Source: Canva Image

Siloed Organizational Thinking

Local Optimization Fallacy

When individual departments (such as Sales, Logistics, or Engineering) focus solely on optimizing their own localized metrics, they often introduce friction in neighboring operational segments.

Systems logic proves that local optimization often triggers total system failure.

The Network Alternative

Systemically unified teams focus instead on end-to-end information flow, coordinating API integrations, collaborative database platforms, and cross-functional feedback channels to ensure that organizational goals scale smoothly.

The Socio-Technical Perspective

Technical System

Computational infrastructure, database pipelines, algorithmic intelligence, and platform architecture.

Social System

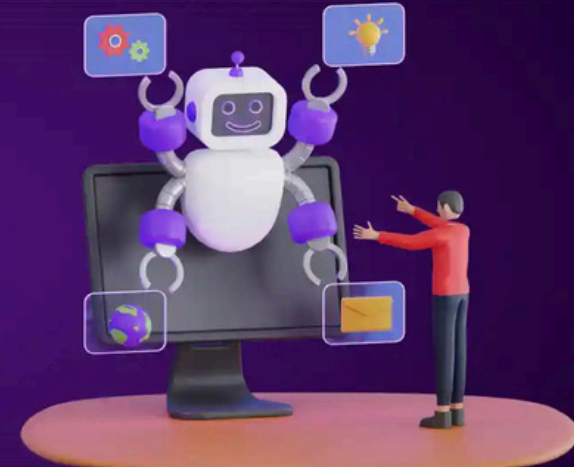
Human interactions, cognitive loads, operational culture, structural alignment, and clear incentive maps.

Joint Alignment

The critical process optimization that ensures tools complement instead of frustrating human workflows.

Digital Transformation

Digital Transformation Trends In AI, Cloud, & Intelligent Automation



Beyond Simply Digitizing Paper

True digital transformation is not simply about replacing paper processes with computer PDF files. It represents radical, organizational design modification enabled by computational platforms.

- Restructuring foundational customer journeys.
- Constructing live, event-driven internal data layers.
- Enabling real-time algorithmic strategy deployment.

Examples of Digital Transformation



Gojek, Tokopedia, Amazon, and Netflix transformed industries by combining technology with innovative business strategies.

The Four Core Pillars

Digital Leadership

Fostering psychological safety, structural agility, innovative exploration, and trust.

Systems Thinking

Interpreting feedback dynamics and managing organizational operations holistic.

MIS Competencies

Exploiting data assets, query engines, analytics layers, and secure architectures.

Lifelong Learning

Constructing self-guided skill-acquisition loops as standard career strategy.

The Future of Work

**Analyzing how hybrid collaboration, globally integrated platforms,
and automation algorithms change management realities.**

The New Work Paradigm

AI and Automation

AI can automate repetitive tasks, analyze large datasets, and support decision making.

Human roles increasingly focus on creativity, leadership, and problem solving.

Human + Machine Collaboration

The future is not humans versus machines.

The future is humans working alongside intelligent technologies to improve productivity and innovation.

Hybrid and Remote Work

Organizations increasingly combine office and remote work.

Managers must lead distributed teams and maintain communication, trust, and accountability.

Augmentation vs Replacement

Intellectual Augmentation

AI excels at high-speed data processing, complex pattern detection, and generating early-stage strategic options.

Managers must configure systems where AI acts as a smart collaborative copilot, dramatically amplifying human analytical leverage.

Cognitive Division of Labor

Tasks are systematically split based on processing strengths:
algorithms process high-volume, multi-dimensional inputs, freeing human managers to apply critical judgment, strategic direction, and empathetic leadership.

Leading Remote Teams

Transitioning from presence monitoring to output-based evaluation models:

Asynchronous Collaboration: Shifting team syncs to shared digital whiteboards, documentation layers, and clear, traceable workflow states.

The Digital Tech Stack: Mastering real-time document sync tools, platform versioning, secure VPN structures, and project management workspaces.

Psychological Trust & Culture: Developing structured social check-ins to actively prevent workplace isolation in permanent distributed networks.

Empirical Performance Metrics: Focusing purely on delivered artifacts, objective platform metrics, and strategic project goals over screen time.

Skills Needed in the Future Workplace

Cognitive Agility

Rapid conceptual framing; shifting analytical modes to meet sudden structural project changes.

Evaluative Logic

Assessing algorithmic output critically to pinpoint underlying biases or data model edge cases

Bridge Translation

Articulating highly complex data realities clearly to non-technical business partners.

Ethical Curation

Safeguarding customer privacy limits and upholding compliance metrics at every system node.

Introducing the Future Manager's Toolkit

**Future managers need four key capabilities:
Digital Leadership, Systems Thinking, MIS Competencies, and Lifelong Learning.**

What is Digital Leadership?

