

Working with Machines and Automation

Human Skills + Machine Power

ทักษะมนุษย์ + พลังของเครื่องจักร



Essential
Question:

How can humans and
machines work together
effectively?



Today we will learn:



Automation



Human
Strengths



Machine
Strengths



Teamwork



Future
Roles

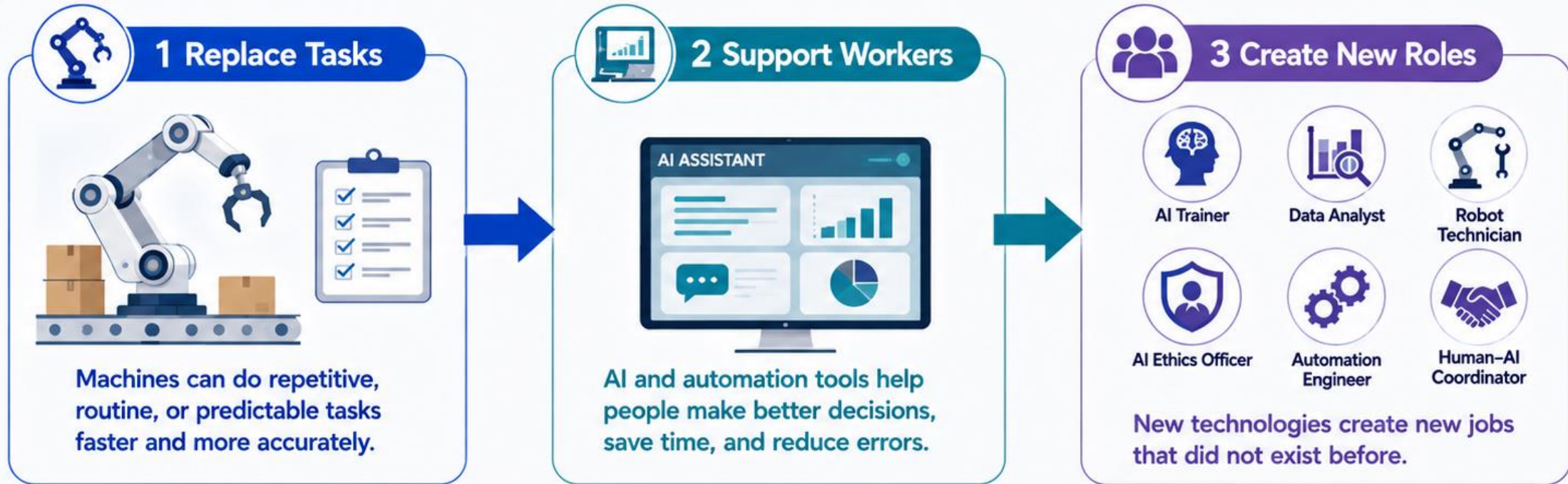


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From Replacement to Collaboration

Machines may replace tasks, but also support people



Technology can:

- ✓ replace some tasks
- ✓ support human workers
- ✓ reduce dangerous work
- ✓ increase productivity
- ✓ create new roles
- ✓ change required skills



Key idea:
The future workplace
is often **human + machine.**

What Is Automation?

Machines or software doing tasks automatically



DEFINITION



Automation means using machines or software to complete tasks with little human control.



Thai support:

Automation = ระบบอัตโนมัติ



EXAMPLES

1



Factory robots

2



Automatic checkout

3



Chatbots

4



Delivery sorting systems

5



Automatic reports

6



Smart farming systems



Remember:

Automation does not always mean a robot. It can also be software, AI, sensors, or systems that work automatically.

Human Strengths

What humans still do very well

Humans are strong at:

- creativity
- empathy
- judgment
- communication
- flexible movement
- problem-solving in new situations
- responsibility
- understanding context



Thai support:

Human skills = ทักษะของมนุษย์

Creativity

Imagine new ideas and possibilities.



Empathy

Understand and care about other people.



Communication

Share ideas clearly and listen well.



Problem-solving in New Situations

Solve unusual or unfamiliar problems.



Understanding Context

See the bigger picture and adapt to situations.



Responsibility

Take ownership and be accountable.



Judgment

Make thoughtful and ethical decisions.



Flexible Movement

Adapt and move in changing environments.



Machine Strengths

What machines can do very well

Machines are strong at:

- speed
- repetition
- precision
- working long hours
- processing data
- lifting heavy objects
- working in dangerous places
- following clear rules



1. Speed

Machines can work very fast.



