ENI CBCMED — Cooperating across borders in the Mediterranean

Project funded by the EUROPEAN UNION

REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

MYSEA - Mediterranean Youth, NEETs and women advancing Skills, Employment and Awareness in the blue and green economy

MYSEA

"Foundation Module for IT Skills"

Module 1

"Foundation Module for IT Skills

Become familiar with **digital transformation elements** that facilitate how work is carried out in the **agri-food/ waste management sectors**

Understand the **basic principles of marketing** and how to utilise social media to achieve the marketing objectives

Know how to perform basic tasks that **protect the device, the data and the communications**

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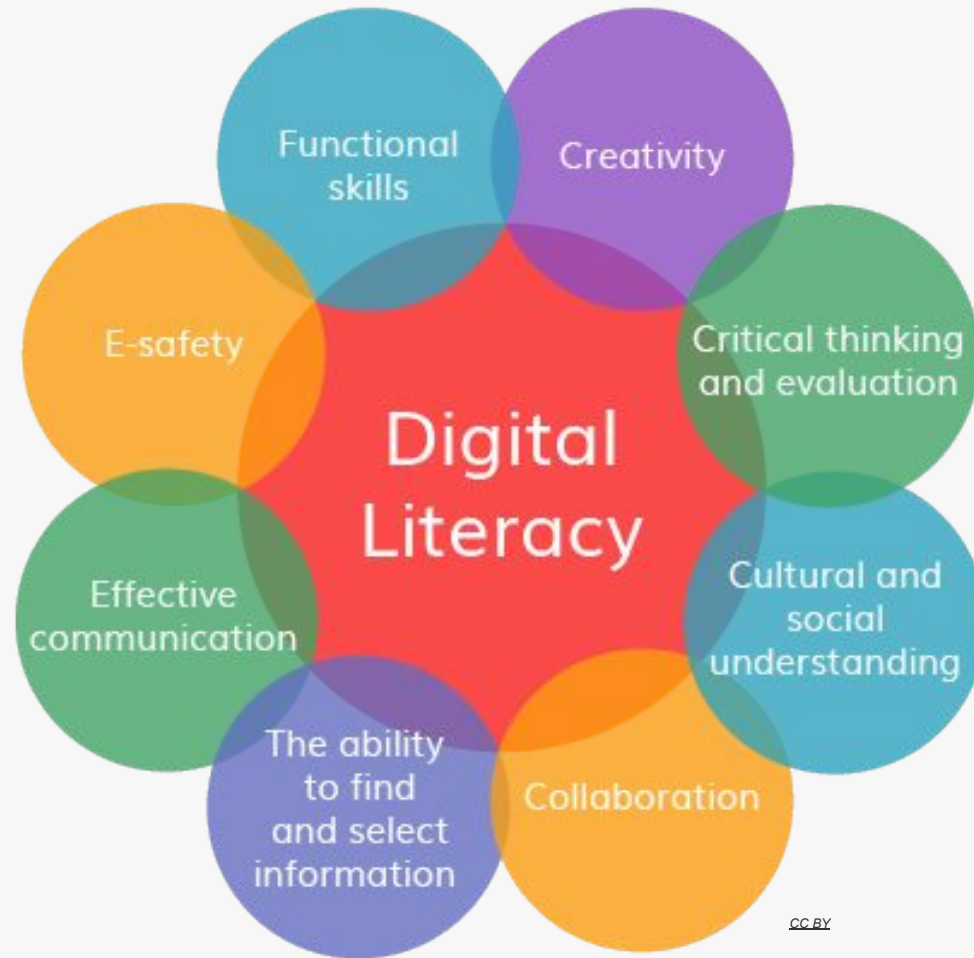Unit 3: Technology and Decision Making

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Unit 5: Security and Cybersecurity

What is digital literacy?

Digital literacy means having the skills you need to **live, learn, and work** in a society where communication and access to information is increasing through digital technologies like internet platforms, social media, and mobile devices.

What is digital literacy?

DIGITAL LITERACY

The concept of digital literacy encompasses a range of skills and knowledge necessary to **evaluate, use, and create digital information in various forms**. Digital literacy includes **data literacy**, **information literacy**, **visual literacy**, **media literacy**, and **metaliteracy**, as well as related **capacities for assessing social and ethical issues** in our digital world.

Basic digital literacy skills

01
Basic Computer Skills

Basic computer skills are essential for almost any job, as they allow employees to perform basic tasks such as word processing, spreadsheets, and email.

02
Digital Communication

Effective digital communication skills are critical for most jobs, as they allow employees to communicate effectively with colleagues, clients, and customers.

03
Digital Content Creation

The ability to create and edit digital content, such as documents, images, and videos, is becoming increasingly important as more businesses rely on digital media for marketing and communication.

Basic digital literacy skills

04

Digital Security and Privacy

Understanding of how to protect digital assets and information, and knowledge of laws and regulations related to data privacy and security, is becoming increasingly important as more businesses rely on digital technologies and store sensitive data.

05

Problem-solving and critical thinking

The ability to analyze and solve problems, and to make decisions based on data and evidence, is essential for most jobs, as they allow employees to be productive and effective in their roles.

06

Collaboration Skills

The ability to use digital tools to work with others, such as through online collaboration platforms and video conferencing, is becoming increasingly important as more businesses rely on remote and distributed teams.

Basic digital literacy skills

07

Adaptability

The ability to learn and adapt to new technologies and digital tools is becoming increasingly important as the job market becomes more competitive and the pace of technological change continues to accelerate.

08

Creativity

The ability to use digital tools to create new products, services, and experiences is becoming increasingly important as more businesses rely on digital technologies to differentiate themselves from the competition.

09

Ethical use of digital resources

The ability to use technology in a responsible and respectful manner. This includes understanding and respecting copyright laws, being aware of the impact of one's actions on others, as well as being aware of one's own digital footprint and being thoughtful about the information shared online.

What are Digital Skills?

What are Digital Skills?

Unesco's definition of digital skills is:

"a range of abilities to use digital devices, communication applications, and networks to access and manage information. They enable people to create and share digital content, communicate and collaborate, and solve problems for effective and creative self-fulfillment in life, learning, work, and social activities"

Digital skills are the skills we need to study and work in our fast-evolving digital world.

Top employable Digital Skills
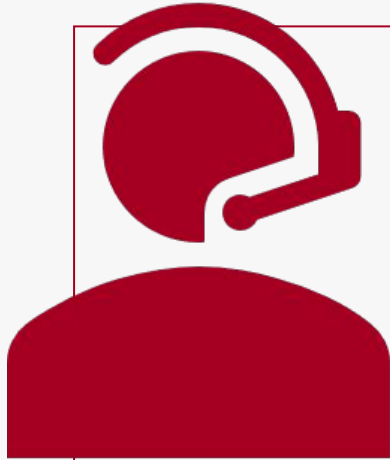
Social Media

The ability to understand and use social media effectively is a core and valued skill that every professional should have. Social media marketing goes beyond posting a tweet or Facebook update; it is about understanding the dynamic relationship between brands, influencers, and consumers.

Businesses need to reach out to customers in ways that will drive traffic to their website—or product—for potential conversion. It now also plays a key role in providing good customer service as many consumers take to social media to ask questions or make comments.

According to a recent study, there are 4.2 billion active social media users worldwide. Of these, 4.15 billion are active users on mobile devices

Top employable Digital Skills

Search Engine Marketing (SEM)

Beyond social media, Search Engine Marketing (SEM) is one of the most influential disciplines that marketers have come to rely on.
Students with SEM experience can increase the visibility of a company's website on a search engine (e.g., Google or Bing) primarily via paid advertising. By doing so, the business will attract valuable web traffic from the search engine results page.
By using SEM, students will be able to capture precious organic search traffic results. That's why marketers, content managers, and webmasters spend a great deal of time optimizing websites, particularly for mobile and ad campaigns to ensure the highest conversion rates possible.

 To put things in perspective, 81% of internet users search online for a product or service to buy, with Google accounting for 70% of that traffic

Top employable Digital Skills
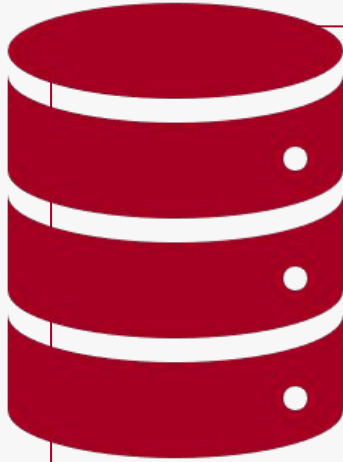
Data Analytics

Data can provide your students with a wealth of information that - if used correctly - can result in effective marketing campaigns that drive conversions, sales, and revenue.

Data analytics essentially allow students to make educated and data-driven decisions to drive better business insights. The key is knowing what data to collect and measure to improve the next campaign.

Analytics go hand-in-hand with SEM so these skills work together to ensure a business understands what consumers want, and how to attract and retain their attention.

"If you can't measure it, you can't manage it"

Top employable Digital Skills

Digital Marketing

To promote their products and services tech companies will look to digital marketing. Understanding of how to get the most value for money out of the broadest range of networks will be key here. In-demand skills for Digital Marketers include:

- **Digital marketing tools**
- **Analytics tools**
- **Social media marketing**
- **Content marketing**
- **SEO**
- **UX (User Experience Design)**

Content comes in many forms – blog posts, videos, podcasts, infographics, even social media status updates and is crucial in driving brand awareness and can establish brands or influencers as thought leaders.

Top employable Digital Skills

Being Safe & Legal Online

There are laws that say what we can and can't do online. These keep people, their work and their data safe. Posting something online creates a permanent record which others might be able to see now and in the future.

Essential digital safety skills include installing an anti-virus programme on your machine and keeping it updated, using strong passwords that you don't share with anyone, and knowing how to identify suspicious or "scam" content in emails or pop-ups.

Staying legal online also includes not using other people's words, pictures or content. This is copyright infringement – a simpler word for this is stealing. You should get permission before using, create your own original work, or use free stock sites such as Pixabay.

Top employable Digital Skills

Digital Design and Data Visualization

Websites, Apps and Digital Services have one thing in common; a user interface. Any designer with experience creating effective, dynamic user experiences will be in high demand with most tech companies.

Designers can also visualize complex data to help management make vital business decisions. This skill is called data visualization. Data visualization is useful for senior leaders to gain valuable insights from data. Tools such as Tableau and Power BI are used by designers to analyse and visualize data.

Top employable Digital Skills
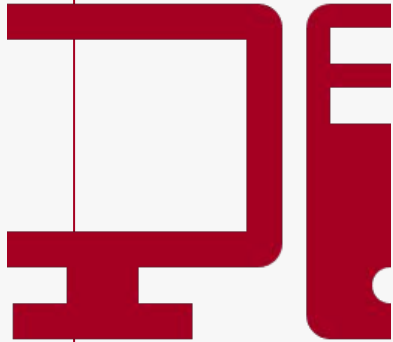
Microsoft Office

Microsoft Office is the most widely-used tool for documenting, organizing information, delivering presentations and processing data. For this reason, Microsoft Office efficiency is usually a required skill for most positions, regardless of your industry.

Important types of Microsoft Office skills that are more and more required in business:

- **Creating spreadsheet**
- **Creating tables**
- **Creating pivot tables**
- **Running and creating macros**
- **Data analysis**
- **Data visualization**
- **Validating data**
- **Creating documents**

- **Managing tables of content**
- **Preparing documents for print**
- **Proofreading and editing copy**
- **Creating slideshows**
- **Embedding video and images**

Top employable Digital Skills

Transacting

The skills required to register and apply for services, buy and sell goods and services, and administer and manage transactions online. If you use shopping sites like Amazon, sell unwanted items on eBay, or use an app to look at your bank account, you are transacting online. It's vital that you learn how to do this safely. This includes using strong passwords, never sharing this information with anyone, and only using genuine and secure programmes.

Digital solutions – examples for businesses

Cloud computing services
(such as Amazon Web Services or Microsoft Azure)

which allow businesses to store and access data and applications remotely

Enterprise resource planning (ERP) software

which helps companies manage and automate various business processes, such as supply chain, production and financials

Customer relationship management (CRM) software

which helps businesses manage and centralize customer data, automate sales and marketing processes, and improve communication and collaboration across teams

e-commerce platforms
(such as Shopify or Magento)

which allow businesses to create and manage an online store to sell products or services over the internet

Digital solutions – examples for businesses

Social media management tools
(such as Hootsuite or Sprout Social)

which help businesses manage and track their presence on social media

Business intelligence and data analytics tools
(such as Tableau or Power BI)

which help businesses analyze and visualize data to make better decisions

Digital marketing tools
(such as Google AdWords or Facebook Ads)

which help businesses reach and target specific audiences, as well as plan, execute, and measure their digital marketing campaigns

Cybersecurity solutions
(such as firewalls, antivirus software, and intrusion detection systems)

which help protect digital assets and sensitive data from cyber threats

Digital solutions – examples for collaboration

Communication and messaging platforms
(such as Slack, Microsoft Teams, Zoom, and Google Meet)

which allow team members to communicate and share files in real-time

Project management tools
(such as Asana, Trello, and Monday.com)

which allow teams to organize and track tasks, deadlines, and progress

Cloud storage and file sharing platforms
(such as Google Drive, Dropbox, and OneDrive)

which allow team members to access and share files from anywhere

Virtual meeting and conferencing tools
(such as Zoom, GoToMeeting, and Webex)

which allow team members to hold meetings and collaborate remotely

Digital solutions – examples for collaboration

Time tracking and invoicing tools
(such as Toggl, Harvest, and FreshBooks)

which allow teams to track time spent on projects, create invoices, and manage payments

Document collaboration tools
(such as Google Docs, Microsoft Office 365, and Quip)

which allow team members to work on documents together in real-time

Virtual whiteboards and brainstorming tools
(such as Miro, Mural, and Stormboard)

which allow team members to share ideas and collaborate visually

Virtual reality and augmented reality tools
(such as Spatial and Immersive Studio)

which allow team members to meet, collaborate and interact in virtual environments, improving the remote work experience

Digital solutions – GOOGLE DRIVE

Google Drive is a cloud-based storage service offered by Google. It allows users to store and share files such as documents, photos, videos, and music. With Google Drive, users can access their files from any device with an internet connection, and share files with others easily.

Digital solutions – GOOGLE DRIVE

Google Drive offers a variety of features, including:

✔ File storage: store and access files from any device.
✔ File sharing: share files with others by creating a link to a file or folder.
✔ Collaboration: multiple users work on the same document simultaneously
✔ Document creation: includes a suite of productivity tools, such as Google Docs, Sheets, and Slides, which allow users to create and edit documents
✔ File synchronization: automatically sync files between their computer and the cloud
✔ Backup and recovery: automatically backup files
✔ Security: Google Drive uses encryption to protect user's data

Digital solutions – GOOGLE DRIVE
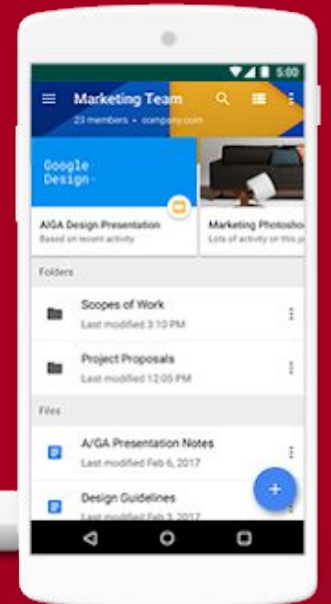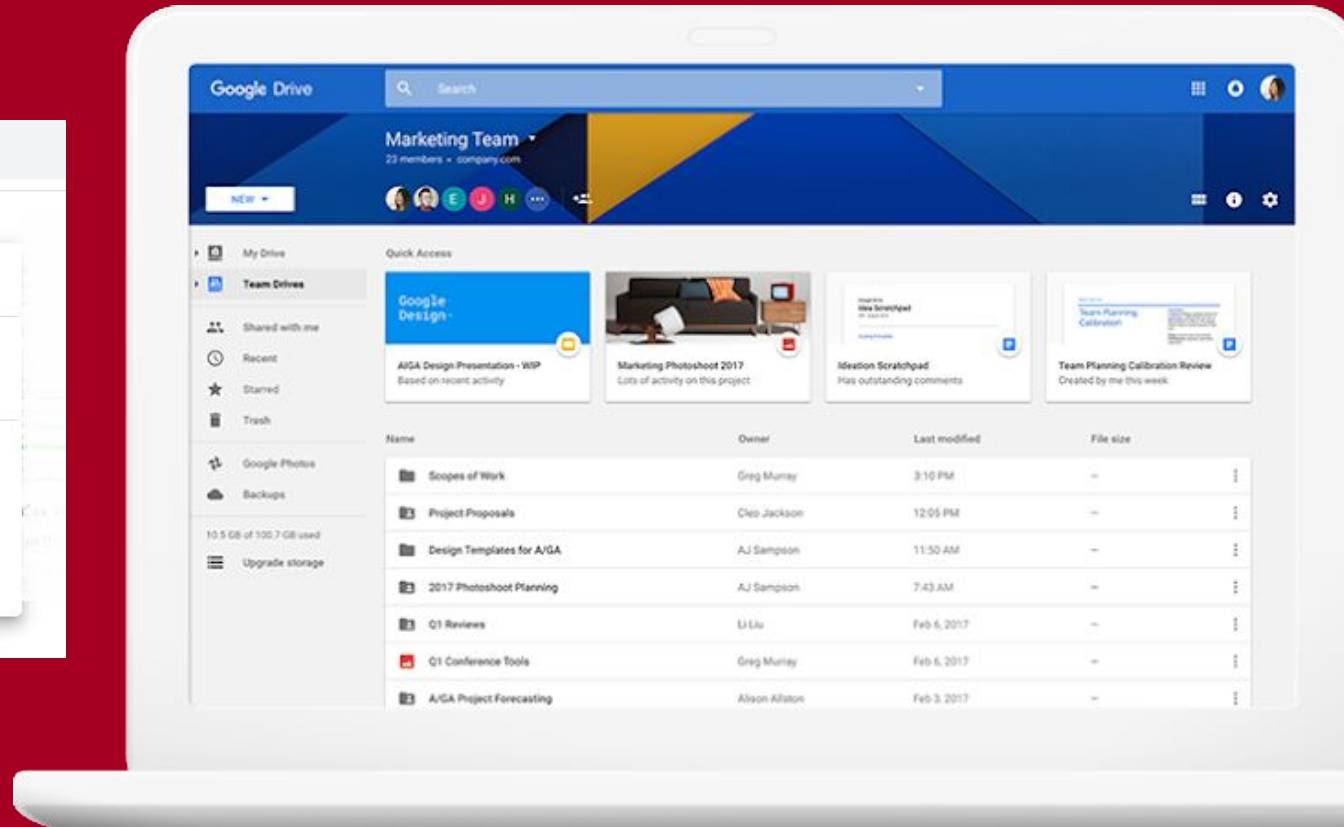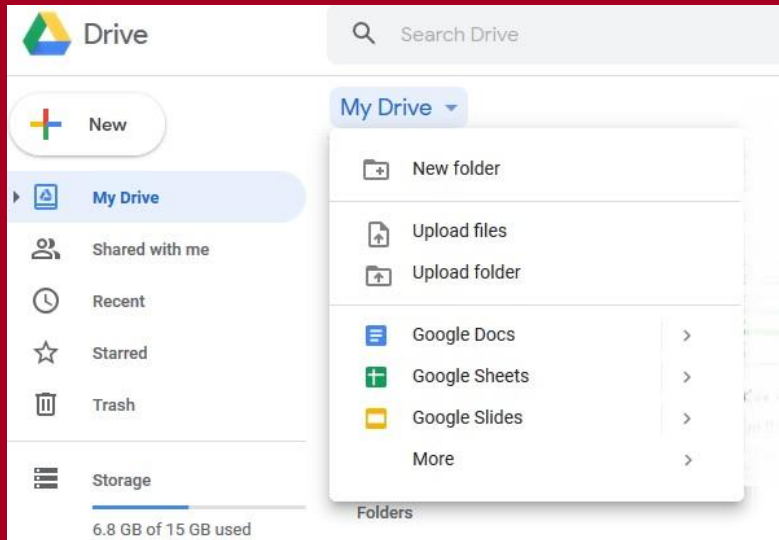
Digital solutions – ZOOM

Zoom is a video conferencing platform that can be used through a computer desktop or mobile app, and allows users to connect online for video conference meetings, webinars and live chat.. Using Zoom requires an internet connection and a supported device. Most new users will want to start by creating an account and downloading the Zoom Client for Meetings.

