

Cybersecurity in the Humanitarian Sector

HNPW 2023 – Geneva



DATA
FRIENDLY
SPACE

bold code_



Before starting



bold code_

Agenda

- **Current cyber threats and trends**
 - Particular threats to this sector, trends and impacts, different geopolitical contexts, inter-organizational cooperation
- **Practical tips**
 - Cybersecurity challenges, targeted advice, 3-month action plan...
- **Awareness and training**

What about you?

In this room, **did you, or your organization have been concerned by cybersecurity threats** over the past 12 months?

If yes, please raise your hand 🙋





Current cyber threats and trends

Understanding the challenges for humanitarian organizations



Particular threats to humanitarian and international organizations



Nature of sensitive data and information

- **Personal data** of beneficiaries
 - ex: name, address, medical situation, etc.
- **Financial information**
 - ex: transactions, budgets, donations
- **Response and support plans**
- Internal and external **communications**
- **Locations** of facilities and personnel



Potentially vulnerable infrastructure and networks

- **Poorly secured networks**
 - ex: wireless networks (Wi-Fi)
- **Cloud-based data** storage systems
- **Mobile applications and online software** for collaboration
- **Outdated or unpatched IT** infrastructure
- IoT and other **connected devices**



Collaboration with various partners and stakeholders

- **Shared information** with other NGOs, governments, and donors
- **Relationships with service providers**
 - ex: hosting, communication
- Many **temporary access to systems**
 - ex: volunteers and temporary providers
- **Interactions with local communities** and beneficiaries



Operations in high-risk areas

- **Presence in conflict or crisis areas**
- **Exposure to targeted cyber attacks** by malicious actors
- Increased vulnerability due to **less secure local infrastructure**
- Risk of compromise of systems and communications **during emergency response**



Specific internal and external threats

- **Manipulation or detour of humanitarian aid** for malicious purposes
- State actors or armed groups seeking **access to information to influence or control humanitarian operations**
- **Cyber-espionage** to obtain information about organizations' activities, strategies, partners and funding sources
- **Disclosure of sensitive information about beneficiaries**, jeopardizing their safety and privacy
- **Internal threats** from disgruntled employees, infiltrated volunteers, or partners with ulterior motives that can compromise organizational systems and data



Trends and impacts



Cybersecurity incidents affecting humanitarian organizations

- **Denial of Service attacks** targeting NGO websites
- **Email account compromise** and identity theft
- **Unauthorized access** to sensitive databases
- **Disclosure of personal information** of beneficiaries and staff
- **Use of information as a weapon** in conflict
- **Risk of espionage and information manipulation** by state actors
- **Humanitarian consequences of attacks** on critical infrastructure



Types of common attacks (by frequency)

- **Ransomware**
 - malicious software that encrypts an organization's data and demands payment for its release
- **Phishing**
 - fraudulent emails impersonating legitimate organizations
- **Brute force attacks**
 - access attempts by successive password attempts
- **Malware**
 - malicious programs aimed at compromising computer systems
- **Targeted attacks by state actors** or state-sponsored groups
- **Cyber-espionage** and theft of sensitive information
- **Sabotage** and data destruction



Evolution of cyber threats over time

- **Increased automation of attacks**
- More sophisticated and **organized cybercriminals**
- Increased use of social networks to conduct **disinformation campaigns**
- Growth in **attacks targeting mobile devices** and the Internet of Things (IoT)
- Increasing involvement of state and non-state actors
- Cyber conflicts and the use of **cyber warfare as an instrument of power**
- Development of new tactics and techniques for cyberattacks



Financial and operational impact of cyberattacks

- **Recovery and remediation costs** after a successful attack
- **Disruption of humanitarian services** and operations
- **Loss of donor and partner confidence**
- **Damaged reputation** and potential legal consequences
- Indirect costs related to **loss of trust of beneficiary populations**
- **Diversion of resources** to deal with cyber attacks
- Security **risks to employees and beneficiaries** if sensitive information is disclosed



Cyber security in different geopolitical contexts



Geopolitical and regional context of cyber threats

- **Political and economic tensions** exacerbate the risk of cyberattacks
- **Nation states may be involved** in cyber attacks
- **Cybercriminal groups** located in certain regions
- **Non-state actors and terrorist groups** exploiting cyberspace