2. Repetition

Machines can repeat the same task consistently.



3. Precision

Machines can be very accurate and make fewer errors.



4. Working Long Hours

Machines can work 24/7 without getting tired.



5. Processing Data

Machines can handle large amounts of data quickly.



8. Following Clear Rules

Machines follow rules and instructions exactly as programmed.



7. Working in Dangerous Places

Machines can work in hazardous environments to keep people safe.



6. Lifting Heavy Objects

Machines can lift and move heavy items safely and consistently.



Remember:

Machines are useful when tasks are repetitive, precise, dangerous, or need a lot of data. But machines need good design, maintenance, and human judgment.

Human Hands vs Robot Hands

Flexibility and precision are difficult to copy



HUMAN HANDS CAN:



Feel pressure



Adjust grip



Handle fragile objects



Use many tools



React to small changes



BEST RESULT:

Let each do what they do best.



ROBOTS CAN:



Repeat precise movements



Lift heavy objects



Work quickly



Work without getting tired



WORKING BETTER TOGETHER



✓ Robots handle heavy, repetitive, and risky tasks.

👤 Humans handle fragile, creative, and judgment based tasks.

Best Work Happens Together

Human + machine collaboration



Example: Packing fragile products

1 Items



Fragile products arrive in the system.

2 Robot Transport



Robot brings items to the packing station.

3 Human Packing



Human carefully packs fragile products.

4 Quality Check



Human checks quality and verifies items.

5 Delivery



Boxes are delivered to customers.



Machine does:



Brings items



Scans labels



Moves boxes



Repeats simple steps



Human does:



Checks quality



Handles fragile items



Makes decisions



Solves unusual problems



People and machines each do what they do best.
Together, we create safer, faster, and better work.



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Human-in-the-Loop

Machines work better
with human guidance

A human-in-the-loop system
means humans help by:

-  setting goals
-  checking results
-  correcting mistakes
-  giving feedback
-  making final decisions
-  improving the system

 Feedback = ข้อเสนอแนะ



Humans and machines work together in a continuous loop
to create better, safer, and more useful systems.

Future Roles with Machines

Trainers, Explainers, Sustainers



As humans work with AI and robots, new roles become important.

1



Trainers

Teach systems how to work better.



- ✓ Provide examples and data
- ✓ Give feedback and corrections
- ✓ Test and improve system performance
- ✓ Guide the system to learn accurately

2



Explainers

Help people understand system results.



- ✓ Translate complex results
- ✓ Explain insights in simple ways
- ✓ Help users make sense of data
- ✓ Support better decisions

3



Sustainers

Keep systems safe, fair, and working correctly.



- ✓ Monitor system performance
- ✓ Ensure safety and data quality
- ✓ Check fairness and reduce bias
- ✓ Update, maintain, and secure the system



Future roles = บทบาทในอนาคต

Role 1: Trainers

Teaching machines how to perform better



Trainer = គ្រូបង្រៀន / គ្រូបង្រៀន AI



Humans teach systems with examples and feedback.

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WHAT TRAINERS DO

Trainers help machines learn the right things by giving examples, corrections, and feedback.



Provide examples



Check and correct



Help the system improve

AI / ROBOT SYSTEM

Learns from the data and feedback to improve its performance.

EXAMPLES FROM TRAINER



SYSTEM OUTPUT (PREDICTIONS)



FEEDBACK LOOP

Feedback helps the system learn and get better.



Trainers help turn raw data and early results into a smart, useful system.

TRAINERS MAY:



Give examples to AI systems
Provide many good examples of the intended task.



Correct wrong outputs
Tell the system what is wrong and show the correct answer.



Label data
Add correct labels so the system learns the right meaning.

Image	Label
	Dog
	Car
	Cat
...	...



Test robot behavior
Try tasks in real or simulated environments.



Give feedback to improve the system
Share useful feedback and suggestions.



Help machines learn the intended task
Guide the system to perform the right job well.



Role 2: Explainers

Helping people understand machine results

 Explain = อธิบาย



The system predicts sales will increase by 18% because of more ads and holiday season.

So we should prepare more stock before sales go up.

EXPLAINERS MAKE RESULTS EASY TO UNDERSTAND

-  Translate technical results into simple language.
-  Explain why the AI made this decision.
-  Help users understand dashboards.
-  Connect technical teams and non-technical users.
-  Identify when results may be misunderstood or misinterpreted.