Stream live videos using Zoom, which also includes chat forums, unique background (to ensure privacy), and breakout room functioning.

Schedule meetings ahead of time and restrict access to certain attendees.

Digital solutions – ZOOM
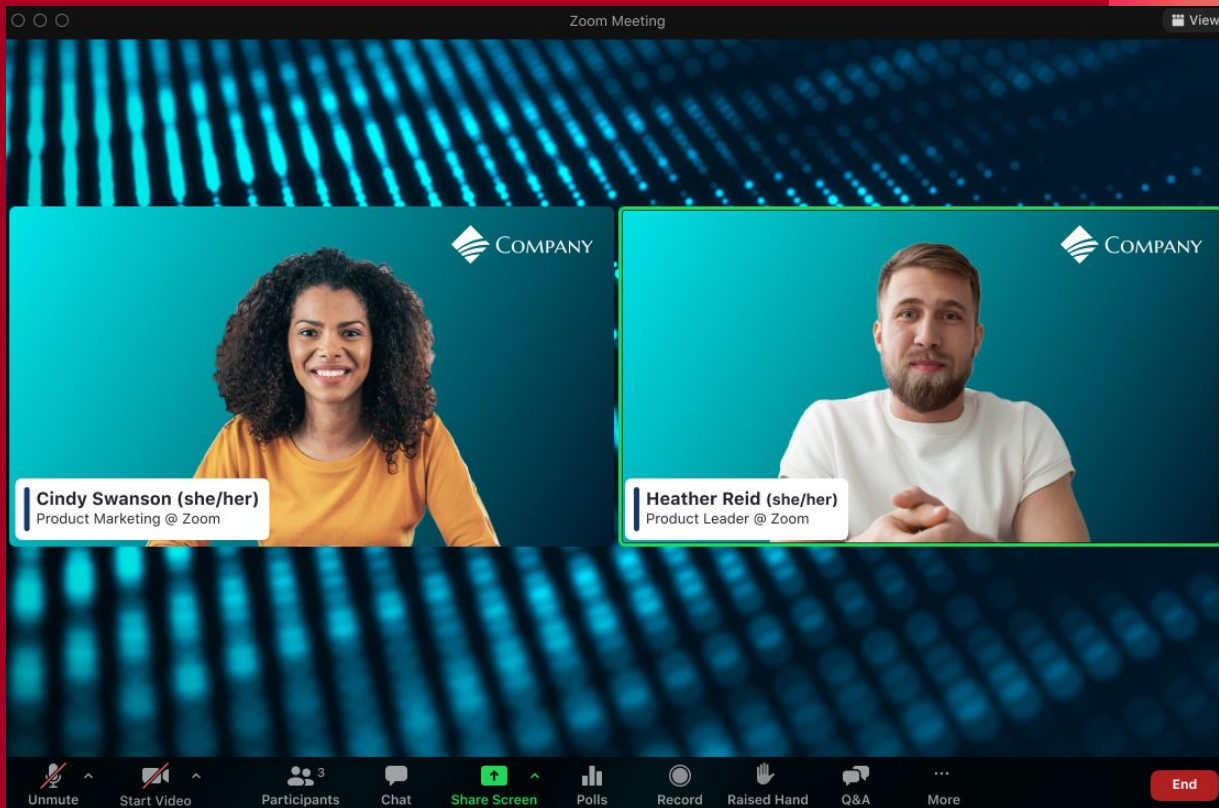
Digital solutions – TRELLO

Trello

When assigning projects students, teachers need to ensure that the students manage their project well. In this case, they can turn to Trello, a web-based project management tool to help them stay on track.
Trello is a popular, simple, and easy-to-use collaboration tool that enables you to organize projects and everything related to them into boards.
It is the visual tool a team can use to plan, implement, and manage any type of project, workflow, or task.

Digital solutions – TRELLO

Trello employs boards, cards, and lists for project management.
Subtasks within a card can be made with checklists.
Tasks can be allocated to several members, so they will be notified of any card changes. You can add files, checklists and even automations: Customize everything perfectly to the way your team works.

✔Easily create tasks (cards)

✔Present clear task flow

✔Attach files or documents conveniently

✔Free features

✔Track progress

Digital solutions – TRELLO
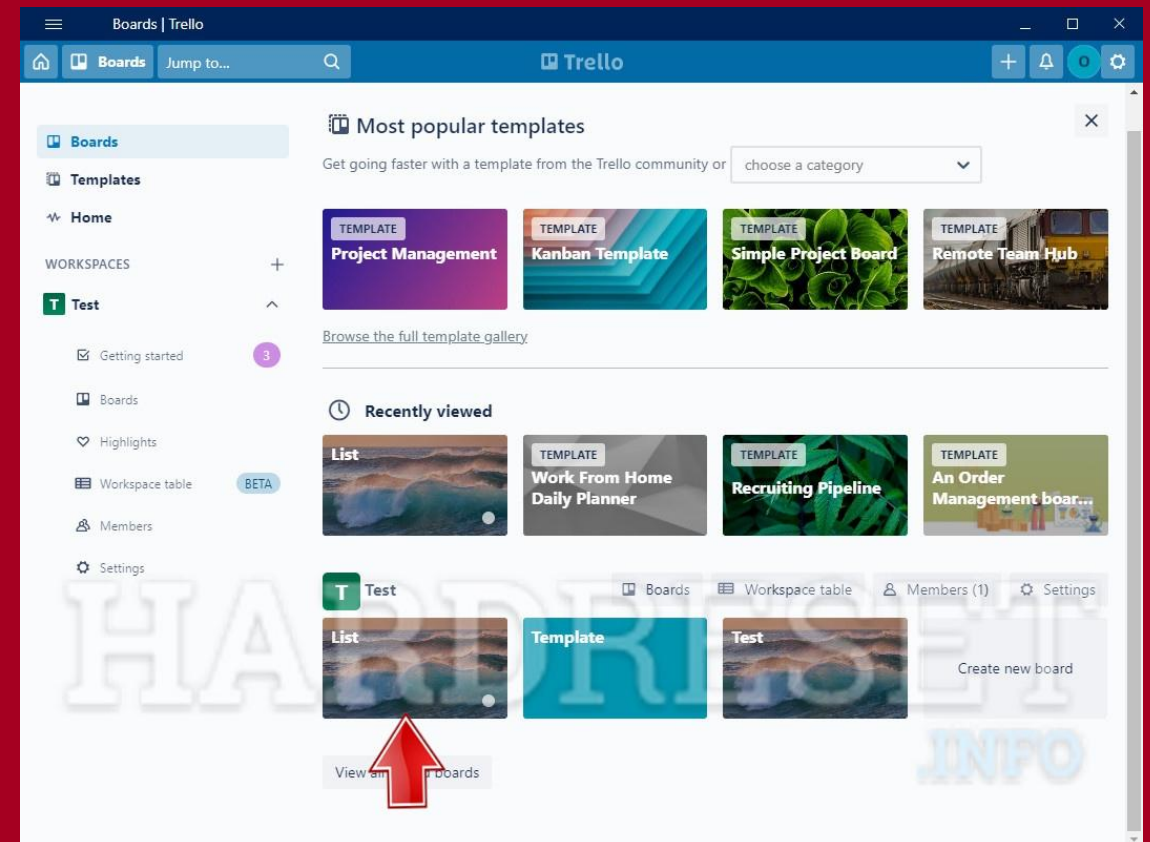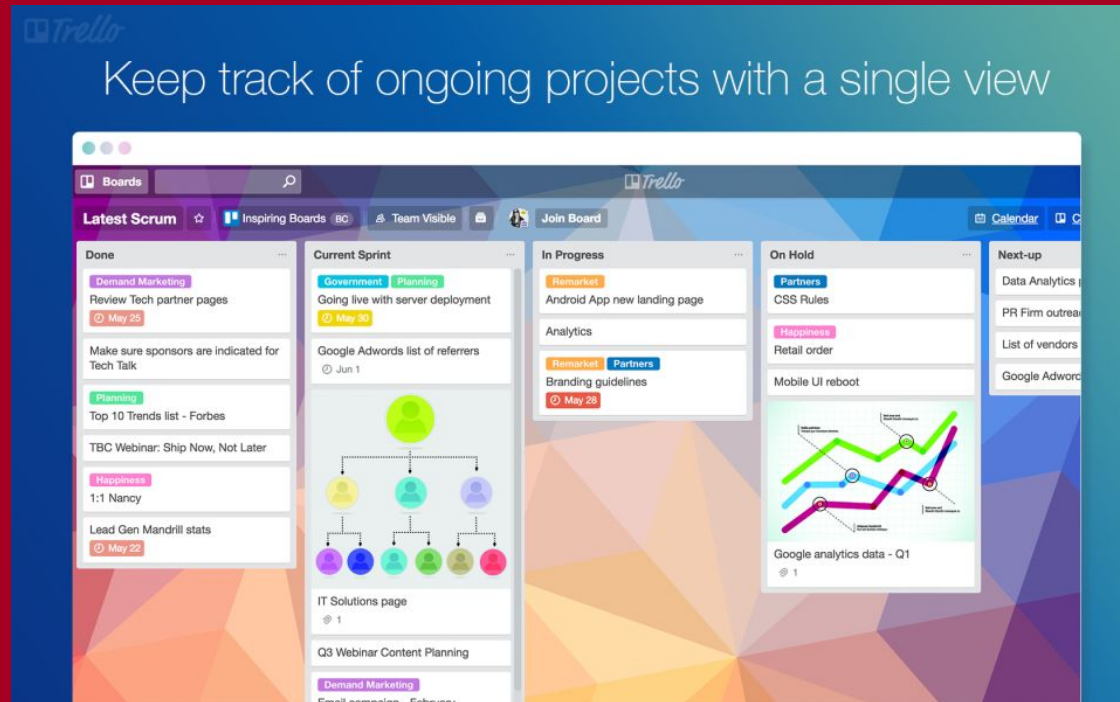
Digital solutions – TRELLO
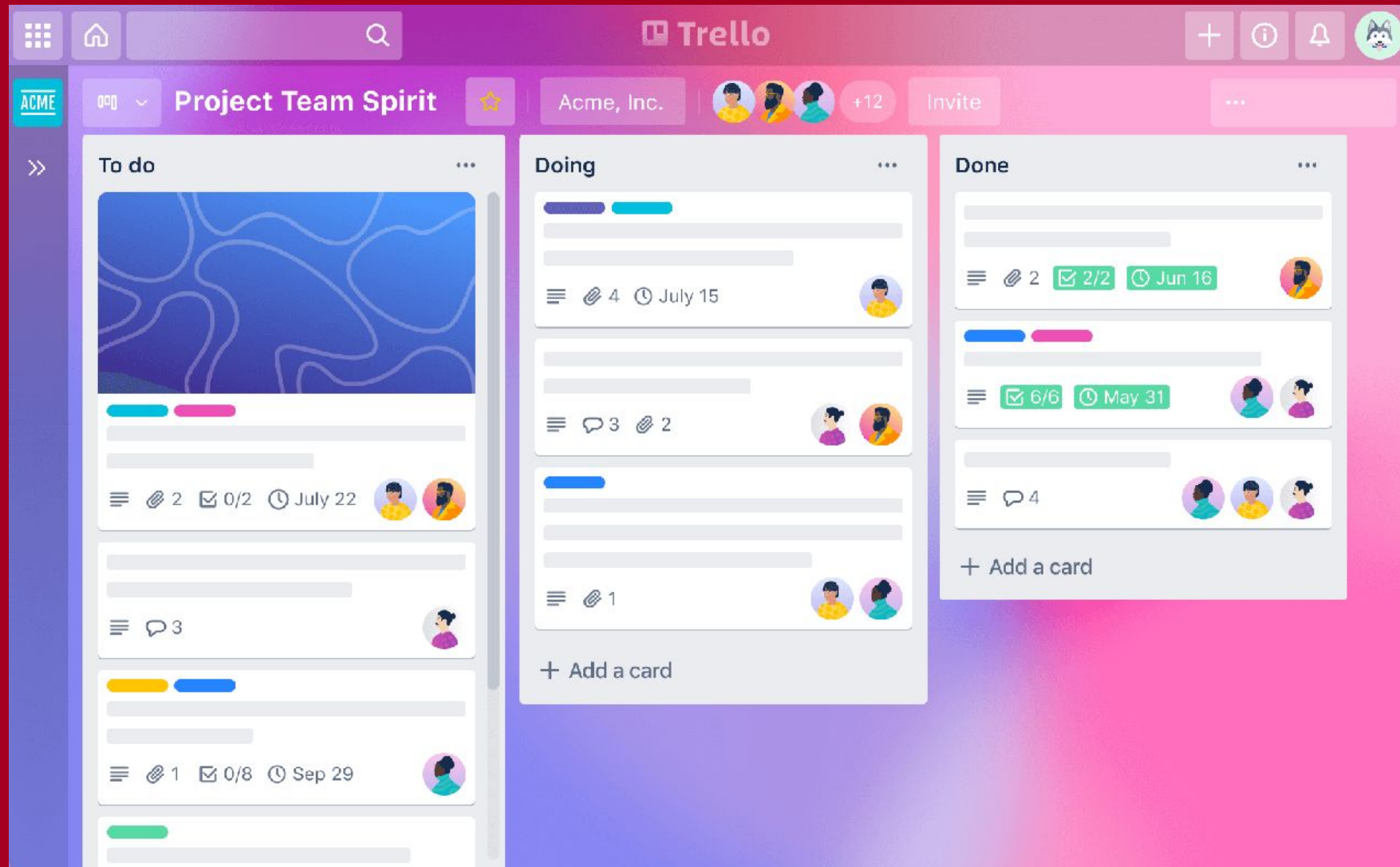
Digital solutions – TRELLO

MURAL is a visual workspace that helps you collaborate. 'Murals' are giant boards to map out content. Collaborate wherever you are keep your creative momentum.