Threats specific to regions where humanitarian organizations operate

Sub-Saharan Africa

- Cyber attacks **targeting critical infrastructure**
 - ex: medical facilities, water and electricity distribution networks
- Ransomware **attacks targeting humanitarian organizations**



Threats specific to regions where humanitarian organizations operate

Middle East and North Africa

- Cyber **espionage related to regional conflicts**
 - ex: monitoring of communications of humanitarian organizations
- **Targeted attacks on human rights defenders** and civil society organizations
- Use of malware to **disrupt humanitarian operations**



Threats specific to regions where humanitarian organizations operate

Asia-Pacific

- **Cyberattacks to compromise humanitarian organizations'** information systems
- **Online extortion and blackmail** attempts against aid workers



Threats specific to regions where humanitarian organizations operate

Latin America and the Caribbean

- **Organized cybercrime targeting financial and personal data** of humanitarian organizations
- **Attacks on organizations** fighting corruption and organized crime
- Cybersecurity threats related to political violence and social tensions



Threats specific to regions where humanitarian organizations operate

Europe and North America

- **Phishing and social engineering attacks targeting employees** and volunteers of humanitarian organizations
- **Cyberattacks targeting supply chains and local partners** of humanitarian organizations
- **Attempts to infiltrate and compromise the IT systems** of humanitarian organizations



Adapting strategies accordingly

- **Analysis of the risks linked to the geopolitical and regional context**
- Implementation of **defense mechanisms adapted to specific threats**
- **Cooperation with local authorities** and regional partners (if possible)



Inter-organizational cooperation to strengthen cybersecurity



Importance of inter-organizational cooperation and information sharing to effectively combat cyber threats

- **Exchange of information** on threats and vulnerabilities
- Improved **understanding of attacker trends** and tactics
- **Strengthen collective resilience** to cyberattacks
- **Facilitating incident response** and recovery after an attack



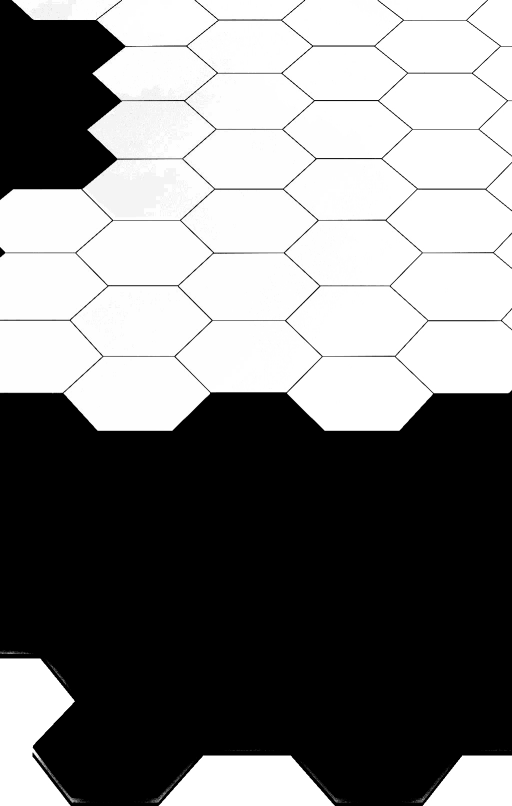
Existing cooperation and information sharing mechanisms

- National and sectoral **Computer Emergency Response Teams** (CERTs)
- Platforms for **sharing information on threats** (e.g. ISACs, MISP)
- **Specialized working groups** and forums (e.g. FIRST, GFCE)
- Bilateral and multilateral **cooperation agreements between organizations**
- **Initiatives supported by the United Nations** and other international organizations

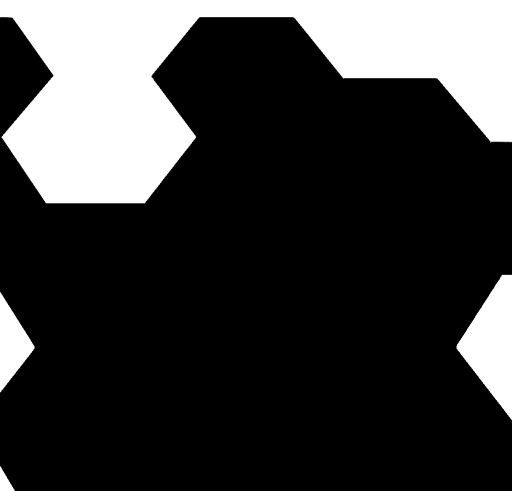


Examples of successful collaborations between organizations to strengthen cybersecurity