Digital leadership is the ability to use technology strategically while guiding people through change and transformation.

Cultivating Innovation Frameworks

Modern digital leadership is not defined by possessing elite coding skills.

Rather, it focuses on guiding organizational systems toward digital agility and customer-centric platforms.

- Setting a compelling data-driven core direction.
- Constructing high-trust, failure-tolerant team cultures.
- Enabling cross-functional collaborative networks.



Leadership vs Management

| Strategic Vector | Traditional Management Focus | Digital Leadership Paradigm | Target Organizational State |
|-------------------|-------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------|
| Primary Objective | Preserve daily order, consistency, and structural predictability. | Drive organizational transformation and iterative change. | Dynamic, adaptive growth. |
| Control Mechanics | Enforce strict guidelines, compliance, and hierarchies. | Delegate system design and cultivate high-trust agency. | Empowered cross-functional teams. |
| Problem Solving | Apply historical precedents and standardized models. | Run low-risk, rapid data experiments to explore new ideas. | Continuous operational learning. |

Characteristics of Digital Leaders

- Vision,
- Adaptability,
- Innovation,
- Collaboration,
- Data-driven thinking,
- Ethical awareness, and
- Willingness to learn continuously.



Decisions Based on Data Trends



Highly performant digital leaders design explicit instrumentation frameworks to replace executive guessing with empirical proof.

Ethical System Design

Digital Trust Principles

Upholding strict data security, regulatory compliance, and system transparency.

Ethical managers protect consumer rights by maintaining audit trails for automated decision-making platforms.

Bias Detection & Fairness

Regularly auditing data sets used to train models.

To prevent bias from scaling, digital leaders require transparent governance over predictive business models.

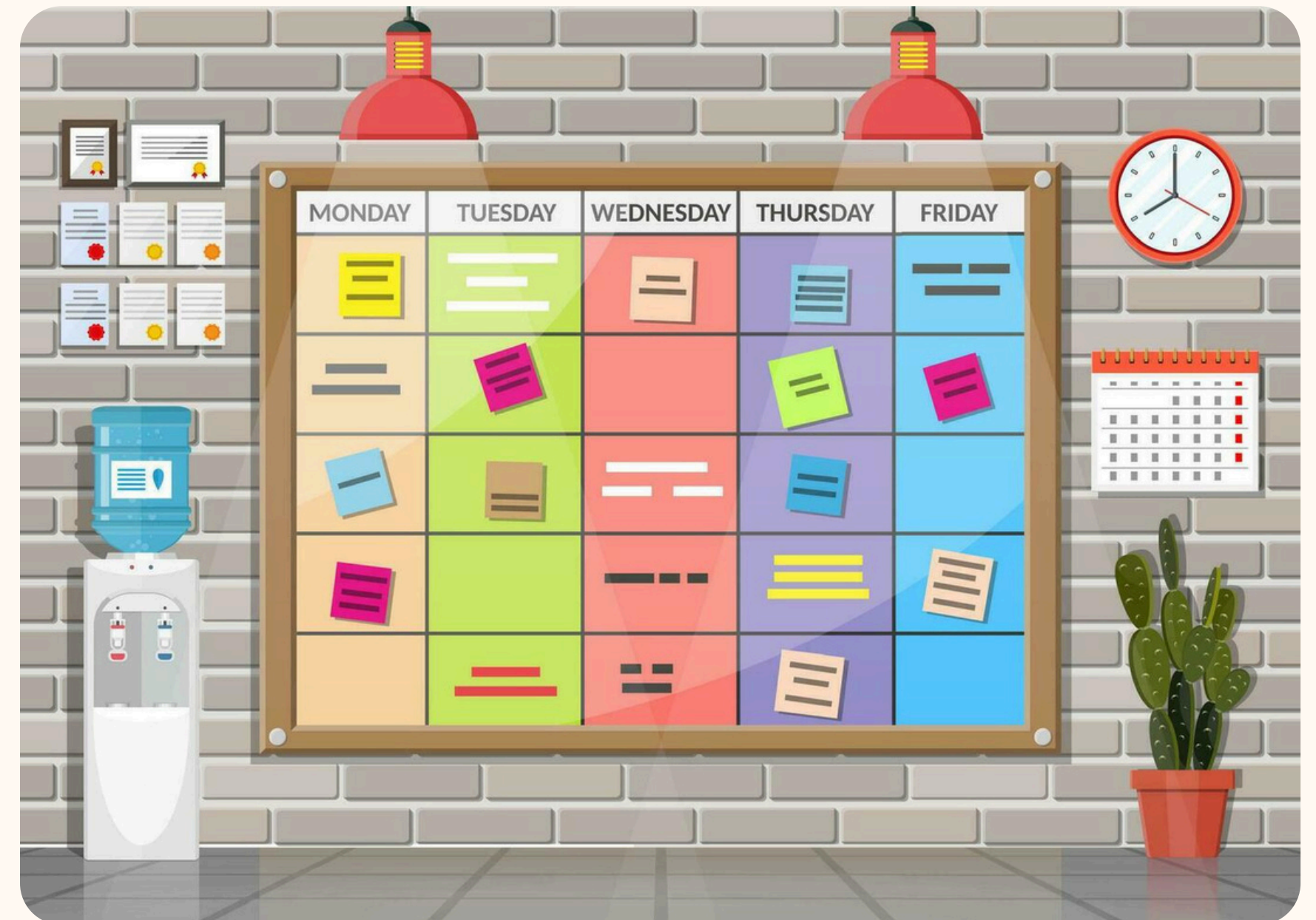
Managers must address privacy, cybersecurity, fairness, transparency, and responsible use of AI and data.