✔ Design thinking & innovation
✔ Brainstorming
✔ Planning & management
✔ Marketing & branding
✔ Research and journey mapping

Digital solutions – TRELLO

✔ Infinite & Resizable Canvas Options
Choose the right canvas for your collaboration goals — flexibility without limits

✔ Icons, GIFs & Images
Express ideas visually or lead an engaging team-building activity with Noun Project, GIPHY, & Unsplash integrations

✔ Sticky Notes & Text
Add ideas, action items, & more as a sticky note or text box — then change colors and cluster to identify patterns or solutions
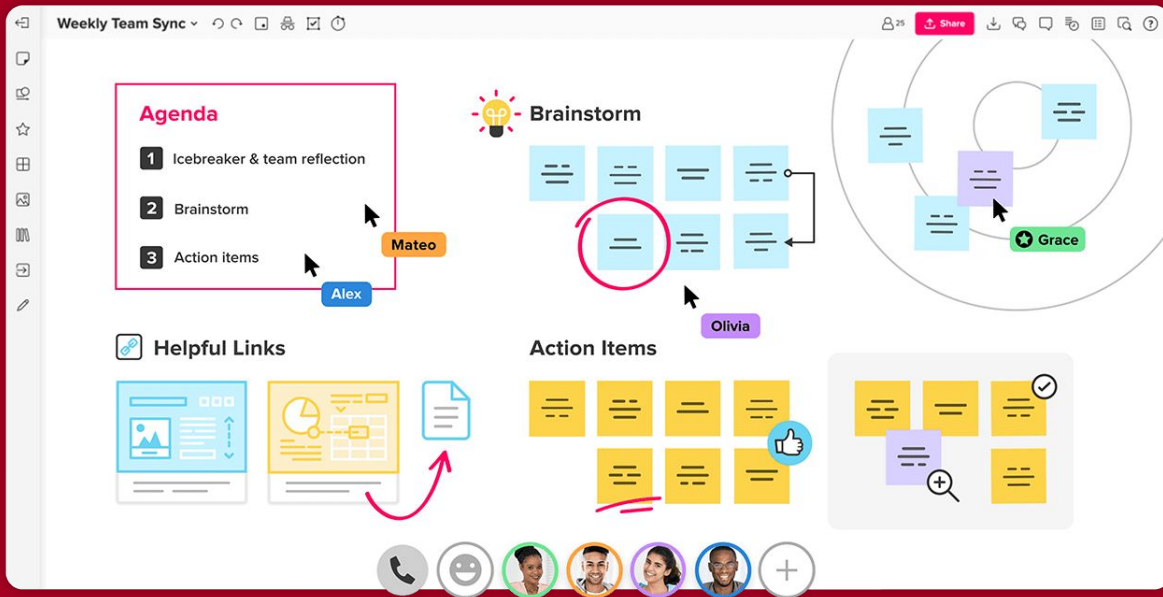
✔ Flexible Permissions
Control access to collaboration features with view-only, edit, and facilitator settings

✔ Mapping & Diagramming
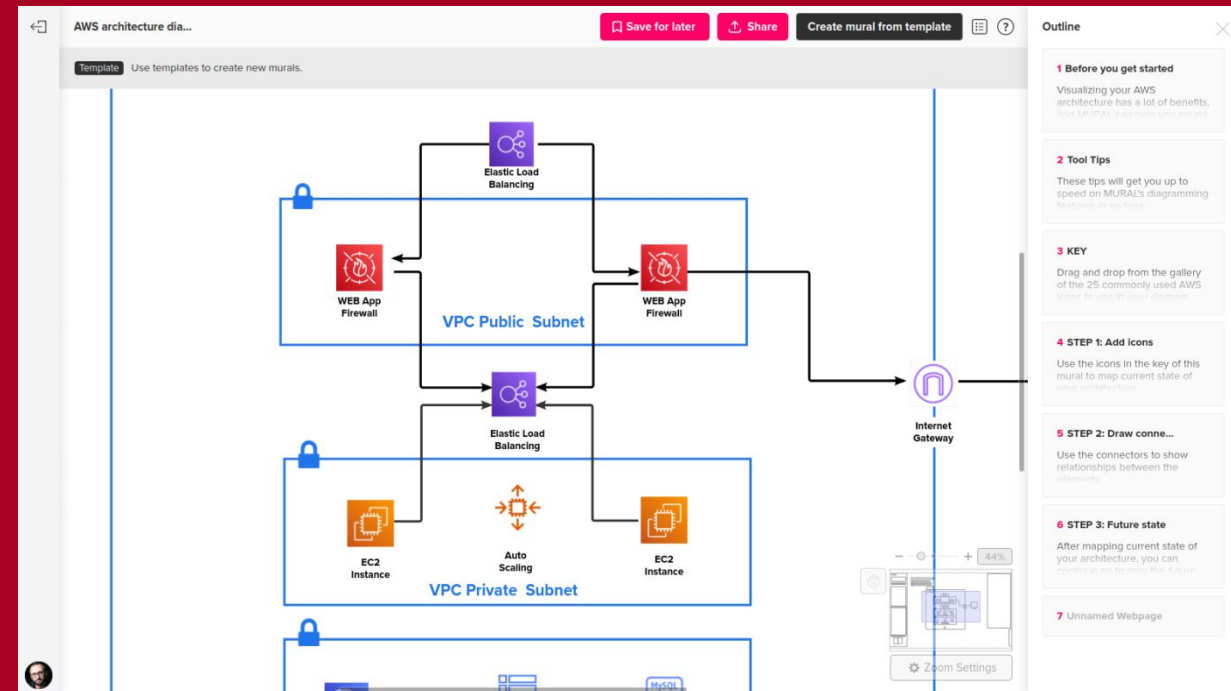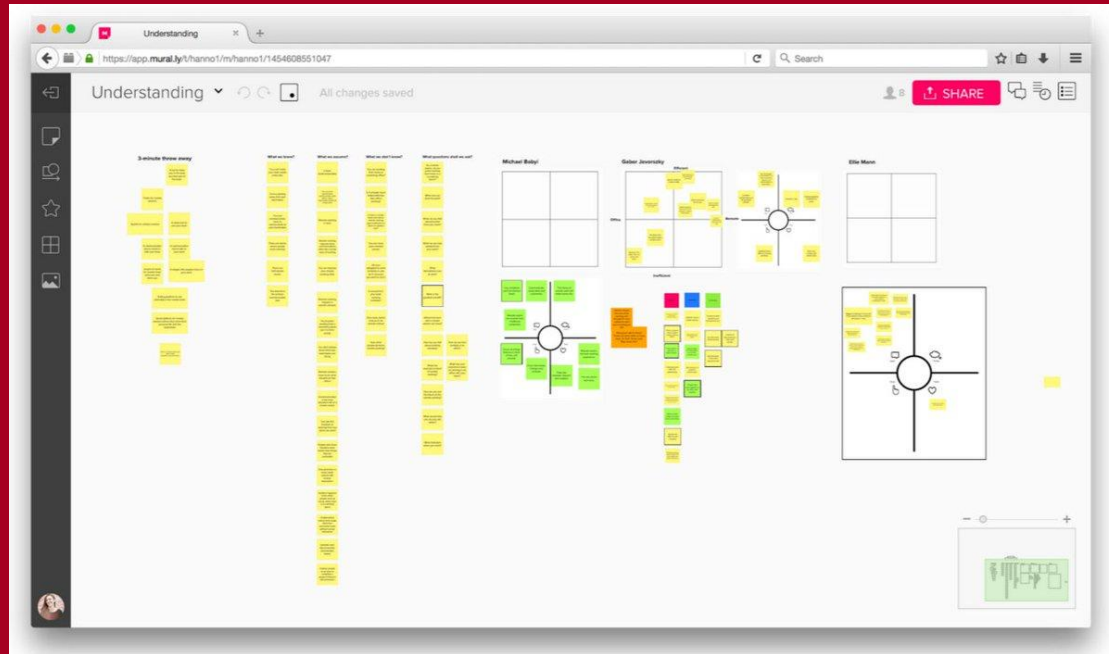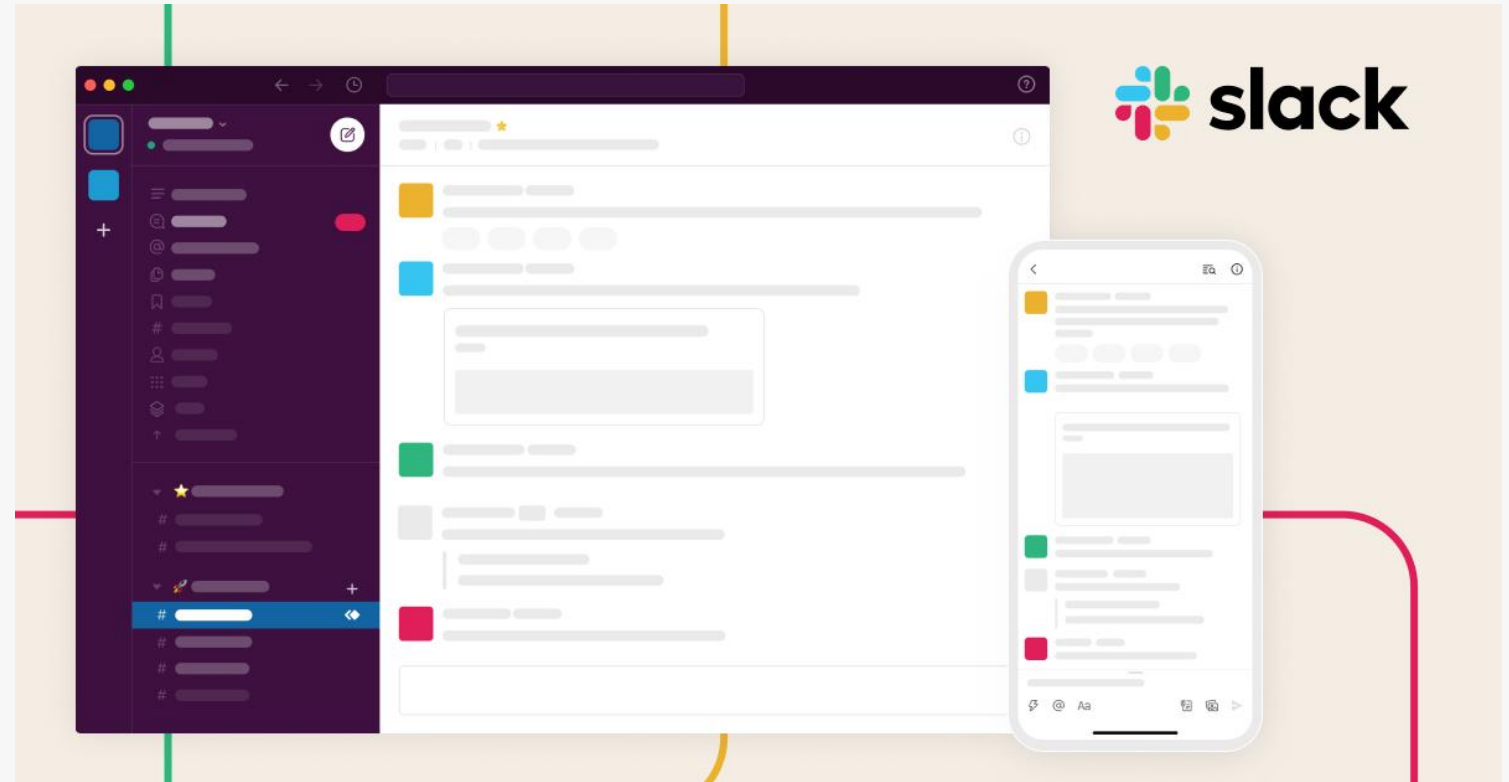*Build quick and easy visualizations of flows, maps, processes, hierarchies, journeys, etc.*
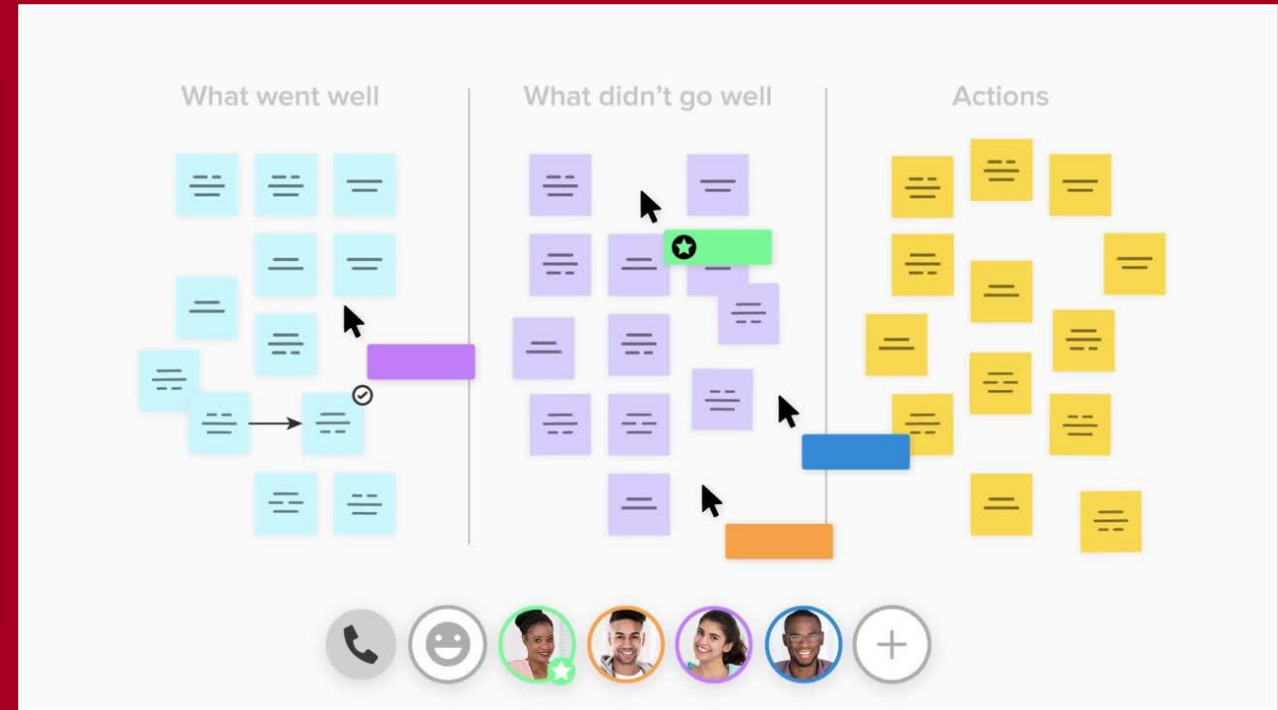
Digital solutions – TRELLO

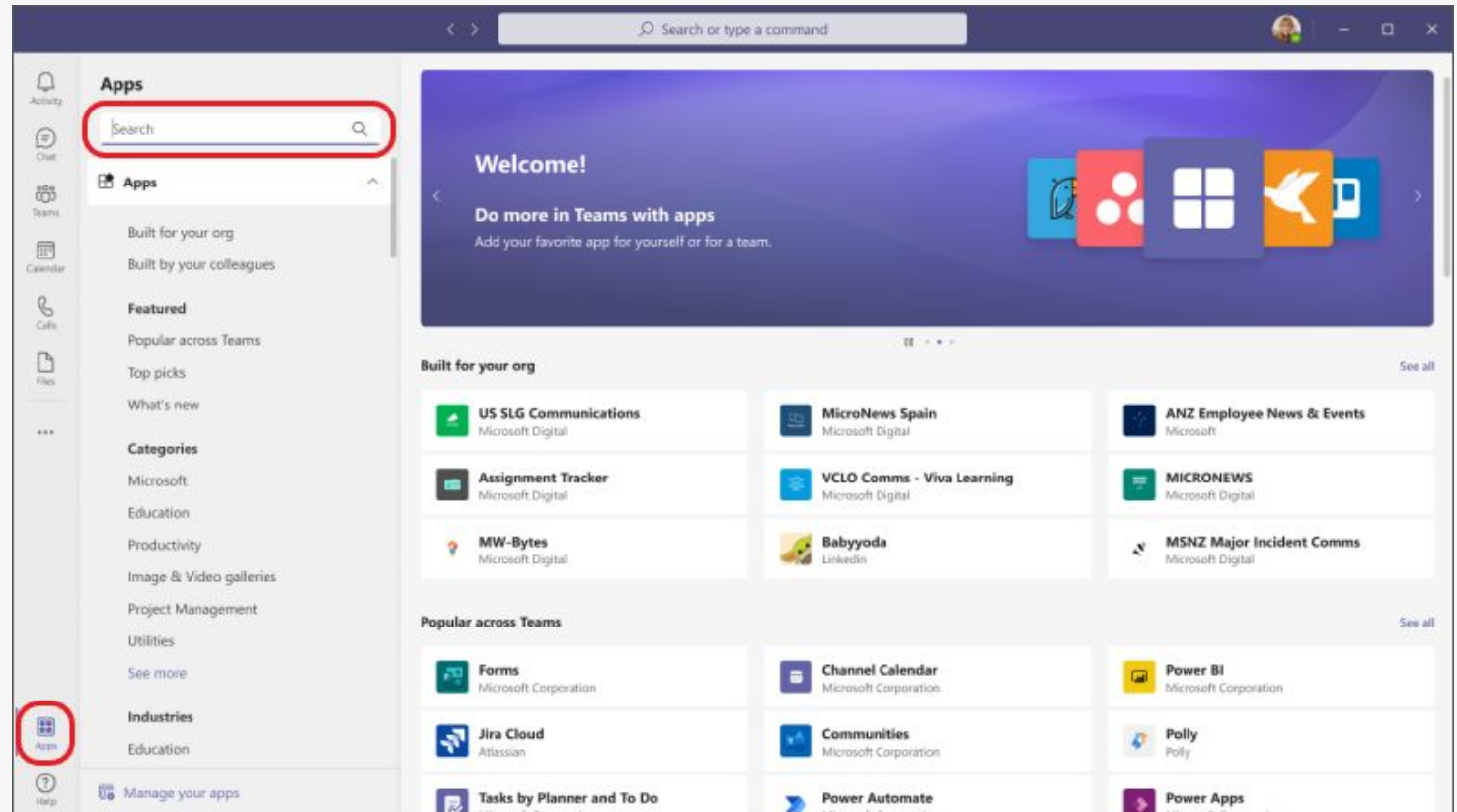# Digital solutions – TRELLO

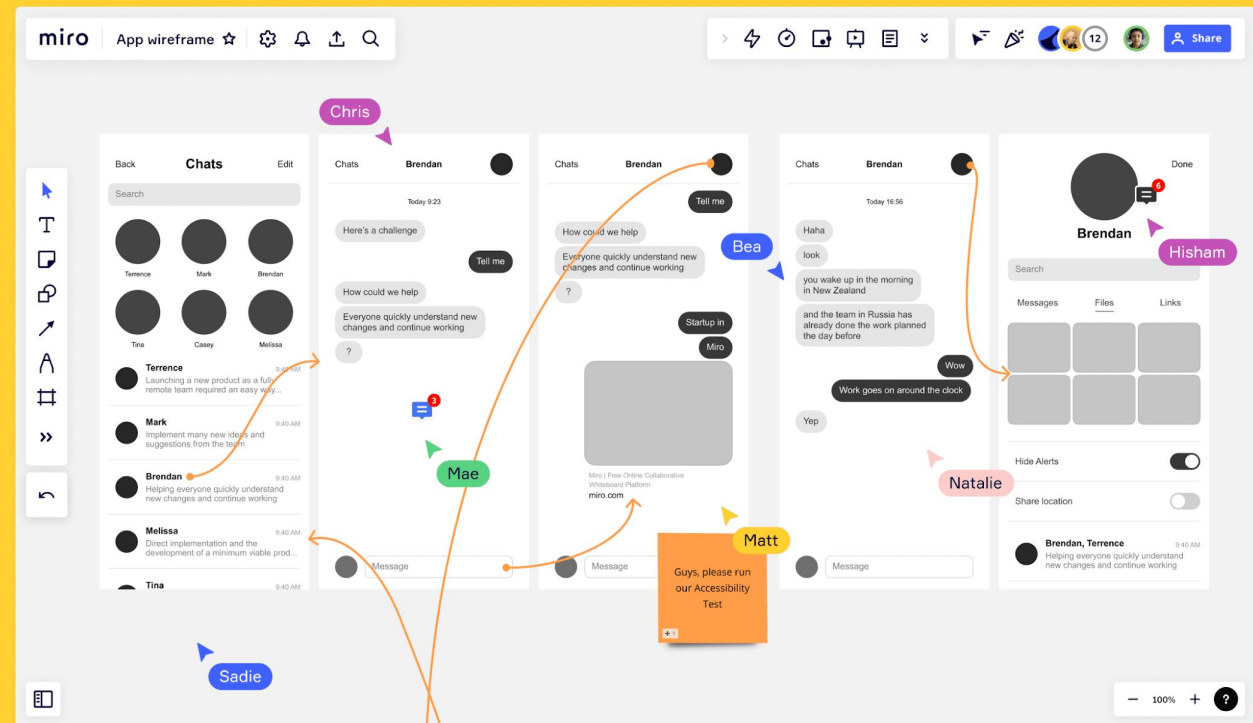# Digital solutions – examples for collaboration