- Collaboration between CERTs to **dismantle cybercrime networks**
- Joint **development of standards and best practices** (e.g. NIST, ISO)
- **Inter-organizational awareness** and training campaigns
- Coordination of **large-scale incident response efforts**
- Sharing of tools and resources to **improve detection and defense capability**



Call to Action





Leadership and stakeholder accountability

- **Understand the cybersecurity threats and risks** to their organization
- Implement appropriate **cybersecurity policies**
- **Allocate resources for cybersecurity** (budget, staff, training)
- **Ensure employees understand their role** in protecting data and systems
- **Foster a culture of cybersecurity** within the organization
- **Educate employees on geopolitical issues** related to cybersecurity
- **Engage in dialogues with global partners** to improve cybersecurity



Importance of cybersecurity in organizational strategy

- Preventing financial losses due to cyberattacks
- Protect the organization's reputation and donor trust
- **Ensure business continuity** and ability to deliver aid
- **Protect sensitive beneficiaries** and employee data
- Meet legal and regulatory requirements for data protection
- **Prevent human rights abuses** related to cybersecurity breaches
- Strengthen organizational resilience to cyber threats in a complex geopolitical environment



Cooperation and information sharing between organizations

- **Partner with other NGOs and cybersecurity experts**
- Participate in threat information exchange platforms (e.g. CERT, ISAC)
- Coordinate efforts to combat common cyber threats
- **Share best practices and lessons learned** in cybersecurity
- Create regional or sectoral alliances to strengthen cybersecurity
- Collaborate with government and intergovernmental organizations to share information
- **Develop common standards and protocols to facilitate cooperation** and information sharing on cybersecurity



Questions for the audience

- **What are your top cybersecurity concerns** in your organization?
- **Have you ever faced a cyber attack?** How did your organization respond?
- **What measures does your organization have in place** to address cyber threats specific to humanitarian organizations?
- **How does your organization work with other stakeholders** to strengthen cybersecurity?

Practical tips

... for securing your organization and partner organizations

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Cybersecurity challenges for organization leaders

Leadership responsibilities for cybersecurity

- **Establishing a clear and consistent cybersecurity policy**
- Ensure compliance with applicable regulations and standards
- Designate a cybersecurity manager within the organization
- **Educate and train all staff on cybersecurity**

Risk assessment and vulnerability management

- **Identify critical digital assets** (systems, networks, data)
- **Perform regular risk analysis**
- Prioritize remediation actions based on potential impact
- Implement a vulnerability management process to correct security breaches

Communication and collaboration, to share information on threats and best practices

- **Establish secure communication channels** to share sensitive information
- **Establish communication protocols** with other humanitarian organizations
- Participate in forums to share information on threats and best practices

Strategic investments in cybersecurity to improve cooperation and information sharing capacity

- **Allocate sufficient resources to ensure systems and data protection**
- Invest in cybersecurity technologies that are appropriate for the organization's needs
- **Evaluate the return on investment of cybersecurity initiatives in terms of risk reduction**

Establish cybersecurity governance to foster a culture of security and inter-organizational cooperation

- Create a cybersecurity committee that includes representatives of the various stakeholders
- **Establish procedures for monitoring and controlling cybersecurity measures**
- **Promote a culture of security and inter-organizational cooperation**
- Integrate cybersecurity into the organization's overall strategy

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Targeted advice for IT project managers

Use of best practices and security standards

- **Adopt standards such as ISO 27001**, NIST, and CIS Critical Security Controls
- Implement information security policies
- Conduct regular vulnerability testing and security audits
- **Apply the principle of least privilege for access rights**

Access and identity management

- **Use two-factor authentication (2FA)**
 - ~~for sensitive accounts~~ **for everyone !**
- **Implement an identity and access management (IAM)** system
- Regularly monitor and audit access to sensitive resources
- Quickly revoke access rights of employees who leave the organization

Securing networks and systems

- Deploy firewalls, intrusion detection systems (IDS) and intrusion prevention systems (IPS)
- **Encrypt sensitive data and communications**
- Apply regular security patches and keep software up to date
- Segment the network to **isolate critical systems**

