



HORSE PROJECT - INTRODUCTION AND OBJECTIVES

Fabrizio Granelli (CNIT)

HORSE Final Event, December 4th, 2025

horse-6g.eu

«In 2026, the companies that do well will be the ones that see cybersecurity as a strategic pillar for the whole business, not simply an IT cost center.»

Forbes, 2025/11/10

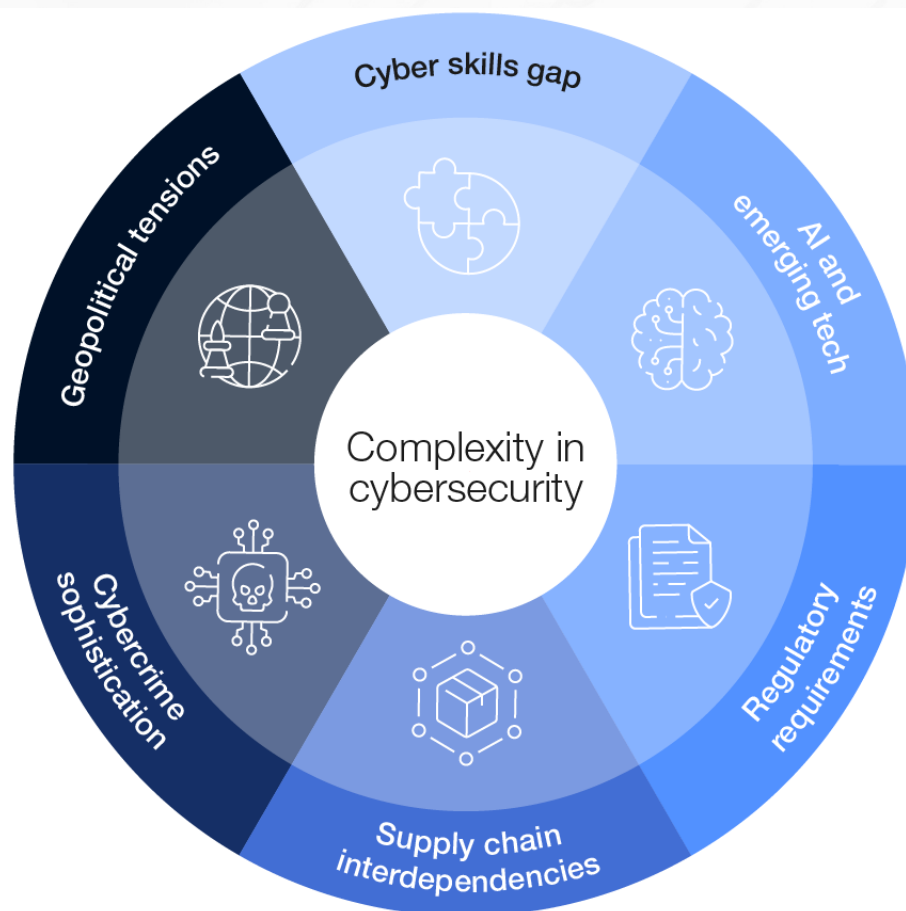
«Cybersecurity is a continuous cycle of protection, detection, response, and recovery.»

Chris Painter, Former Coordinator for Cyber Issues, U.S. Department of State

"There are only two types of companies in the world: those that have been breached and know it and those that have been breached and don't know it."

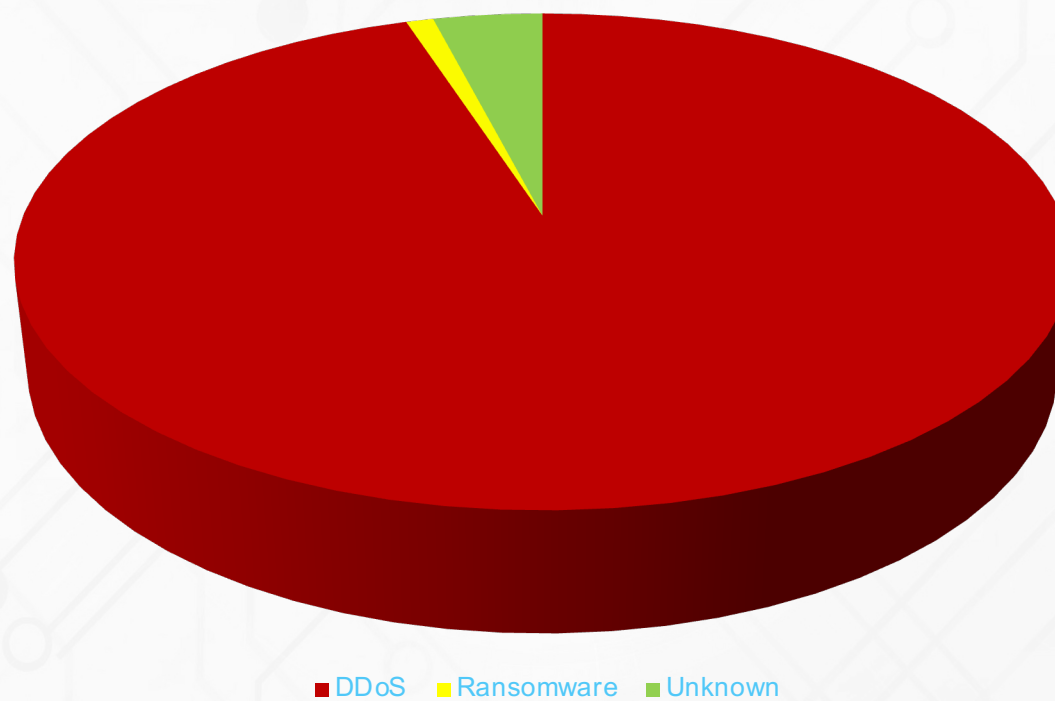
John Chambers, Former Executive Chairman and CEO of Cisco