Digital solutions – examples for collaboration

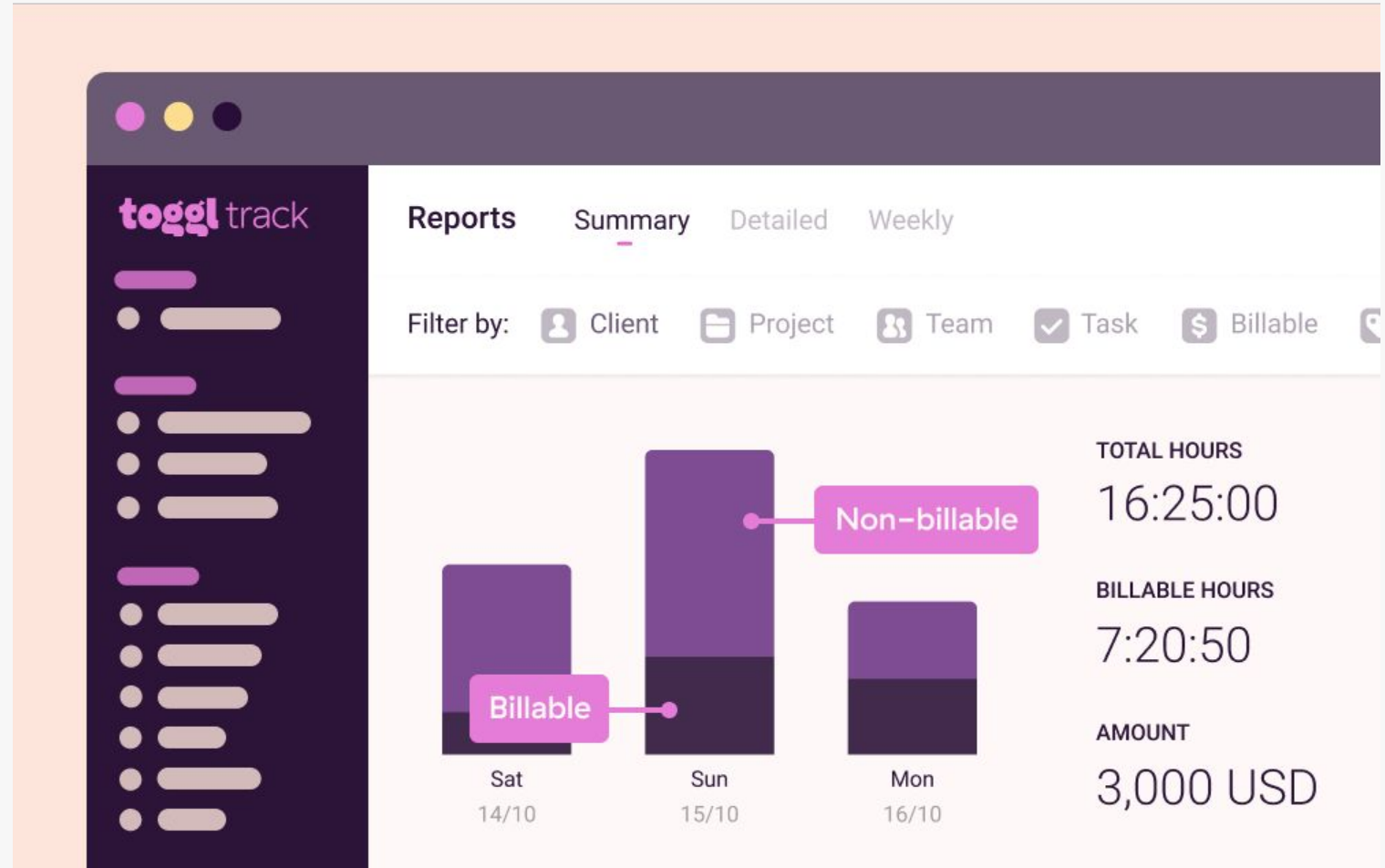# Digital solutions – examples for collaboration

Digital solutions – examples for collaboration

Digital solutions – examples for collaboration

Digital solutions – examples for collaboration

Self-Assessment

Questions

• Read the following questions related to this unit

Review

• Choose the number that best represents your level of familiarity, understanding or ability (numeric scale from 1 to 7)

Gaps

• Based on the analysis, identify specific gaps and areas where improvements can be made

Action Plan

• Develop a plan to address your needs and set some goals

Self-Assessment

"

1. How well do you understand the concept of digital literacy and the skills it encompasses?

2. Are you confident in your ability to use basic computer hardware and software?

3. How effectively do you communicate with colleagues, clients, and customers using digital technologies?

4. Are you able to create and edit digital content such as documents, images, and videos?

5. Do you have a good understanding of how to protect digital assets and information, as well as knowledge of laws and regulations related to data privacy and security?

"

Self-Assessment

6. **Are you able to analyze and solve problems, and make decisions based on data and evidence?**

7. **How well do you collaborate with others using digital tools such as online collaboration platforms and video conferencing?**

8. **Are you able to learn and adapt to new technologies and digital tools quickly?**

9. **Do you have a good understanding of ethical use of digital resources, including understanding and respecting copyright laws, avoiding plagiarism, and being mindful of online privacy and security?**

10. **How well do you tailor your digital literacy skills and experiences to the specific job you are applying for?**

Quiz

1. What is the main goal of data literacy?

A. To be able to understand and analyze complex data
B. To be able to create and manipulate data
C. To be able to predict the future using data

2. What is the main goal of information literacy?

A. To be able to spread false information without being caught
B. To be able to find and evaluate information effectively and efficiently
C. To be able to memorize large amounts of information

3. What is the main goal of visual literacy?

A. To be able to understand and analyze visual media, such as images and videos
B. To be able to create visually pleasing but misleading graphics
C. To be able to predict the future by interpreting visual cues

Quiz

4. What is the main goal of media literacy?

A. To be able to create and spread fake news
B. To be able to predict the future by analyzing media trends
C. To be able to critically analyze and evaluate media messages and sources

5. What is the main goal of metaliteracy?

A. To be able to engage in lifelong learning and self-reflection on one's own literacy practices and abilities
B. To be able to manipulate others by pretending to be literate
C. co be able to predict the future by analyzing one's own literacy practices and abilities

6. Which of the following is the most important reason for organizations to prioritize the development of digital skills among their employees?

A. To keep up with the latest technology trends
B. To reduce labour costs
C. To remain competitive in an increasingly digital marketplace

Module 1: Foundation Module for IT Skills

Unit 1: Digital Skills

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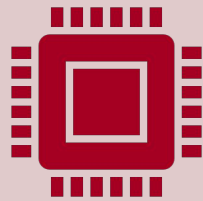Unit 3: Technology and Decision Making

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What is digital transformation?

Digital transformation refers to the process of **using digital technologies to fundamentally change how organizations operate and deliver value to customers**.
It is a broad term that encompasses a wide range of technologies, such as the *Internet, mobile devices, social media, big data, analytics, and cloud computing.*
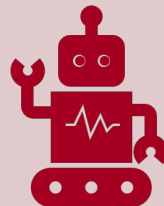
Digital transformation is a process that organizations undertake to **adapt to the digital age and to stay competitive**. It enables companies to **digitize their operations, processes, products, and services** and to leverage technology to improve their performance and drive growth. It can also help companies to create new business models, to reach new customers, and to develop new revenue streams.

What is digital transformation?
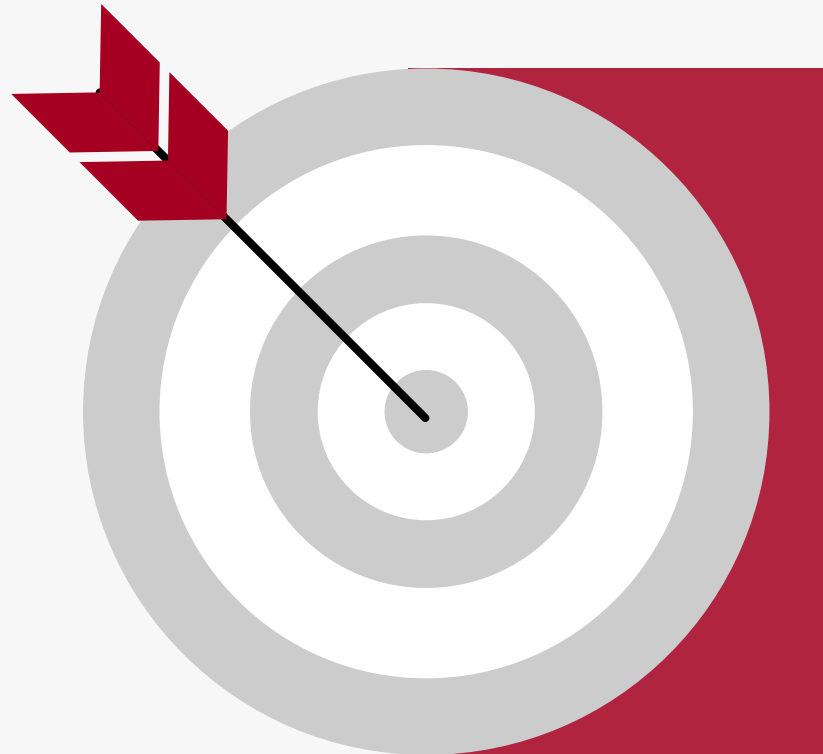
The goal of digital transformation is to:

- ✔ create a more efficient and effective organization
- ✔ improve customer experience
- ✔ create new opportunities for growth

(e.g. automating manual processes, using data and analytics to make better decisions, using digital channels to interact with customers etc.)

Benefits and importance

Increased efficiency and automation of business processes

Improved communication and collaboration within and between organizations

Greater flexibility and scalability of operations

Enhanced customer experiences and personalization

Increased access to data and analytics for decision making

Reduced costs and increased revenue potential

Improved ability to compete in the digital marketplace

Improved ability to quickly adapt to changing market conditions and customer needs.

Increased ability to work remotely and support a mobile workforce

Enhanced security and compliance capabilities

Benefits and importance

Improved ability to innovate and stay ahead of the competition

Enhanced data-driven decision making and business intelligence

Increased speed and accuracy of transactions and data management

Improved ability to track and analyze customer behavior and preferences

Increased accessibility and convenience for customers to engage with the business

Improved ability to manage and analyze large amounts of data

Increased scalability and ability to expand to new markets

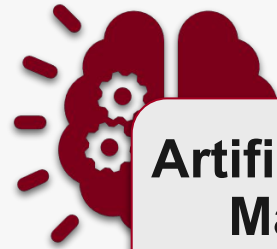Improved ability to monitor and measure performance and KPIs

Improved ability to manage and control supply chain and logistics

Enhanced ability to leverage new technologies such as AI and ML

Digital transformation trends

Artificial Intelligence (AI) and Machine Learning (ML)
These technologies are being used to automate repetitive tasks, analyze large amounts of data, and improve decision making

Cloud Computing
The use of cloud-based infrastructure, platforms, and software is becoming increasingly popular as it allows for greater scalability, flexibility, and cost-effectiveness

Internet of Things
IoT is being used to connect devices and gather data to improve operations and decision making in various industries

Big Data
Organizations are using big data analytics to gain valuable insights from large sets of structured and unstructured data

Digital transformation trends

ARTIFICIAL INTELLIGENCE

AI, or Artificial Intelligence, is the simulation of human intelligence in machines. It allows machines to perform tasks that typically require human intelligence, such as recognizing speech or images, making decisions, and learning from experience. For instance, a chatbot that can understand and respond to natural language is an example of AI.
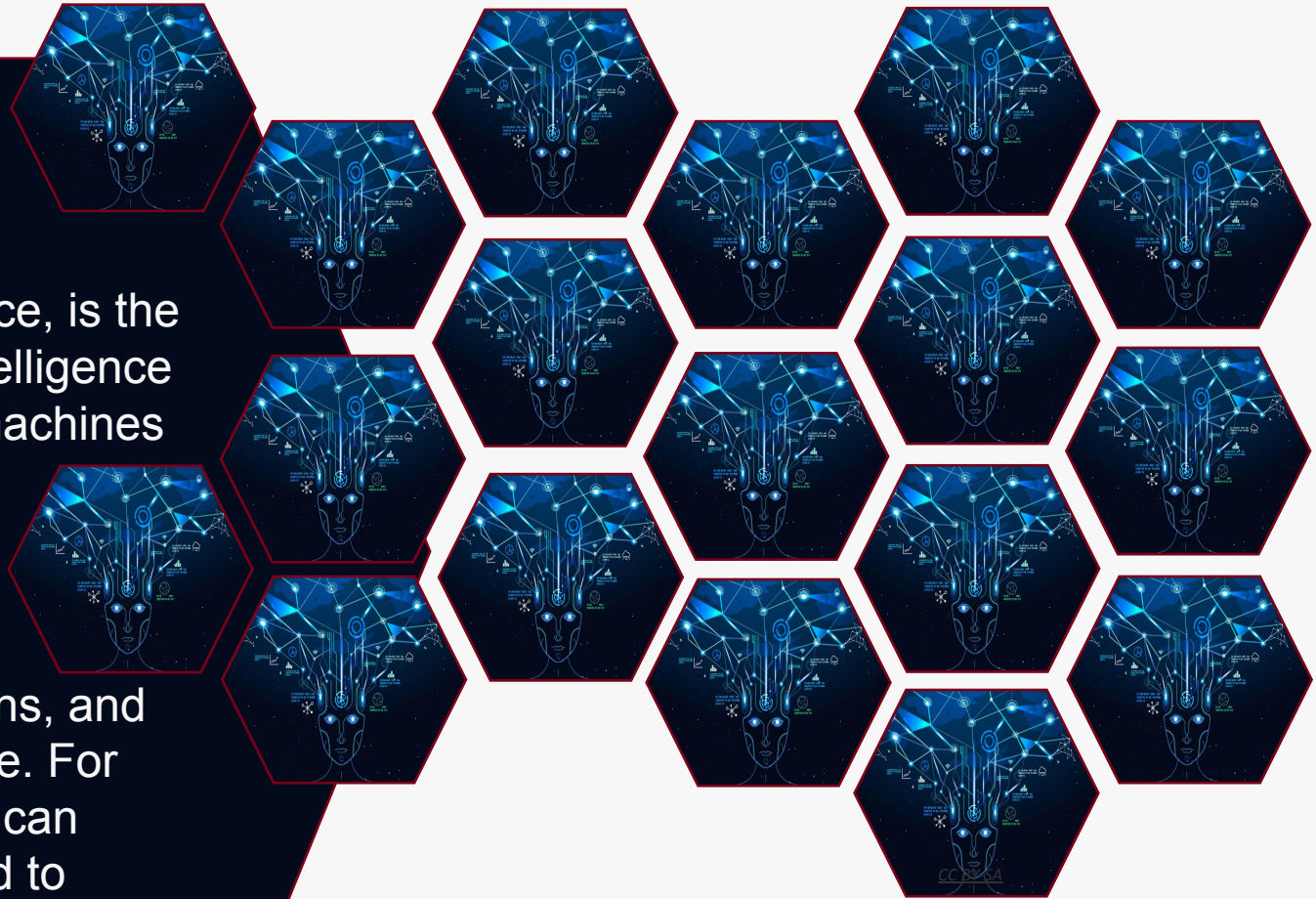
Digital transformation trends

MACHINE LEARNING

ML, or Machine Learning, is a subset of AI that allows machines to learn and improve from experience without being explicitly programmed. It's like giving a computer the ability to learn on its own. ML algorithms are used to analyze data, identify patterns and make predictions. For example, ML can be used to identify patterns in a large dataset, like recognizing patterns in images or speech.