Implement incident detection and response mechanisms

- Set up a security operations center (SOC)
- Use security information and event management (SIEM) tools
- **Define and test a cybersecurity incident response plan**
- Perform post-incident analysis to improve processes and systems

Manage third party vendors and partners

- **Assess cybersecurity risks associated with vendors and partners**
- **Include cybersecurity clauses in contracts** and cooperative agreements
- Regularly audit suppliers and partners for compliance with security standards
- Sharing cyber threat information with partners and cooperating organizations

■ Training and awareness of technical staff

- Provide training on security best practices and specific tools
- **Raise awareness of the challenges of inter-organizational collaboration** and information sharing
- Encourage participation in conferences and workshops on cybersecurity
- **Organize practical exercises to reinforce technical security skills**

■ 3-month action plan...

... to immediately improve cybersecurity in your organization

Establish a cybersecurity committee

- Identify key members of the organization (management, IT, legal, HR)
- Define the roles and responsibilities of each member
- Schedule regular meetings to discuss cybersecurity issues
- Coordinate cybersecurity efforts between different stakeholders

Conduct an initial cybersecurity audit

- Inventory IT assets and sensitive information
- Assessing vulnerabilities and associated risks
- Identify security vulnerabilities in infrastructure, processes and policies
- Prioritize corrective actions based on risks

Develop and implement cybersecurity policies and procedures

- Write clear policies on data and access management
- Establish procedures for securing equipment and networks
- Establish processes for managing cybersecurity incidents
- Integrate cybersecurity into vendor and partner management practices

■ Training and awareness of personnel on cybersecurity

- Assess staff training and awareness needs
- Design specific training for different target groups
- Use interactive methods to reinforce learning (workshops, simulations)
- Measure the effectiveness of the training and adjust the content accordingly

Strengthen the security of critical infrastructure

- Update operating systems and software to address vulnerabilities
- Configure firewalls and intrusion detection systems
- Encrypt sensitive data and communications
- Implementing access controls and strong authentication

Planning and conducting incident response exercises

- Develop cybersecurity incident scenarios (phishing, ransomware, intrusion)
- Involve cybersecurity committee members and relevant stakeholders
- Organize simulation exercises to test procedures and reactions
- Analyze results and identify improvements needed

Monitor and evaluate cybersecurity progress

- Establish key performance indicators to measure progress
- Conduct regular cybersecurity audits to identify new vulnerabilities
- Collect feedback and share lessons learned
- Adjust policies, procedures and training in response to changes in the environment and threats