THE COMPLEX NATURE OF CYBERSECURITY

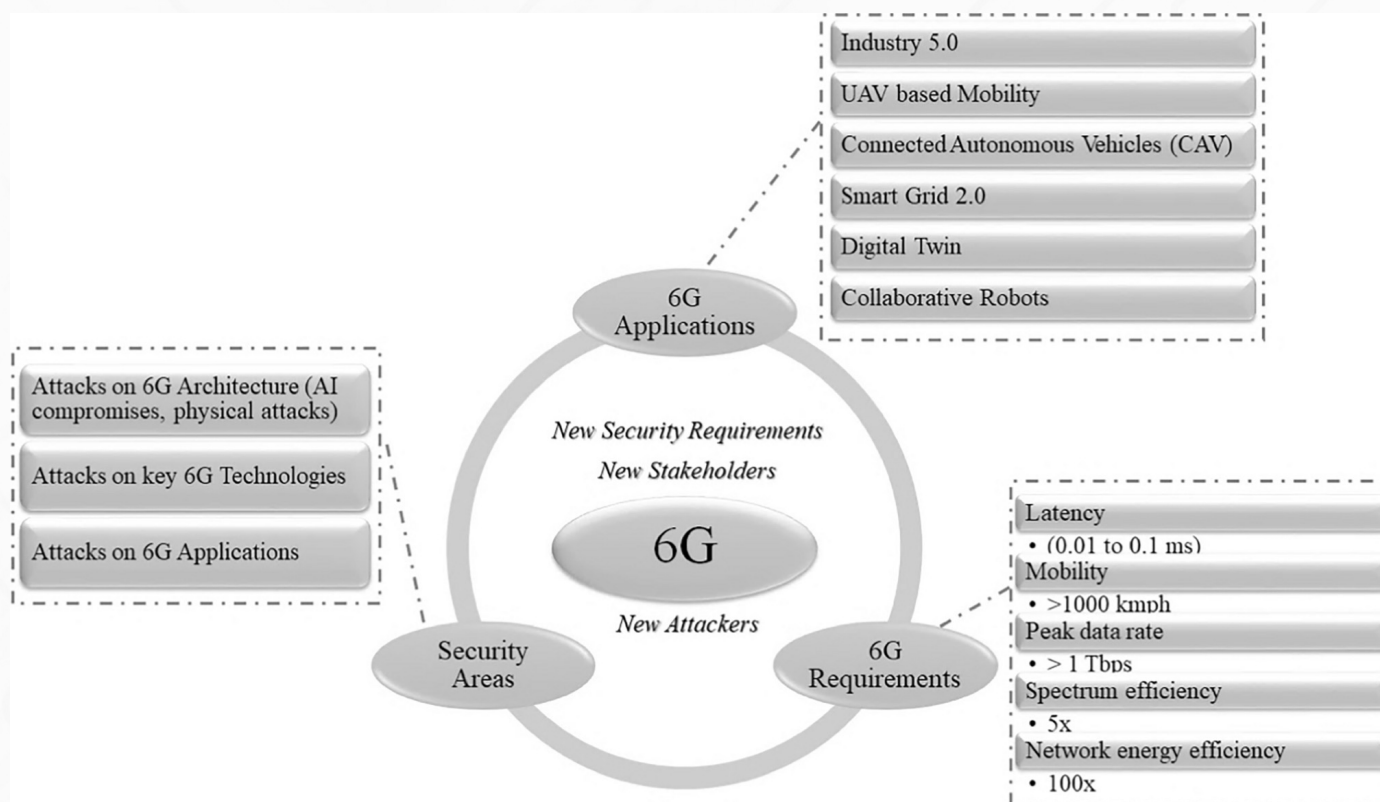


<https://www.weforum.org/publications/global-cybersecurity-outlook-2025/digest/>

Attacks to transportation systems



6G: MORE FUNCTIONALITIES, MORE THREATS



Saeed, M.M., Saeed, R.A., Hasan, M.K. *et al.* A comprehensive survey on 6G-security: physical connection and service layers. *Discov Internet Things* **5**, 28 (2025). <https://doi.org/10.1007/s43926-025-00123-7>