Digital transformation trends

CLOUD COMPUTING

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale. It allows users to access their data, software and applications from anywhere, with no need for expensive hardware or software.
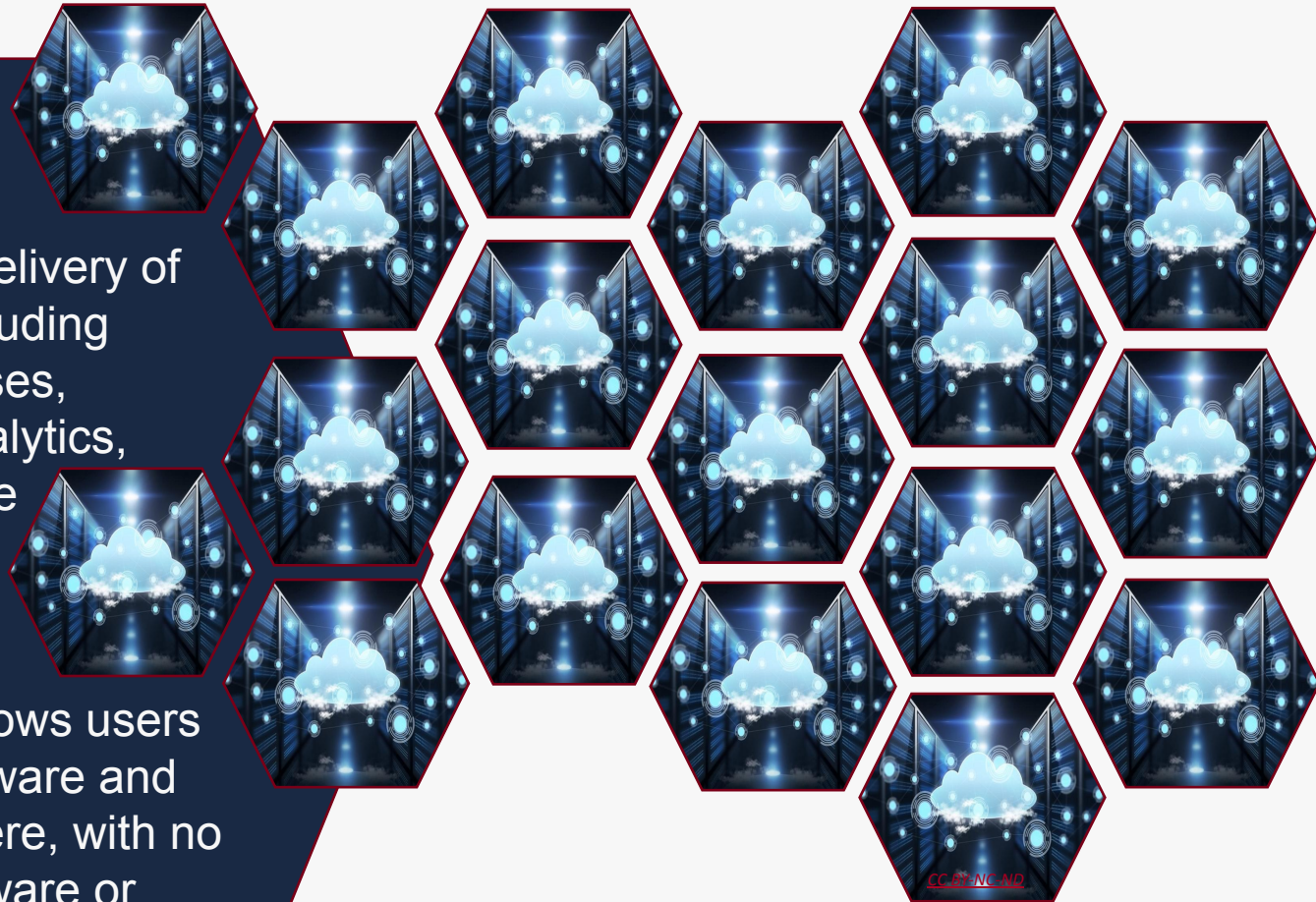
Digital transformation trends

INTERNET OF THINGS

IoT, or Internet of Things, refers to the network of physical devices, vehicles, buildings and other items embedded with sensors, software, and connectivity which enables these objects to connect and exchange data with one another. This allows for the collection and sharing of data in real-time, which can be used to improve the efficiency of various industries.

Digital transformation trends

BIG DATA

Big Data refers to the large volume of structured and unstructured data that is generated by various sources, such as social media, sensors, and transactions.

It is too large and complex to be managed and analyzed by traditional data processing tools. Companies use big data to gain insights and make better decisions by identifying patterns and trends that are hidden in the data

Digital transformation trends

Cybersecurity
With the increasing number of cyber threats, organizations are focusing on enhancing their cybersecurity measures to protect sensitive data and systems

Automation
Automation of repetitive tasks and processes is becoming increasingly popular as it helps to increase efficiency and reduce errors

Blockchain
Blockchain technology is being used to improve security, transparency and traceability in various industries, such as finance and supply chain

Digital transformation trends

CYBERSECURITY

Cybersecurity refers to the protection of digital information and systems from unauthorized access, use, disclosure, disruption, modification, or destruction.
It is the practice of defending computers, servers, mobile devices, electronic systems, networks, and data from cyberattacks. This includes protecting against hacking, phishing, malware and other types of cyber threats.

Digital transformation trends

AUTOMATION

Automation is the use of technology to perform tasks without human intervention. It involves the use of machines, robots or software to perform repetitive or complex tasks that would otherwise have to be done by humans. Automation can improve efficiency, reduce costs, and increase productivity.

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Digital transformation trends

BLOCKCHAIN TECHNOLOGY

A blockchain is a type of digital ledger that keeps track of all the transactions that take place on it. It is like a digital notebook that is made up of pages (called blocks) that contain information about all the transactions that have taken place on the network. Each block is linked to the previous one, creating a chain of blocks.

Digital transformation trends

Robotics
Robotics is a rapidly growing trend in digital transformation as it is being increasingly adopted across a wide range of industries to automate various processes and tasks.

Augmented Reality and Virtual Reality (AR/VR)
he use of AR/VR technologies to enhance the customer experience and to create new opportunities for collaboration and training

5G and Edge Computing
The deployment of 5G networks and edge computing infrastructure to enable low-latency, real-time data processing, which can support new use cases such as autonomous vehicles and virtual reality
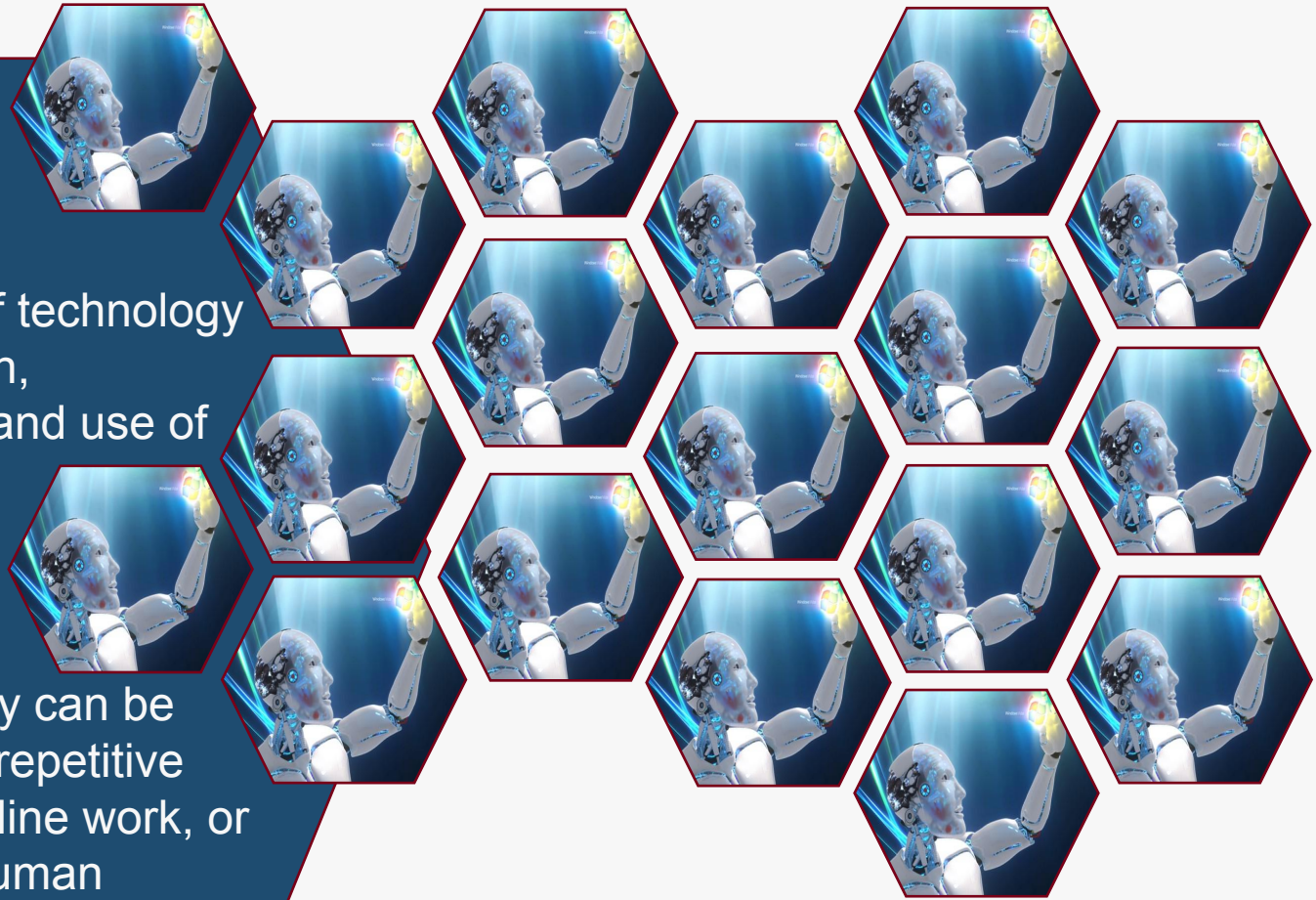
Digital transformation trends

ROBOTICS

Robotics is the branch of technology that deals with the design, construction, operation, and use of robots. Robots are machines that are capable of performing tasks autonomously or semi-autonomously. They can be programmed to perform repetitive tasks such as assembly line work, or can be controlled by a human operator.
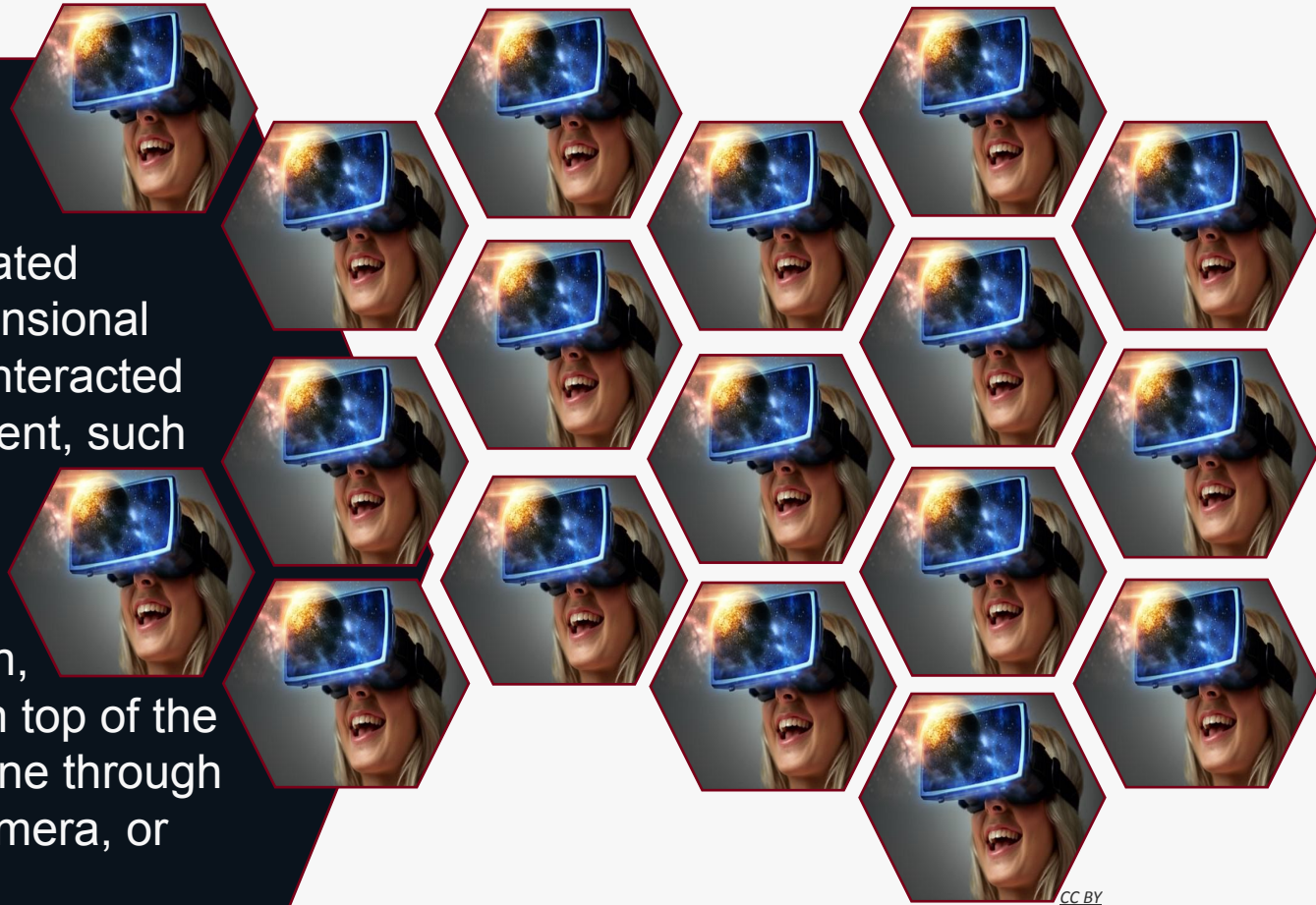
Digital transformation trends

VR AND AR

(VR) is a computer-generated simulation of a three-dimensional environment that can be interacted with using special equipment, such as a headset.

(AR) is a technology that overlays digital information, such as images or text, on top of the real world. This can be done through a smartphone or tablet camera, or through special glasses.

Digital transformation trends

5G AND EDGE COMPUTING

5G is the next generation of cellular technology that will allow for faster internet speeds and more reliable connections.

Edge computing is a way of processing data closer to where it is being generated, rather than sending it to a remote location for processing.

Digital transformation in the agri-food sector

https://www.youtube.com/watch?v=C4W0qSQ6A8U
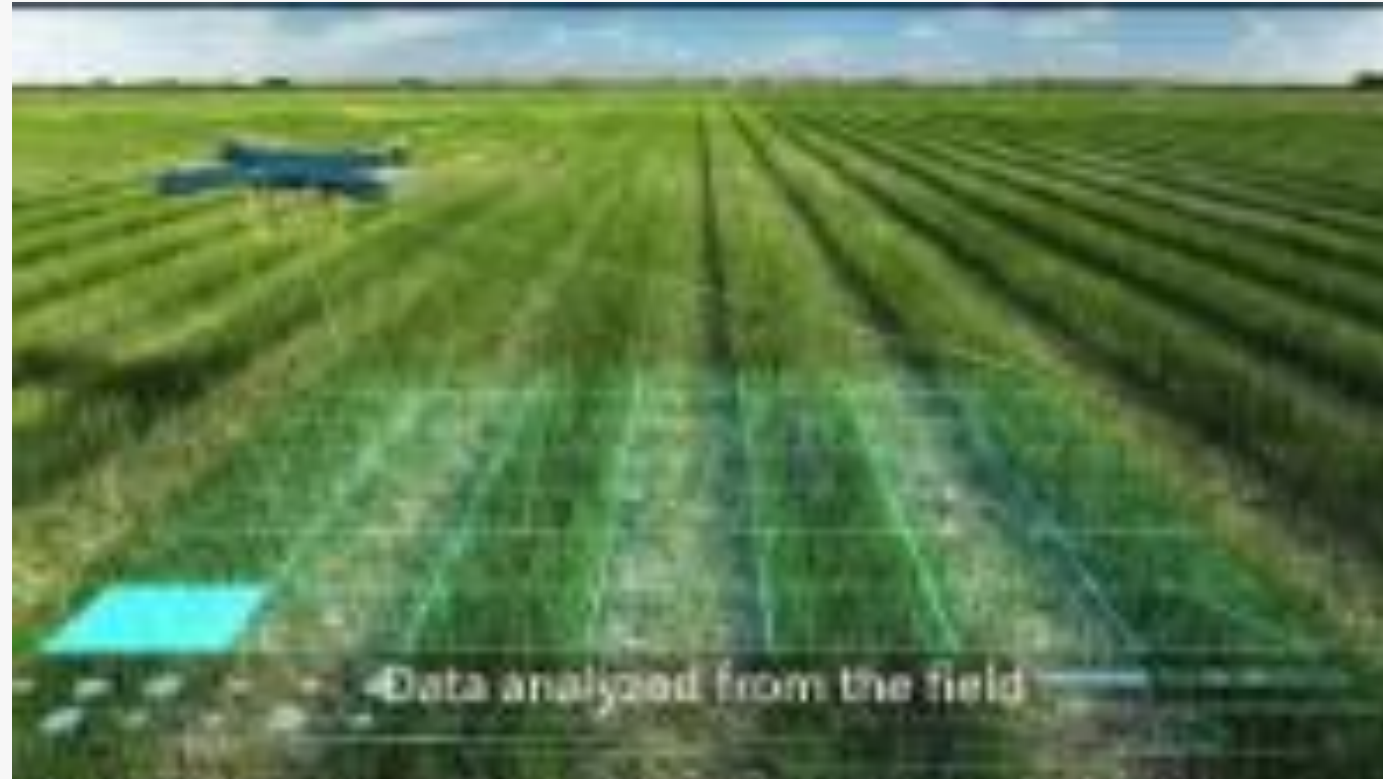
Digital transformation in the agri-food sector

PRECISION AGRICULTURE

using technology such as GPS, sensors, and drones to optimize crop yields and improve efficiency

Digital transformation in the agri-food sector

SUPPLY CHAIN MANAGEMENT

using technology such as blockchain to increase transparency, traceability, and efficiency in the movement of goods from farm to consumer

Digital transformation in the agri-food sector

BIG DATA AND ANALYTICS

using data from various sources, such as weather and market trends, to inform decision-making throughout the agri-food sector

Digital transformation in the agri-food sector

AUTOMATION

using technology such as robots and drones to automate tasks and improve efficiency

Digital transformation in the agri-food sector

INTERNET OF THINGS (IOT)

connecting devices and equipment to the internet to collect and share data in real-time

Digital transformation in the agri-food sector

ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING (ML)

using AI and ML to analyze data and make predictions, such as crop yields, weather patterns, and market trends

Digital transformation in the agri-food sector
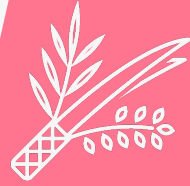
E-COMMERCE AND ONLINE MARKETPLACES

using technology to connect consumers with farmers and other food producers, making it easier to buy and sell goods

Digital transformation in the agri-food sector

DIGITAL MARKETING AND SOCIAL MEDIA

using digital marketing and social media to promote products and build brand awareness

Digital transformation in waste management

AUTOMATION

using technology such as robots, drones, and sensors
to automate tasks and improve efficiency

Digital transformation in waste management

INTERNET OF THINGS (IOT)

connecting devices and equipment to the internet to
collect and share data in real-time

Digital transformation in waste management
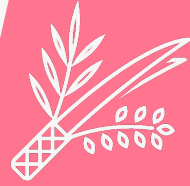
BIG DATA AND ANALYTICS

using data from various sources, such as waste streams, to inform decision-making throughout the waste management sector

Digital transformation in waste management

SMART WASTE MANAGEMENT SYSTEMS

using technology such as sensors, IoT and AI to optimize the collection, transportation, and disposal of waste

Digital transformation in waste management

FLEET MANAGEMENT AND ROUTE OPTIMIZATION

using GPS and telematics to optimize the routes of waste collection vehicles, reducing fuel consumption and emissions

Digital transformation in waste management

RECYCLING AND COMPOSTING

using technology such as sensors, artificial intelligence and machine learning to sort and process waste to increase recycling and composting rates

Digital transformation in waste management

DIGITAL PLATFORMS FOR WASTE TRACKING AND REPORTING

using digital platforms to track and report on waste generation, collection, and disposal, and to monitor compliance with regulations

Digital transformation in waste management

PUBLIC ENGAGEMENT AND EDUCATION

using digital tools such as social media and mobile apps to educate the public about waste reduction, recycling and composting

Think/Pair/Share

Question

- Read the following open-ended question related to this unit

Think

- Take some notes and write down some thoughts regarding the question

Pair

- Turn to the person next to you and share your thoughts/notes/answers with each other

Share

- Share your summary and thoughts with the classroom

Think/Pair/Share

In your opinion what are the most important benefits of digital transformation for companies and organizations?