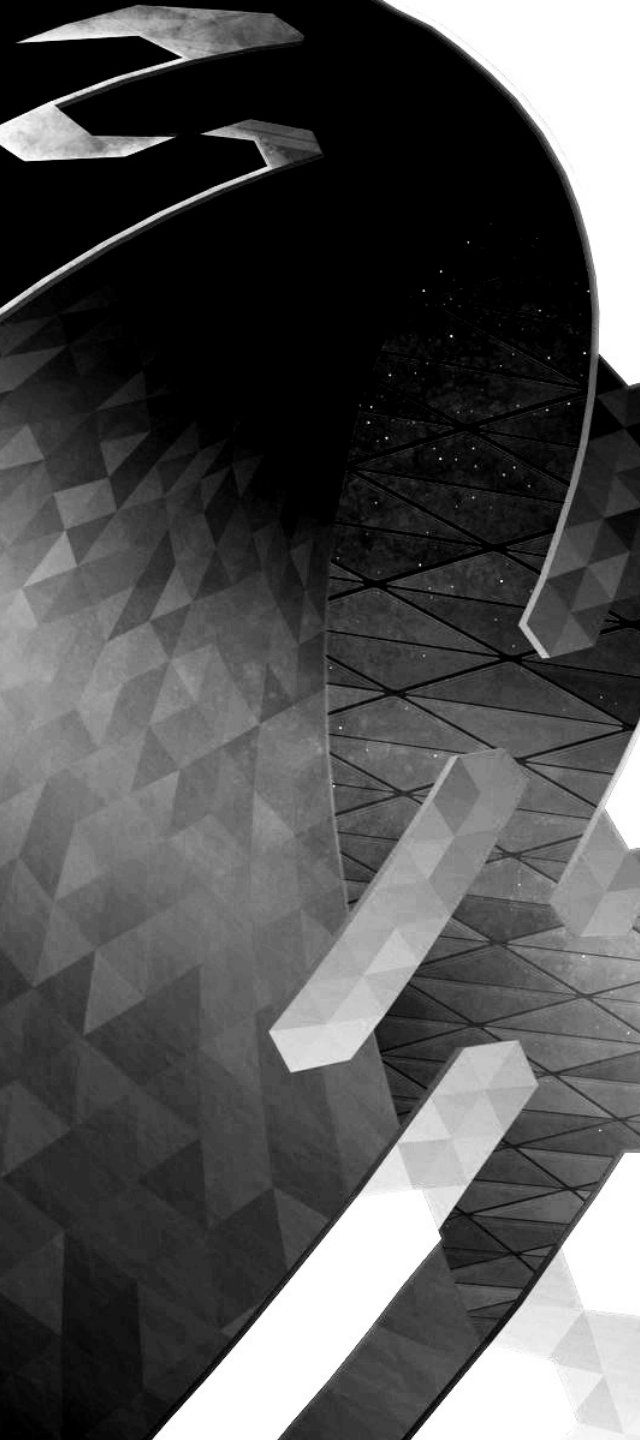


Awareness and training

... of humanitarian personnel in cybersecurity

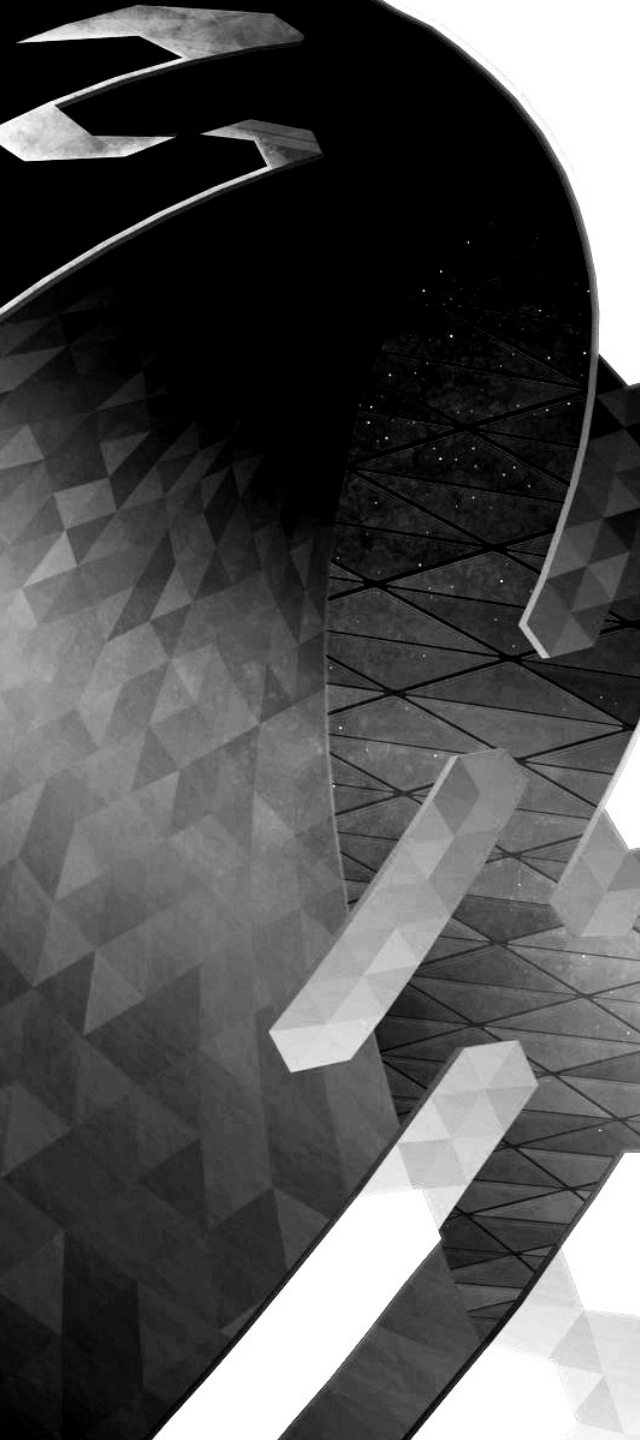


Importance of awareness



■ Key role of staff in the security of the organization

- **Informed decision making** regarding cybersecurity
- **Enforcement of security policies and procedures**
- **Detecting and reporting security incidents**
- Participate in incident response exercises
- Collaborating with partners and stakeholders to enhance security