Agile Pivot Success

Collaborative Team Restructuring

A global enterprise restructured their rigid hierarchical divisions into agile, cross-functional squads focused directly on API development.

By moving planning cycles from annual reviews to two-week sprints, product release times dropped from 14 months to 3 weeks, demonstrating the power of socio-technical transformation.



Source: <https://www.vecteezy.com/vector-art/35863842-scrum-agile-board-in-office-interior-bulletin-board-hanging-on-wall-full-of-tasks-on-sticky-note-cards-list-of-event-for-employee-development-team-work-agenda-to-do-list-flat-vector-illustration>

Systems Thinking Mastery

**Understanding feedback loops, open systems modeling,
and locating real root causes in complex structures.**

What is Systems Thinking?

Systems thinking views organizations as interconnected systems rather than separate departments or isolated activities

Interconnected Networks:

Recognizing that all business components operate as a unified system, where changes in one node trigger downstream effects elsewhere.

The Threat of Simplification:

Treating multi-variable business problems with simple, single-factor solutions usually leads to unintended side effects.

Dynamic Behaviors:

Understanding that system components adapt over time based on feedback, rather than behaving in static, predictable ways.

Focusing on Structures:

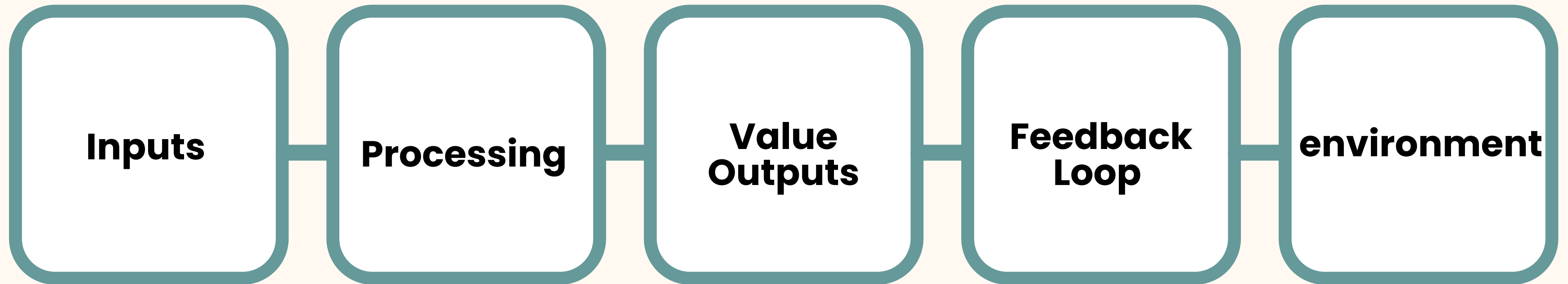
Finding leverage points within operational policies instead of blaming individual performance.

Example:

Sales increase, but profits decline. Systems thinking examines pricing, marketing costs, supply chains, and customer behavior to find root causes.

Elements of Systems Thinking

These elements work together to achieve organizational objectives.



The Open Systems Model

Continuous Environmental Exchange

Healthy businesses are Open Systems. They continuously import energy, materials, and data from their environment, transform these assets internally, and export value back to the market.

- Monitoring macroeconomic supply chain movements.
- Adapting to shifting regulatory standards.
- Gathering customer feedback to guide product design.



Feedback Loop

Feedback loops explain how systems learn, adjust, and improve over time.

Reinforcing (Positive) Loops

Loops that compound action over time.

For example, higher customer satisfaction leads to stronger word-of-mouth referrals, boosting sales, increasing R&D budgets, and raising satisfaction even further.

Balancing (Negative) Loops

Loops that stabilize and regulate a system.