Quiz

1. What technology is being used to automate repetitive tasks and improve decision making?

A. Cloud Computing
B. Big Data Analytics
C. Artificial Intelligence and Machine Learning

2. What technology is being used to improve security, transparency, and traceability in industries such as finance and supply chain?

A. IoT
B. Blockchain technology
C. Robotics

3. What is the main goal of digital transformation for organizations?

A. To increase the use of artificial intelligence and machine learning
B. To improve communication and collaboration within the organization
C. To create a more efficient and effective organization, improve customer experience, and create new opportunities for growth

Quiz

4. What is the main goal of precision agriculture?

A. To increase crop yields and improve efficiency
B. To increase transparency in the movement of goods
C. To improve the recycling and composting rates
D. To improve public engagement and education

5. How is big data used in the agri-food sector?

A. To connect consumers with farmers and other food producers
B. To analyze data and make predictions, such as crop yields and market trends
C. To optimize the routes of waste collection vehicles
D. To sort and process waste to increase recycling and composting rates

6. What technology is used to automate tasks in the waste management sector?

A. Drones and sensors
B. Internet of Things (IoT)
C. Smart waste management systems

Quiz

7. What is the main goal of digital platforms for waste tracking and reporting?

A.   To track and report on waste generation, collection, and disposal
B.   To optimize crop yields and improve efficiency
C.   To increase transparency in the movement of goods
D.   To educate the public about waste reduction, recycling and composting

8. What technology is used to optimize the routes of waste collection vehicles?

A.   GPS and telematics
B.   Internet of Things (IoT)
C.   Artificial intelligence (AI) and machine learning (ML)
D.   Smart waste management systems

9. Which of the following best describes the main difference between Internet of Things (IoT) and automation?

A.   IoT is used for data collection and analysis, while automation is used for decision making and control
B.   IoT refers to the connection of devices to the internet, while automation refers to the use of technology to control processes and systems.
C.   IoT is based on wireless communication, while automation uses wired communication

Module 1: Foundation Module for IT Skills

Unit 2: Digital Transformation

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Unit 2: Digital Transformation

Unit 3: Technology and Decision Making

Unit 4: Social Media Marketing

Unit 5: Security and Cybersecurity

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Unit 1: Digital Skills

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Unit 3: Technology and Decision Making

Unit 4: Social Media Marketing

Unit 5: Security and Cybersecurity

What is technology and decision making?

What is…?

The sector of "technology and decision making" refers to the **use of technology to support and enhance the decision-making process** within an organization

- use of tools such as data analytics, artificial intelligence, and machine learning to **gather and analyze data**

- use of software and platforms to **support collaboration and communication** among decision-makers
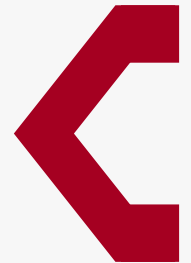
"…leveraging technology to improve the efficiency, accuracy, and effectiveness of the decision-making process…"

What is technology and decision making?

help organizations make more informed and accurate decisions by providing them with **access to relevant and timely data**

use technologies from real-time monitoring of key performance indicators, to predictive analytics that can **help identify potential risks or opportunities**

use of technology to **support collaboration and communication** among decision-makers
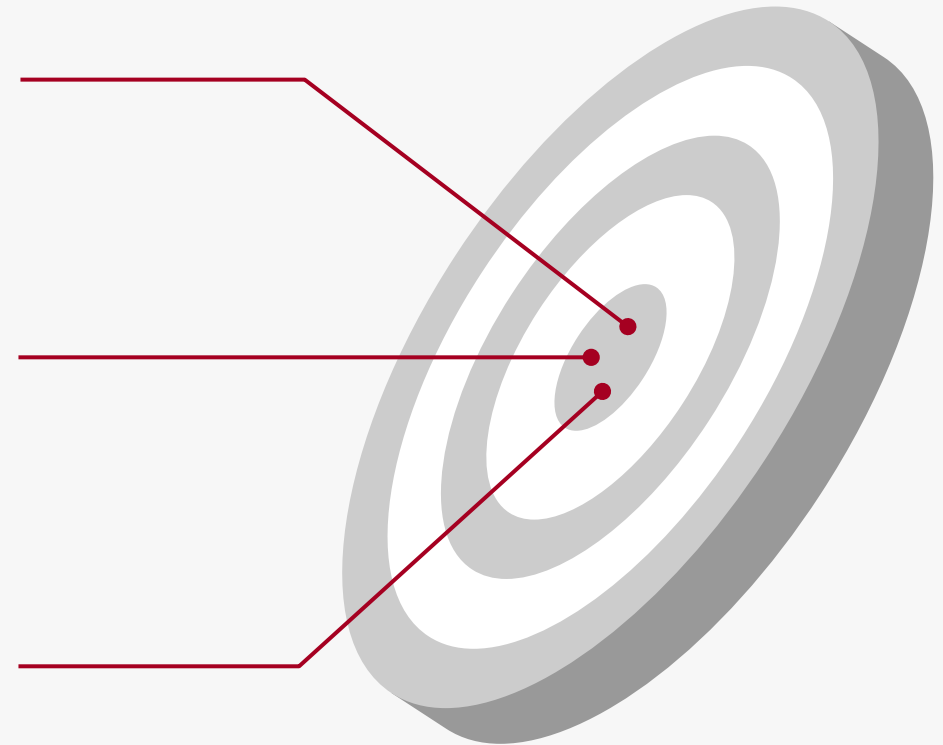
Benefits and importance

IMPROVED DECISION MAKING

gather and analyze data on a large scale →valuable insights and information

BETTER COMPLIANCE

comply with regulations and laws

GREATER FLEXIBILITY

adapt to changing market conditions and customer needs

BETTER RISK MANAGEMENT

identify and mitigate potential risks

BETTER CUSTOMER EXPERIENCE

personalize and enhance their interactions with customers

Benefits and importance

BETTER COMMUNICATION AND COLLABORATION

facilitate communication and collaboration

INCREASED EFFICIENCY

automate repetitive tasks, increase productivity and reduce costs

BETTER INNOVATION

explore new business models, products and services

BETTER SUSTAINABILITY

improve their environmental and social impact

Tools and software

Data analytics platforms

…collect, store, and analyze large amounts of data…

Collaboration and communication tools

…share information and collaborate remotely…

Business Intelligence (BI) software

…real-time insights and visualizations of KPIs, and help to identify trends, patterns, and relationships in data…

Cloud computing platforms

…store and process data in the cloud, which can help to improve scalability, flexibility, and accessibility…

AI and ML platforms

…analyze data and make predictions…

Tools - examples

Tableau - data visualization and business intelligence tool used for reporting and analyzing vast volumes of data
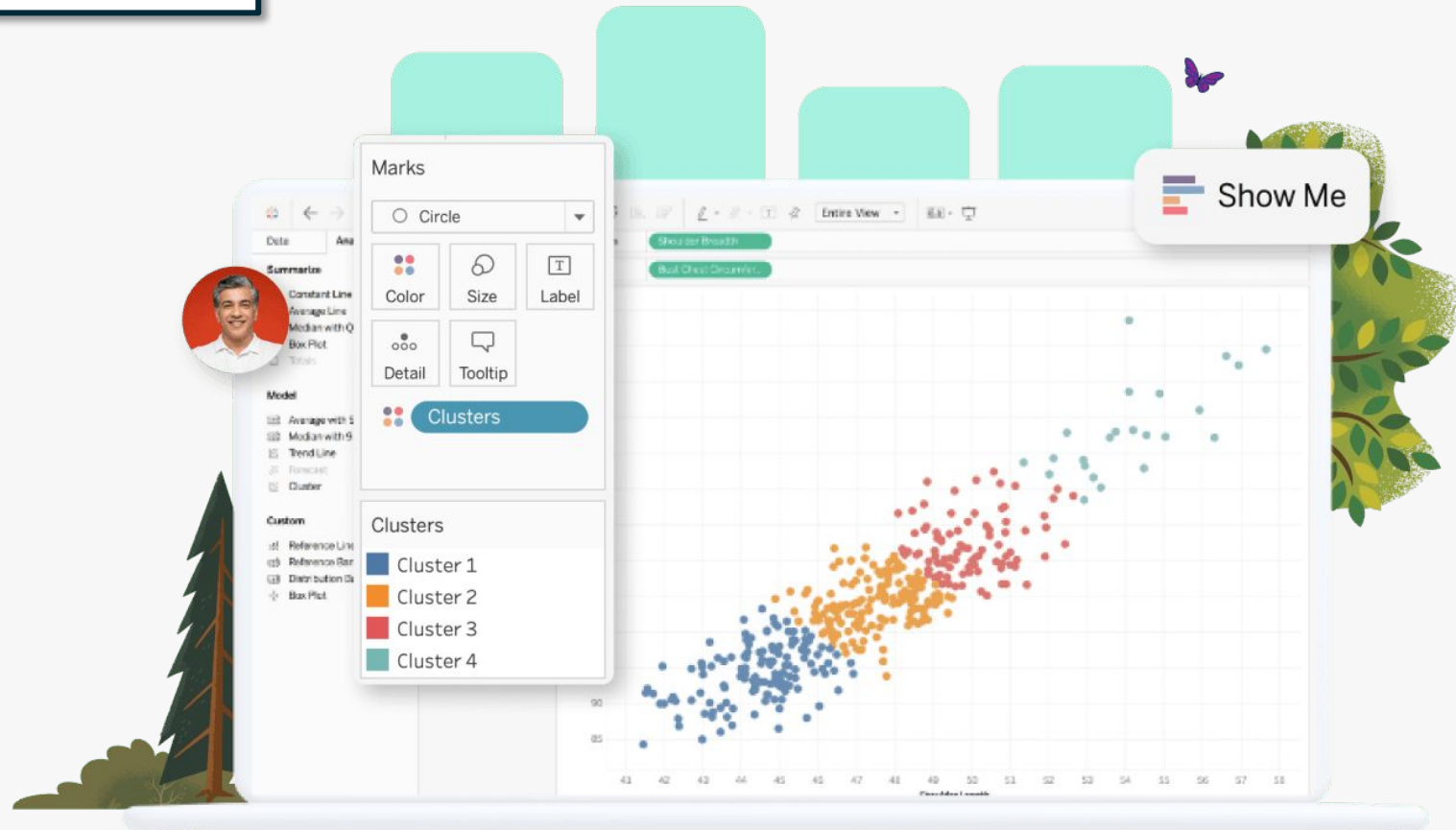
Tools - examples

Google Analytics - a web analytics service that provides statistics and basic analytical tools for search engine optimization (SEO) and marketing purposes
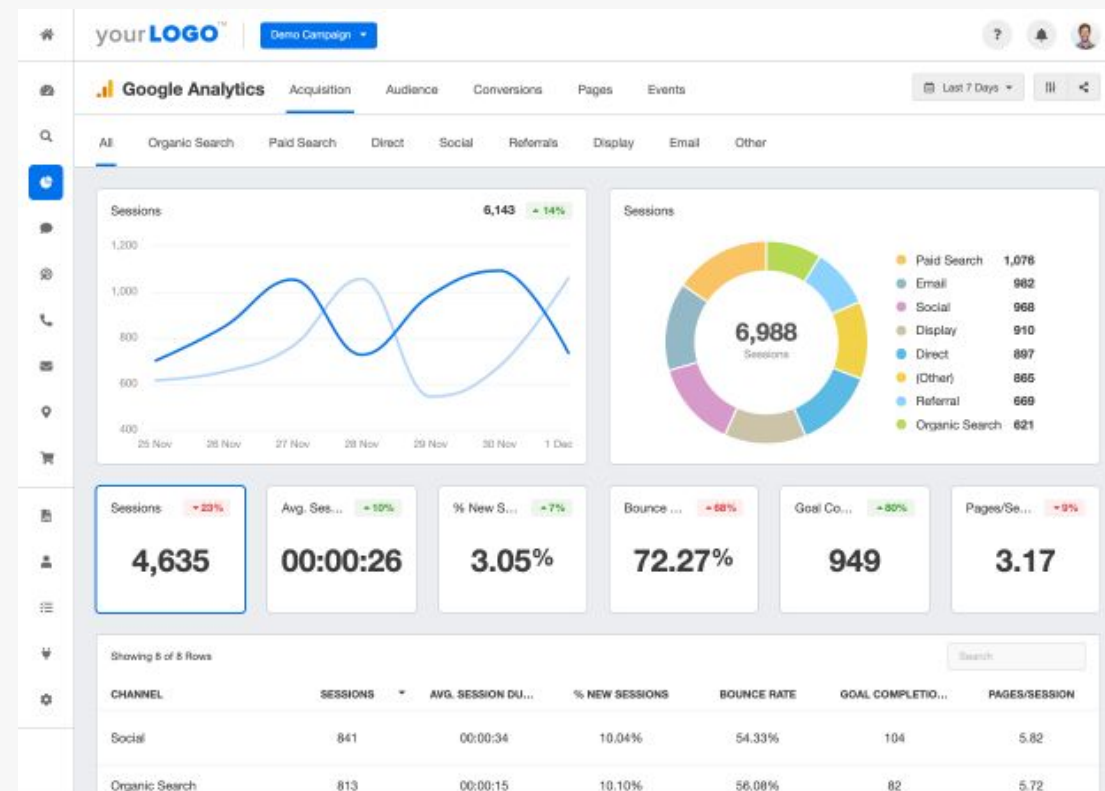
Tools - examples

Jira - project management software that allows teams to track issues, manage projects, and automate workflows
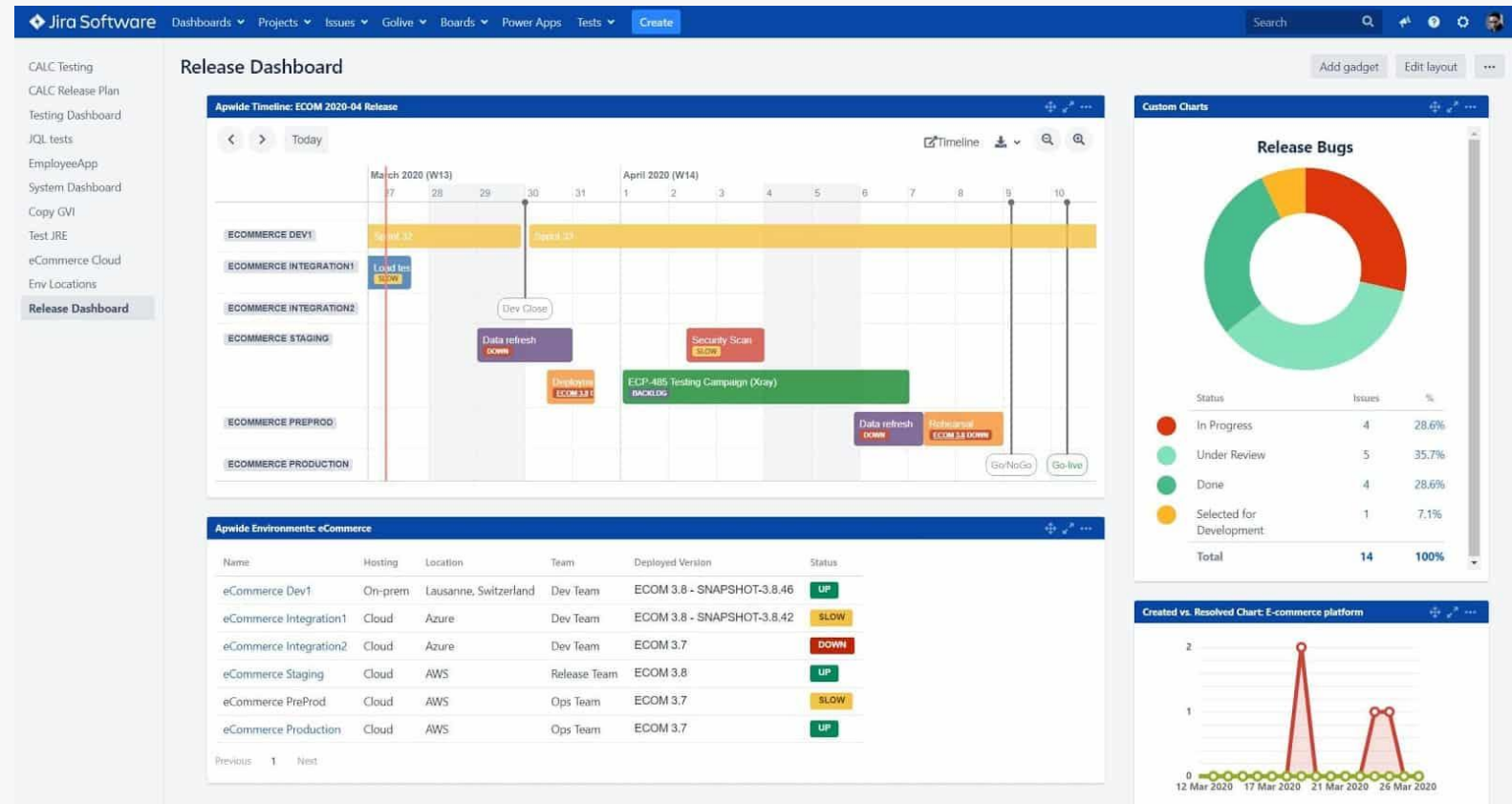
Tools - examples

Amazon Web Services (AWS) - provides on-demand cloud computing platforms and APIs to individuals, companies, and governments

SAP Business Objects - centralized suite of reporting and analytics tools for business intelligence (BI) platforms

Google Cloud Platform - a suite of cloud computing services that runs on the same infrastructure that Google uses internally

Microsoft Azure Machine Learning - a cloud service for accelerating and managing the machine learning project lifecycle

Methods to improve

RESEARCH
…reading books, articles, and research papers…

SELF-REFLECTION
…reflecting on your own performance and behaviour can help you to identify areas where you can improve…

TRAINING
…taking courses, workshops or online tutorials…

PRACTICE
…try to participate in more meetings, presentations and discussions, and get feedback on your performance…

Technology and decision making
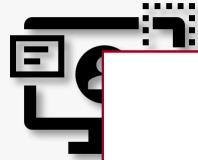
Overall, the sector of technology and decision making is focused on **leveraging technology to improve the efficiency, accuracy, and effectiveness of the decision-making process** within an organization, and ultimately to help organizations make better decisions and stay competitive in today's fast-paced business environment.