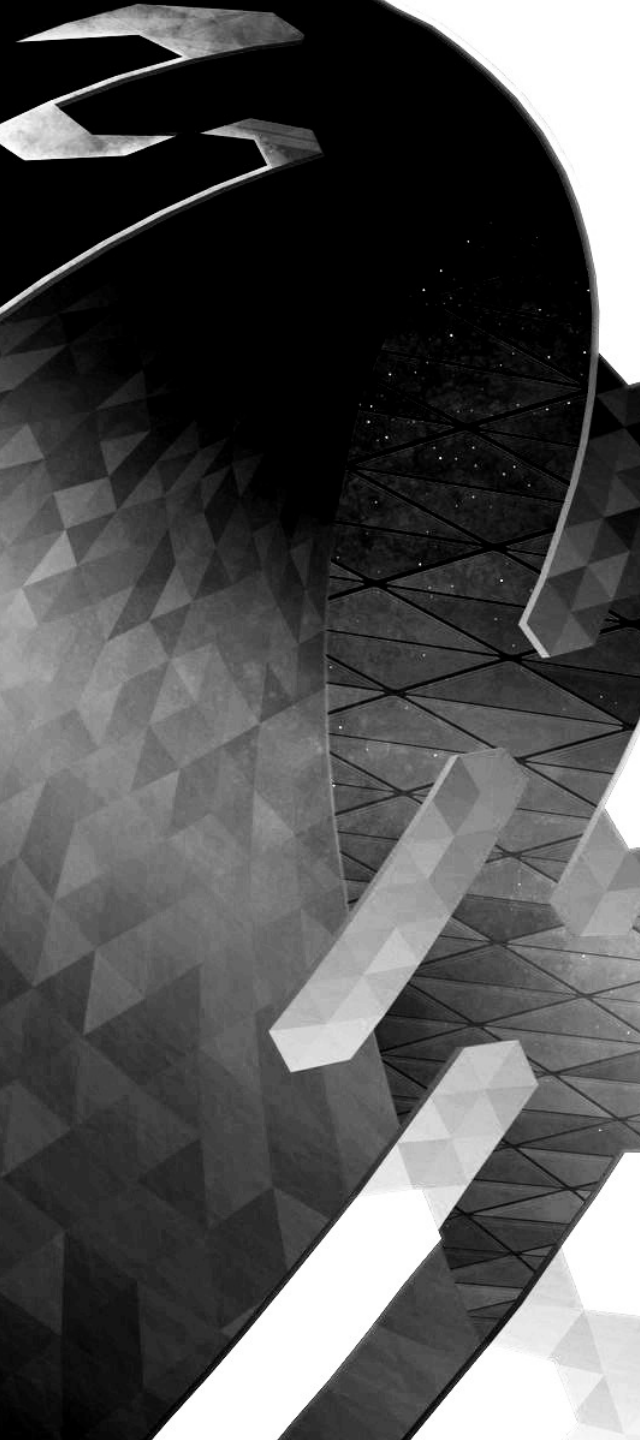
■ Risks related to human error and lack of training

- Failure to follow security policies and procedures
- **Unintentional disclosure of sensitive information**
- **Using weak or reused passwords**
- **Installing unauthorized software or insecure devices**
- Clicking on malicious links or opening infected attachments



■ Strengthening the culture of safety within the organization

- Ongoing staff awareness and training
- Accountability of managers and employees
- Clear and transparent communication on safety issues
- Establishment of a safe and prevention-oriented work environment
- Encouraging internal and external cooperation to build resilience to cyber threats



■ Training and awareness programs



■ Assess training and awareness needs

- Identify target groups (management, technical staff, non-technical staff)
- Assess existing knowledge and gaps



■ Development of customized training programs

- Initial training for new employees
- Ongoing training and refresher courses
- Training modules specific to roles and responsibilities



Awareness techniques and methods

- Workshops and seminars
- Simulations and practical exercises
- Communication materials and internal campaigns



■ Measuring the effectiveness of training and awareness programs

- Monitoring of key performance indicators
- Regular evaluation and adjustments
- Feedback and sharing of lessons learned

 **Thank you for your
attention!**

Any questions ?