EXPLAINERS MAY:

-  Translate system results into simple language.
-  Explain AI decisions.
-  Help users understand dashboards.
-  Connect technical teams and non-technical users.
-  Identify when results may be misunderstood.



Technical Team
Builds and improves the system



Users / Managers
Uses results to make better decisions



Explainers turn complex machine results into understanding, insights, and better decisions for everyone.


Complex Data



Explained Simply



Better Decisions

Role 3: Sustainers

Keeping AI and robots safe and reliable



Maintain = บำรุงรักษา

SUSTAINERS MAY:



Maintain robots and AI systems

Keep hardware and software working properly.



Check data quality

Make sure data is accurate, complete, and up to date.



Monitor performance

Track system performance and detect issues early.



Find errors or bias

Identify mistakes, bias, or unfair results.



Protect security

Prevent attacks and keep systems and data safe.



Make sure systems follow standards

Ensure compliance, ethics, and proper use.



Sustainers keep systems running well, safely, and fairly.



SAFETY & RELIABILITY FOCUS



Safety First

Ensure robots and AI operate safely for people and the environment.



Data & Privacy Protection

Protect sensitive data and respect user privacy.



Detect Problems Early

Find issues before they cause harm or failure.



Fairness & Ethics

Check for bias and make fair, ethical decisions.



Follow Standards

Comply with laws, regulations, and industry standards.



Sustainers ensure AI and robots remain safe, reliable, fair, and trusted over the long term.



Maintain



Monitor



Protect



Trust

Humans and Machines: Who Does What?

Choose the best worker for each task



Human

Strengths:

- Judgment
- Creativity
- Empathy
- Ethics
- Flexibility



Machine

Strengths:

- Speed
- Accuracy
- Consistency
- Strength
- No fatigue



Task Type		Better For	
	Repeating the same action		Machine
	Making ethical decisions		Human
	Processing huge data		Machine
	Understanding emotions		Human
	Heavy lifting		Machine
	Creative problem-solving		Human
	Monitoring with final decision	 + 	Human + Machine



The best results happen when humans and machines **work together.**



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Activity: Task Team Builder

Design a human-machine workflow

DECIDE TOGETHER



Work together to design a smart workplace!

1



What tasks should machines do?

List the tasks that machines are best at.

2



What tasks should humans do?

List the tasks that humans are best at.

3



What tasks should they do together?

List the tasks that need both humans and machines.

4



What role is needed: Trainer, Explainer, or Sustainer?

Choose the role that will help this workplace succeed.



REMEMBER

The best workplace uses the strengths of both humans and machines.



TIME: 6 MINUTES



IN PAIRS, CHOOSE ONE WORKPLACE



Hospital



School



Farm



Factory



Delivery Company



Bank



Restaurant



Airport

Example Workflow

Smart hospital teamwork



What Could Go Wrong?

Automation still needs responsibility



POSSIBLE PROBLEMS

1 Wrong Data



Bad or incomplete data leads to wrong results.

2 System Errors



Bugs or glitches can cause the system to fail or behave incorrectly.

3 Unfair Decisions



AI can be biased if the data or design is unfair.

4 Privacy Risks



Personal data can be exposed or misused.

5 Overtrusting Machines



Blind trust can lead people to ignore mistakes.

6 Loss of Human Skills



Relying too much on automation can weaken human abilities.

7 Unclear Responsibility



When something goes wrong, it may not be clear who is responsible.



Always supervise. Always question. Always improve.

AI SYSTEM DASHBOARD

Model Performance



Alerts

- Data quality issue 10:25 AM
- Prediction error 10:20 AM
- Unusual pattern detected 10:18 AM

[View all alerts](#)

Data Quality



Bias Check



Privacy Status



Questions to Ask

- Is the data correct and complete?
- Is the result fair and reasonable?
- Who is affected by this decision?
- What should we do next?



KEY IDEA: Humans must **supervise** technology **responsibly**.

Good data + Good systems + Human judgment = Better outcomes for everyone.



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The End

The future of work is human + machine



REMEMBER:

1



Machines are strong at **speed**,
data, **repetition**, and **precision**.

2



Humans are strong at **empathy**,
judgment, **creativity**, and **responsibility**.

3



Future workers must learn how
to **work with technology**.

4



New roles will support
human-machine collaboration.



Speed



Data



Repetition



Precision

FUTURE CAREERS



AI TRAINER



AI EXPLAINER



AI SUSTAINER



HUMAN-MACHINE
COLLABORATION
SPECIALIST



FINAL MESSAGE:

Work with technology. **Do not only compete with it.**