"A good decision is based on knowledge, and not on numbers"

-Plato
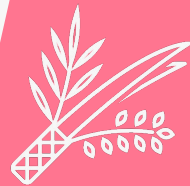
Technology and decision making in the agri-food sector
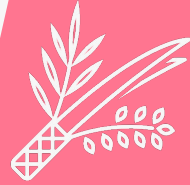
PRECISION AGRICULTURE

use of sensors, drones, and other technologies can help farmers to collect data on soil conditions, weather, and crop growth

LIVESTOCK MANAGEMENT

used to track and monitor the health and productivity of livestock, by using sensors and other monitoring devices

Technology and decision making in the agri-food sector
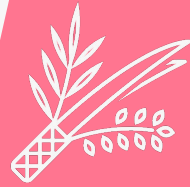
SUPPLY CHAIN MANAGEMENT

used to optimize the supply chain, by using tools such as RFID tags and blockchain, which can help to track the movement of goods from the farm to the consumer
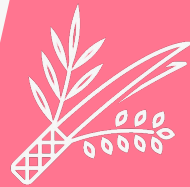
FOOD SAFETY AND TRACEABILITY

used to improve food safety and traceability, by using tools such as blockchain and IoT, which can help to track the origin and quality of food products, and to detect and prevent food contamination

Technology and decision making in the agri-food sector
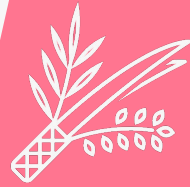
CLIMATE AND WEATHER FORECASTING

used to improve forecasting of weather and climate conditions, by using tools such as satellite imagery, weather and climate models, and big data analytics
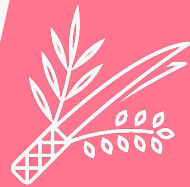
AUTOMATION

used to automate repetitive tasks, such as irrigation, planting, and harvesting

Technology and decision making in the agri-food sector
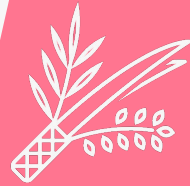
ROBOTICS

used to perform tasks such as planting, harvesting, and sorting of fruits and vegetables

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

analyze data from various sources, such as weather, soil and crop sensors

Technology and decision making in waste management

SMART WASTE COLLECTION

used to optimize the collection of waste through the use of sensors and GPS tracking

RECYCLING AND PROCESSING

used to sort and process waste materials more efficiently

Technology and decision making in waste management

LANDFILL MANAGEMENT

used to monitor and manage landfills, by using sensors to track the levels of waste and gases, and to detect potential leaks and other problems

WASTE-TO-ENERGY

used to convert waste into energy, by using techniques such as anaerobic digestion

Technology and decision making in waste management

SMART BINS

used to monitor the fill level of public waste bins, so they can be collected when they are full

PREDICTIVE ANALYTICS

used to analyze data from various sources, such as weather, population density, and waste generation patterns, to predict future waste management needs and to optimize collection routes

Technology and decision making in waste management

INTERNET OF THINGS (IOT)

used to monitor waste levels and sort out recyclable materials automatically, by using sensors and cameras

REMOTE MONITORING

used to monitor waste management facilities remotely, using cameras, sensors, and other monitoring devices

Assessment

Assessment
- Answer the following open questions related to this unit

Review
- Review the answers of another student

See results
- See the results and feedback from your reviewer

Discuss
- Discuss your answers and thoughts in the classroom

Assessment

"

1. What is the main goal of the sector of "technology and decision making"?

2. How can technology be used to support collaboration and communication among decision-makers?

3. What are some of the main benefits of using technology in the decision-making process within an organization?

4. How can technology help organizations stay competitive and adapt to changing market conditions and customer needs?

5. What are some of the soft skills someone could have in the sector of technology and decision making?

"

Module 1: Foundation Module for IT Skills

Unit 3: Technology and Decision Making

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What is marketing?

What is…?

Marketing is the process of planning and executing the **conception, pricing, promotion, and distribution of ideas, goods, and services** to create exchanges that satisfy individual and organizational objectives.

> "Marketing is about values. It's a complicated and noisy world, and we're not going to get a chance to get people to remember much about us. No company is. So, we have to be really clear about what we want them to know about us.
>
> *- Steve Jobs, co-founder of Apple, investor, and media proprietor.*

What are the marketing objectives?

To identify and understand the needs and wants of customers and target markets

To create awareness and interest in products and services among target markets

To develop and implement effective pricing, promotion, and distribution strategies

To establish and maintain strong relationships with customers and other key stakeholders

To gather and analyze data on customer behavior, market trends, and competitor activities

To continuously improve products, services, and marketing strategies

To create and maintain a positive image and reputation for the company and its products or services

To develop effective marketing campaigns and initiatives to increase brand awareness, reach and engagement with potential customers

To measure and evaluate the effectiveness of marketing strategies and tactics

To support the overall goals and objectives of the organization by contributing to revenue growth, market share, customer satisfaction, and long-term sustainability

Importance

by developing effective marketing strategies and campaigns, companies can reach and engage their target audiences

by using analytics and metrics, companies can track the performance and optimize their strategies.
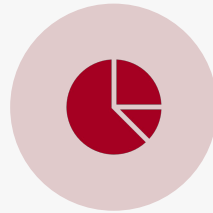
IT HELPS COMPANIES TO UNDERSTAND THEIR CUSTOMERS

IT HELPS COMPANIES TO REACH THEIR TARGET AUDIENCES

IT HELPS COMPANIES TO COMPETE

IT HELPS COMPANIES TO MEASURE AND IMPROVE PERFORMANCE

IT HELPS COMPANIES TO CREATE VALUE

by researching and analyzing customer needs, preferences, and behaviors

by understanding their competitors and differentiating their products and services

by identifying customer needs and creating products and services that meet those needs

What is marketing and social media tools

MARKETING TOOLS

SOCIAL MEDIA TOOLS

Marketing tools are software or platforms that businesses and organizations use to plan, execute, and measure the effectiveness of their marketing campaigns.

Social media tools are software or platforms that businesses and organizations use to manage and optimize their social media presence.

(social media management platforms, social media listening tools, social media analytics tools, and social media advertising tools)

"They work in tandem and complement each other to help businesses achieve their goals"

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The principles of social media marketing

Setting clear goals and objectives

…determine what you want to achieve through your social media marketing efforts…
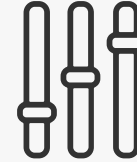
Understanding your target audience

… identify the demographics, and interests of your target audience, and tailor your content and messaging to appeal to them…

Building a community

… foster relationships with your audience by responding to comments and messages, and engage with them …

Creating valuable and engaging content

… develop content that is interesting, informative, and relevant to your target audience…

1

2

4

3

The principles of social media marketing

Measuring and analyzing results
… use analytics tools to track the performance of your social media campaigns…
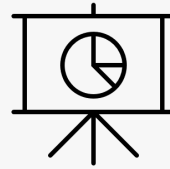
Continuously testing and experimenting
… try out new tactics, such as new ad formats, creative, and targeting, and measure the results to improve your approach…

Integrating with other marketing channels
… integrate social media with other marketing channels such as email and paid advertising to amplify the reach and impact of your campaigns…
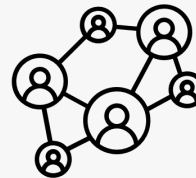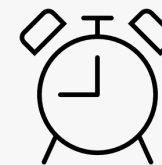
Being consistent
… maintain a consistent brand image and voice across all your social media channels, and posting content on a regular schedule…

5

6

8

7

Basic social media tools

Content marketing tools

…which allow companies to plan, create, and schedule content for their social media channels…

Social media management tools

…which allow companies to manage their social media accounts, schedule posts, and track performance…

Email marketing tools

…which allow companies to create and send email campaigns to their subscribers…

Advertising tools

…which allow companies to target specific audiences with their ads…

Basic social media tools

Hootsuite is a social media management platform that allows users to schedule and publish content, monitor mentions and messages, and analyze performance across multiple social media accounts.
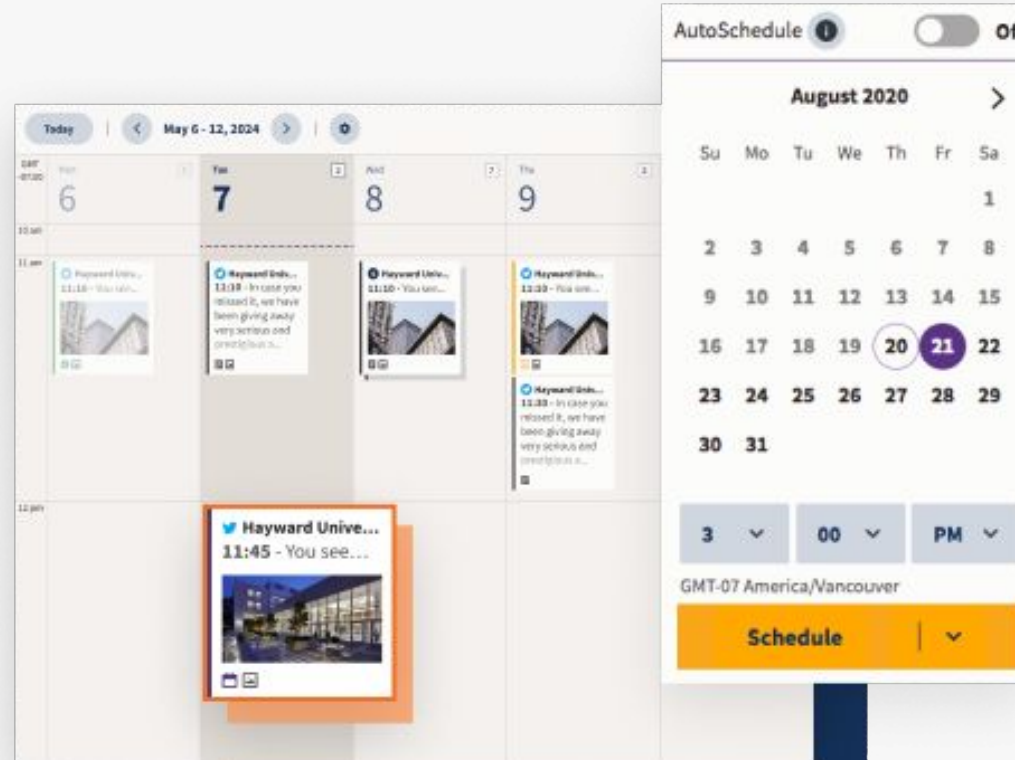
Basic social media tools

Analytics and reporting tools

…which allow companies to track the performance of their social media and marketing efforts…

Search Engine Optimization (SEO) tools

…which allow companies to improve their search engine rankings and visibility…

Influencer marketing tools

…which allow companies to identify and collaborate with social media influencers…

Mobile apps

…which allow companies to connect with consumers directly, and increase their visibility…

Basic social media tools

Farmigo is a digital platform that connects local farmers with consumers in their community, allowing them to purchase fresh, local produce directly from the farmers. It allows consumers to order farm-fresh products online for pick-up or delivery, and it also provides farmers with an online marketplace to sell their products.
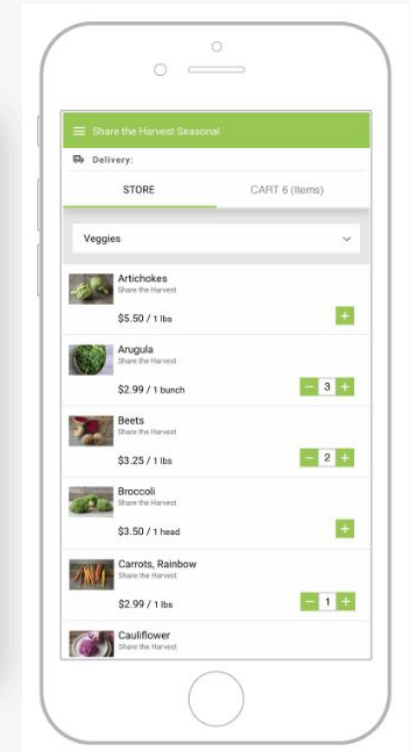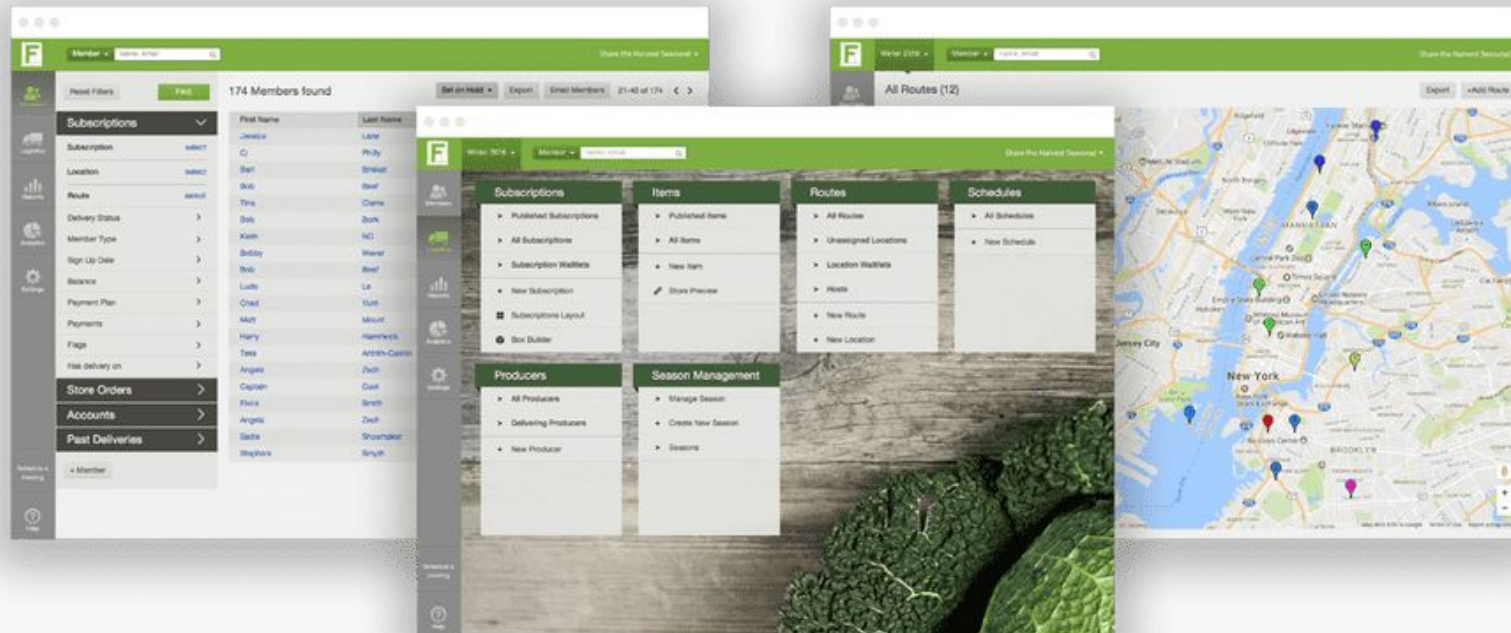
Benefits

INCREASED VISIBILITY AND REACH

IMPROVED TARGETING AND PERSONALIZATION

INCREASED E-COMMERCE AND ONLINE SALES

BETTER DATA COLLECTION AND ANALYSIS

BETTER BRANDING AND REPUTATION MANAGEMENT

INCREASED EFFICIENCY AND PRODUCTIVITY

GREATER CUSTOMER ENGAGEMENT

How it applies in the agri-food sector

USE OF SOCIAL PLATFORMS

Using platforms (such as Facebook, Instagram, Twitter, and LinkedIn) to promote products, connect with customers and build brand awareness

target specific demographics and reach a large audience quickly and effectively

How it applies in the agri-food sector

SOCIAL MEDIA PLATFORMS

used to create a direct link between farmers and consumers, allowing them to communicate with each other directly and increase visibility to potential buyers, suppliers, or partners

CC BY-SA-NC

How it applies in waste management

RAISING AWARENESS

used to share information about waste management and recycling, as well as to educate the public about the importance of reducing, reusing, and recycling.