For example, as website traffic scales, server load spikes, which triggers automatic resource allocation to stabilize page speed and keep performance steady.

Cause and Effect in Complex Systems

One decision can create ripple effects throughout the entire organization.



Applying Systems Thinking as a Manager



It helps managers :

- identify relationships,
- anticipate consequences,
- solve complex problems,
- avoid short-term thinking.

Core MIS Capabilities

Technical Savvy

Differentiating database systems, cloud architectures, and API integrations.

Data Analytics

Converting raw operational metrics into actionable strategic insights.

Information Security

Enforcing data security and compliance standards at every step.

Project Delivery

Leading complex digital changes using structured agile frameworks.

Lifelong Learning & Mindset

**Fostering a growth mindset, building professional networks,
and designing a personal development roadmap.**

Lifelong Learning

With technology evolving rapidly and formal academic programs lagging behind rapid tech developments, learning must become an ongoing habit:

Rapid Skill Obsolescence: The useful half-life of modern technical skills is down to under 5 years, requiring continuous skill updates.

Informal Communities: Actively participating in open-source groups, tech meetups, and developer networks to exchange best practices.

Micro-Credentials: Leveraging online certificates, specific technical courses, and skill badges to stay competitive.

Peer-to-Peer Networks: Building professional mentor networks to track emerging industry practices in real time.

Cultivating a Growth Mindset

Embracing Uncertainty

Viewing complex business obstacles as exciting opportunities to test and learn new strategies.

Reframing Failure

Treating errors as valuable inputs that help refine product development and improve data models.

Continuous Growth

Focusing daily effort on steady skill expansion over simply defending static credentials.

Learning Roadmap

A 5-step model for ongoing professional growth:



Manager Mindset Contrast

| Operational Focus | Traditional Manager Model | Future Digital Leader Paradigm | Undergraduate Success Priority |
|---------------------|----------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------|
| Decision Basis | Relies on personal experience and status-quo procedures. | Relying on telemetry, live data metrics, and experiments. | Learn data analysis and dashboard tools. |
| Handling Technology | Delegates tech entirely to IT, treating it as an cost. | Sees tech as a central driver of organizational value. | Master technical and system designs. |
| Growth Strategy | Relies on initial credentials and passive training. | Fosters active, ongoing self-guided learning. | Build a personal professional learning roadmap. |



How will you build your personal digital toolkit for the future of work?





Source: <https://www.montclairfilm.org/for-educators/impact-series/hidden-figures/>

Hidden Figure

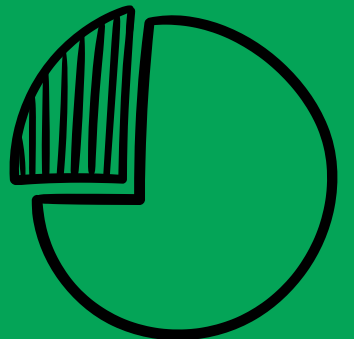
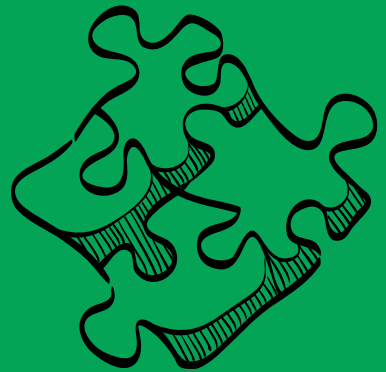
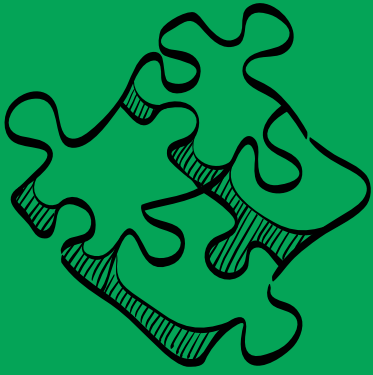
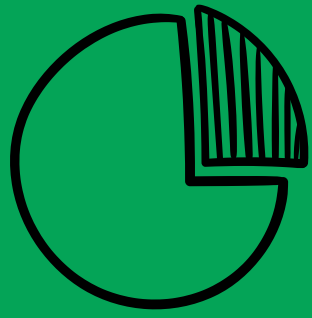
<https://www.youtube.com/watch?v=1C5lc2GlisQ>



Technology alone does not create success.

**Future managers must integrate people, processes,
technology, data, and continuous learning.**





Thankyou!

Reference

- Management Information System, Hossein Bidgoli. Cengage. 10th Edition. 2020
- Management Information System: Managing the Digital Firm. Kenneth C. Laudon & Jane P. Laudon. Pearson. 16th Edition. 2020.