CONNECTING WITH CUSTOMERS

used to connect with customers and stakeholders, to build a relationship, keep them informed about waste management services, and receive feedback

How it applies in waste management

PROMOTING EVENTS

used to promote events and campaigns related to waste management and recycling

PROMOTING NEW SERVICES

used to promote new services such as composting or e-waste disposal, and to encourage customers to take advantage of these services

Group Activity

Groups
• Divide into groups of 4-5

Question
• Read the question that will be assigned to your group

Brainstorm
• Brainstorm around the question and develop some case studies

Share
• Share your ideas and discuss
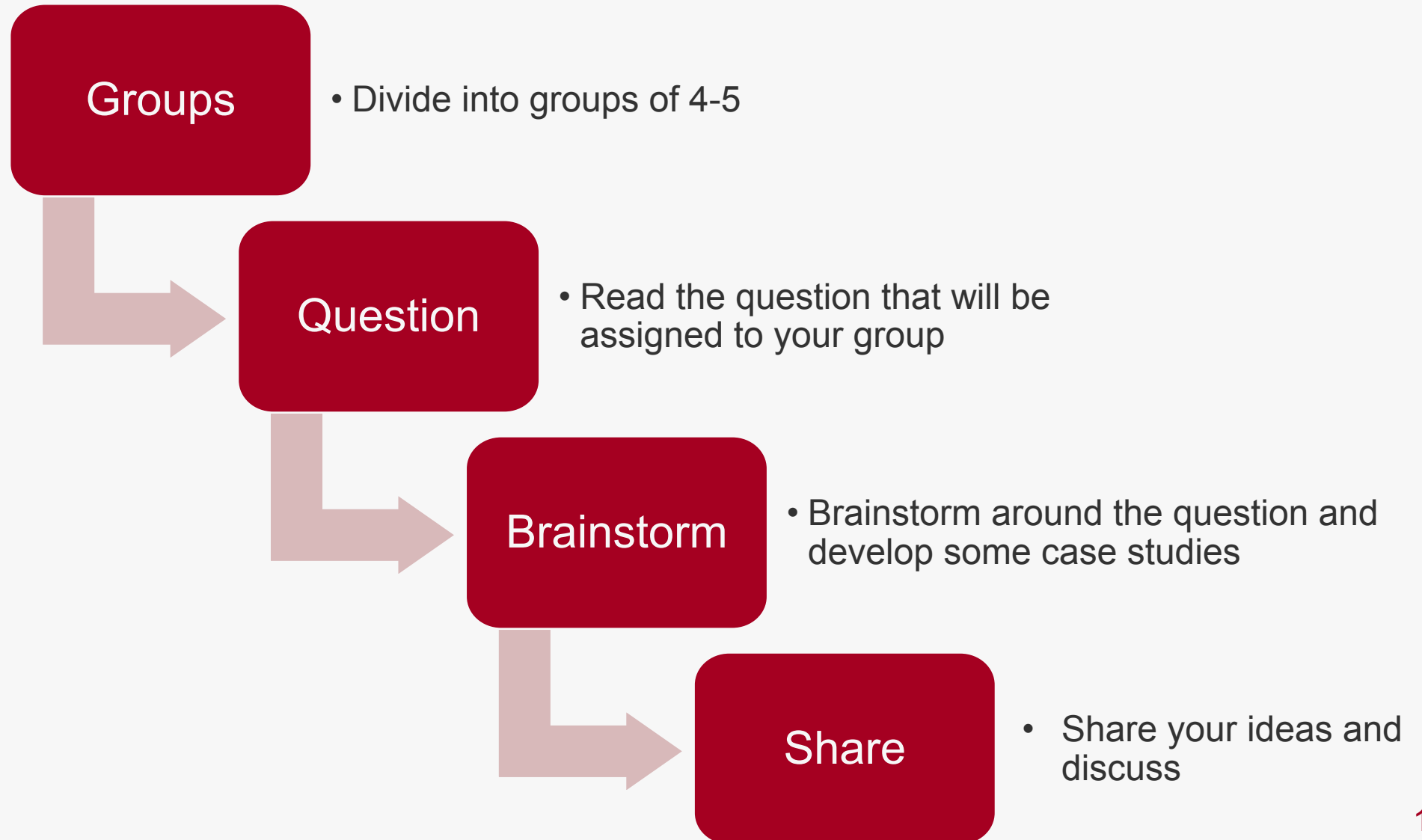
Group Activity

GROUP 1
How can Social Media Marketing apply to the agri-food sector, and which tools and software will be used?

GROUP 2
How can Social Media Marketing apply to waste management, and which tools and software will be used?

Module 1: Foundation Module for IT Skills

Unit 4: Social Media Marketing

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Unit 5: Security and Cybersecurity

Introduction

| Digital transformation | ↑ use of technology | ↑ sensitive information stored and shared online | ↑ use of connected devices | ↑ potential attack and breach of security | ↑ need of security and cyber-security |
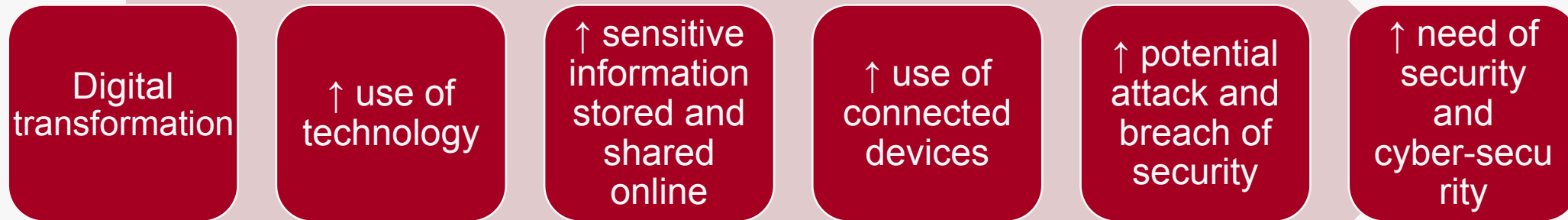
- protect sensitive information
- maintain privacy
- ensure the continuity of operations in case of any cyber attack or data loss

…measures and practices put in place to protect these assets from unauthorized access, use, disclosure, disruption, modification, or destruction…

Security fundamentals – device security

Device Security

protecting digital devices, such as smartphones, laptops, and tablets, from hacking, malware, and other cyber threats.

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This can include using security software, keeping devices updated with the latest software and security patches and using strong passwords and biometric authentication.

Security fundamentals – network security

Network Security

protecting digital connections, such as Wi-Fi networks and the internet, from unauthorized access and hacking.

This can include using firewalls, virtual private networks (VPNs), and other security measures to encrypt and protect data transmitted over networks.

Security fundamentals – email security

Email Security

protecting email accounts and messages from hacking, phishing, and other cyber threats.

This can include using secure email protocols, such as S/MIME and PGP, and using anti-spam and anti-virus software to filter out potentially harmful messages.

Security fundamentals – backup security

Backup Security

protecting digital backups, such as cloud-based backups, from unauthorized access and cyber threats.

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This can include encrypting backups, using secure backup protocols, and regularly testing and verifying the integrity of backups.

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What is Cybersecurity?

10 Steps To Cyber Security
CESG

Defining and communicating your Board's Information Risk Management Regime is central to your organisation's overall cyber security strategy. CESG recommend you review this regime - together with the nine associated security areas described below - in order to protect your business against the majority of cyber threats.

User Education and Awareness
Produce user security policies covering acceptable and secure use of the organisation's systems. Establish a staff training programme. Maintain user awareness of the cyber risks.

Network Security
Protect your networks against external and internal attack. Manage the network perimeter. Filter out unauthorised access and malicious content. Monitor and test security controls.

Establish an effective governance structure and determine your risk appetite.

Home and Mobile Working
Develop a mobile working policy and train staff to adhere to it. Apply the secure baseline build to all devices. Protect data both in transit and at rest.

Malware Protection
Produce relevant policy and establish anti-malware defences that are applicable and relevant to all business areas. Scan for malware across the organisation.

Information Risk Management Regime

Secure Configuration
Apply security patches and ensure that the secure configuration of all ICT systems is maintained. Create a system inventory and define a baseline build for all ICT devices.

Maintain the Board's engagement with the cyber risk.

Produce supporting information risk management policies.

Removable Media Controls
Produce a policy to control all access to removable media. Limit media types and use. Scan all media for malware before importing on to the corporate system.

Monitoring
Establish a monitoring strategy and produce supporting policies. Continuously monitor all ICT systems and networks. Analyse logs for unusual activity that could indicate an attack.

Managing User Privileges
Establish account management processes and limit the number of privileged accounts. Limit user privileges and monitor user activity. Control access to activity and audit logs.

Incident Management
Establish an incident response and disaster recover capability. Produce and test incident management plans. Provide specialist training to the incident management team. Report criminal incidents to law enforcement.

Department for Business Innovation & Skills | CPNI Centre for the Protection of National Infrastructure | Cabinet Office

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Cybersecurity is the practice of **protecting computer systems, networks, and sensitive information** from unauthorized access, use, disclosure, disruption, modification, or destruction. It is used to **protect personal information, financial transactions, and government and corporate networks.**

Introduction

https://www.youtube.com/watch?v=inWWhr5tnEA

Cybersecurity fundamentals

protecting sensitive information from unauthorized access or disclosure

ensuring that authorized users have access to the data and systems they need

controlling access to resources based on the authenticated identity

CONFIDENTIALITY

INTEGRITY

AUTHENTICATION

AVAILABILITY

AUTHORIZATION

ensuring that data cannot be modified without authorization

verifying the identity of users and devices attempting to access a system

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Cybersecurity fundamentals

ensuring that a user cannot deny having performed a certain action

identifying, assessing, and mitigating potential security threats

educating users about security risks and best practices

NON-REPUDIATION

INCIDENT RESPONSE

RISK MANAGEMENT

COMPLIANCE

SECURITY AWARENESS AND TRAINING

having a plan in place to respond to and recover from security breaches

adhering to industry regulations and standards related to security

Best practices in Cybersecurity

Attention to detail

Cybersecurity requires close attention to detail, as even small mistakes can have major consequences.

Analytical skills

The ability to analyze data and make decisions based on evidence is important in cybersecurity.

Strong work ethic

Cybersecurity can be demanding and requires a strong work ethic and the ability to work independently and in a team.

Logical thinking

The ability to think logically and analyze problems in a systematic way can be important in cybersecurity.
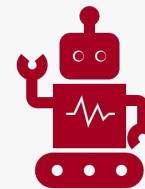
Flexibility and adaptability

The ability to adapt to new technologies and changing situations is important in cybersecurity.
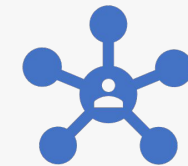
General knowledge

Having a basic understanding of technology, internet, computer systems and networks.
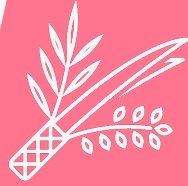
How it applies in the agri-food sector

PROTECTING CRITICAL INFRASTRUCTURE

used to protect critical infrastructure such as irrigation systems, weather monitoring systems, and other technology used in farming and food production
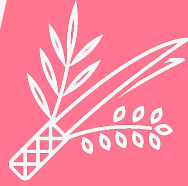
How it applies in the agri-food sector

SECURING SUPPLY CHAINS

used to secure supply chains and protect against malicious actors who may try to disrupt or manipulate these chains
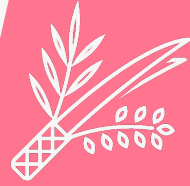
How it applies in the agri-food sector

PROTECTING AGAINST FOOD FRAUD

used to protect against food fraud, which involves the manipulation of food products in order to deceive consumers

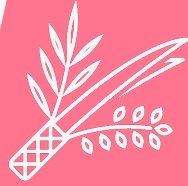## How it applies in the agri-food sector

PROTECTING AGAINST BREACHES OF SENSITIVE INFORMATION

used to protect against breaches of sensitive information such as customer data, trade secrets, or financial information

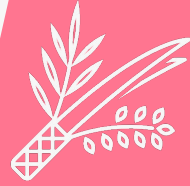# How it applies in the agri-food sector

MONITORING THE COMPETITION

used to monitor the activity of competitors, and to stay informed about industry trends and best practices in agri-food

How it applies in the agri-food sector

MANAGING FOOD SAFETY

used to manage food safety by tracking products throughout the supply chain, and to ensure that they meet the necessary safety standards

How it applies in waste management

PROTECTING WASTE MANAGEMENT FACILITY CONTROL SYSTEMS

used to secure the control systems that operate waste sorting, processing, and disposal equipment to prevent unauthorized access or tampering

How it applies in waste management

SECURING WASTE COLLECTION ROUTES

GPS tracking and other technologies can be used to monitor waste collection vehicles and routes to prevent theft or unauthorized access to sensitive information

How it applies in waste management

PROTECTING AGAINST DATA BREACHES

sensitive information such as customer data and financial information can be vulnerable to cyber attacks

CONFIDENTIAL DATA

How it applies in waste management
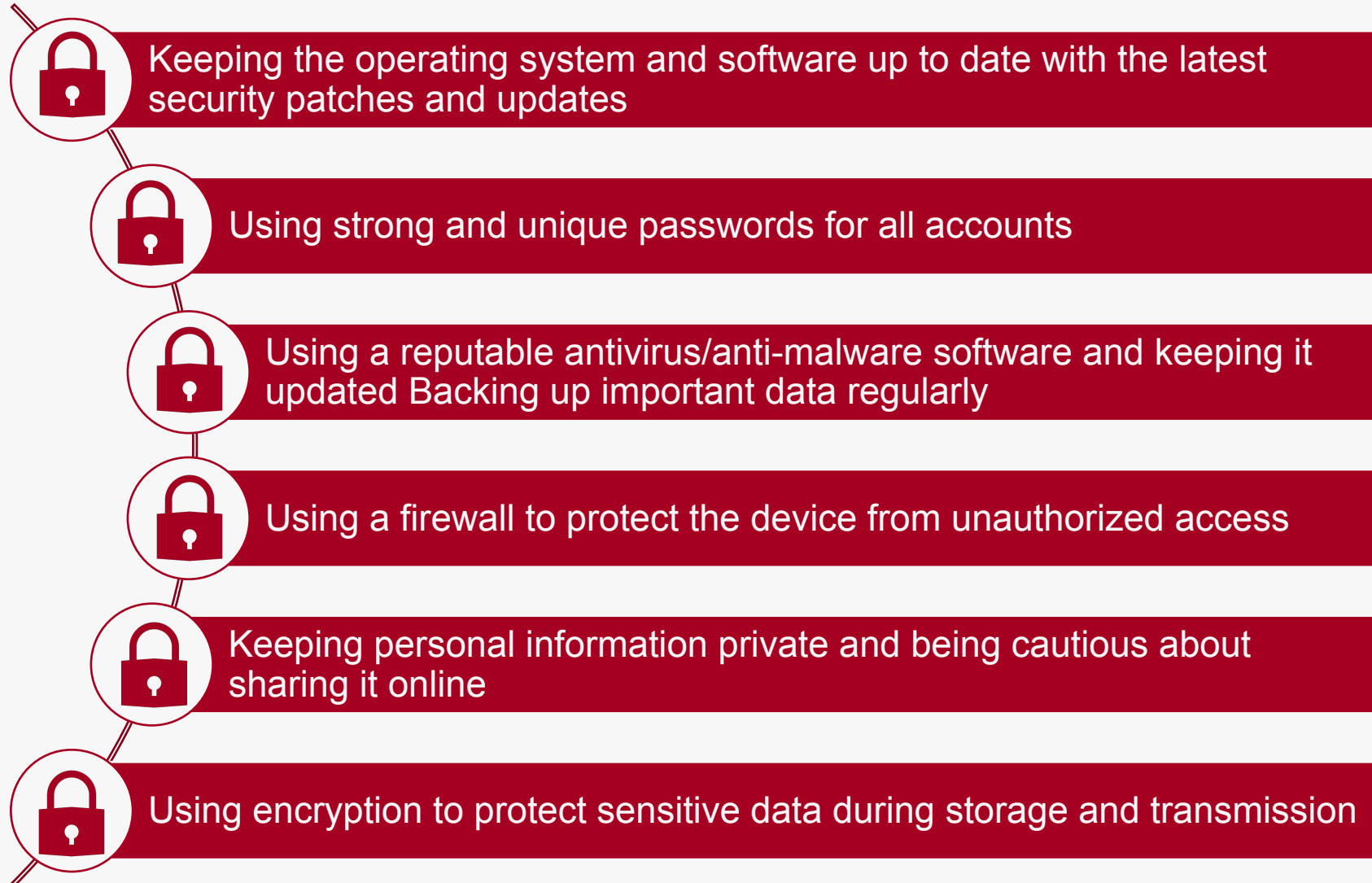
ENSURING CONTINUITY OF OPERATIONS

used to protect against disruptions to waste collection and disposal operations caused by cyber attacks on waste management systems and facilities

Basic tasks for security

Keeping the operating system and software up to date with the latest security patches and updates

Using strong and unique passwords for all accounts

Using a reputable antivirus/anti-malware software and keeping it updated Backing up important data regularly

Using a firewall to protect the device from unauthorized access

Keeping personal information private and being cautious about sharing it online

Using encryption to protect sensitive data during storage and transmission

Basic tasks for security

Being cautious about clicking on links or opening attachments from unknown sources

Using a VPN when connecting to public Wi-Fi networks

Securing the device with a password or PIN

Keeping an eye on the device's physical security

Being aware of phishing attempts and suspicious emails

Assessment

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1. Can you explain the difference between confidentiality and integrity in the context of cybersecurity?
2. What is the purpose of incident response in the context of cybersecurity?
3. Can you give an example of a scenario where the lack of cybersecurity could lead to negative consequences for an individual or organization?
4. How do soft skills like attention to detail, logical thinking, and flexibility and adaptability benefit someone in a career in cybersecurity?

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Assessment

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5. Can you give an example of how cybersecurity is used to protect critical infrastructure in the agri-food industry?
6. How does cybersecurity help to protect against food fraud and breaches of sensitive information in the agri-food industry?
7. Can you give an example of how cybersecurity is used to protect against unauthorized access or tampering in the waste management sector?
8. How does cybersecurity help to ensure continuity of operations in the waste management sector?

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Module 1: Foundation Module for IT Skills

Unit 5: Security and Cybersecurity

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Thank you