THE INCREASED ATTACK SURFACE OF 6G



Security sector	Security issues	Potential security measures	Open issues
Network Access Authentication	False identity, SUPI/identifier exposure	6G-AKA, Quantum-safe non-3GPP, nuSIM, EAP-TLS	Undefined 6G components, non-SIM integration ongoing
Signaling Data Encryption	Man-in-the-middle, eavesdropping, data leakage	Support for quantum systems (NEA1/NEA2/NEA3, NIA1/NIA2/NIA3)	Computationally and energy-intensive
Transport Security Protocol	Man-in-the-middle, data leakage	QKD, Quantum-safe TLS (AES-256)	Heavy computing, unclear economic benefit of quantum tech
Interconnection Security	Man-in-the-middle, data leakage	Quantum-safe TLS, HTTP/3	Heavy computing, unclear economic benefit
Trust Networks	Insider attacks, data leakage	Blockchain	High energy consumption, complex, vulnerable to 51% attacks
Network Management	DoS attacks, network topology leakage	Security for SD-WAN	Centralized SDN risks
Network Isolation	DoS attacks	Deep slicing	High computing, large expenditures
Endpoint/Network Nodes	DDoS, adversarial attacks, traffic profiling	AI-driven firewall, IDS, MTD	AI breakthroughs needed, high computing requirements
Traffic Inspection and Intrusion Detection	DoS/DDoS, IP spoofing, SDN controller attacks	Deep packet inspection, AI-based intrusion prevention, risk-based authentication	High cost of computing, real-time processing challenges

Saeed, M.M., Saeed, R.A., Hasan, M.K. *et al.* A comprehensive survey on 6G-security: physical connection and service layers. *Discov Internet Things* 5, 28 (2025). <https://doi.org/10.1007/s43926-025-00123-7>

HORSE PROJECT INFO



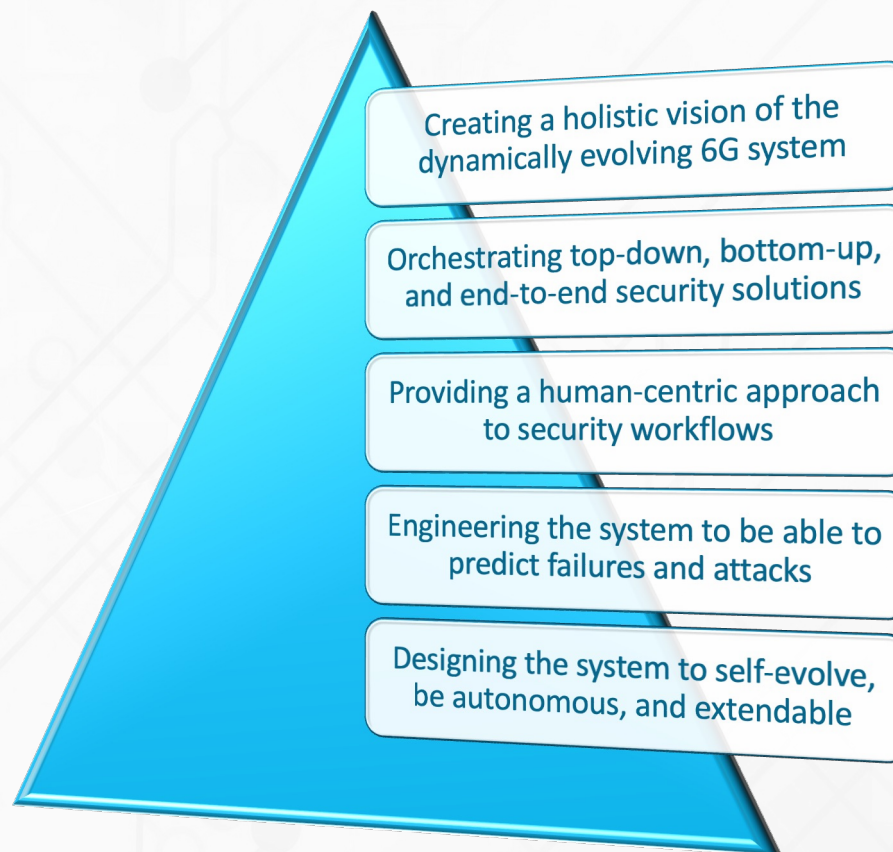
- Call: HORIZON-JU-SNS-2022
- Type of Action: HORIZON-JU-RIA
- Name: **Holistic, Omnipresent, Resilient Services for Future 6G Wireless and Computing Ecosystems**
- Acronym: HORSE
- Current Phase: Grant Management
- Number: 101096342
- Duration: 36 months
- Duration: 01 Jan 2023 – 31 Dec 2025
- Estimated Project Cost: €5,347,562.50
- Requested EU Contribution: €4,999,756.25
- Project Officer: Pavlos FOURNOGERAKIS



- **Holistic, Omnipresent, Resilient Services for Future 6G Wireless and Computing Ecosystems**
- HORSE project will address a grand challenge towards **6G infrastructure operation for smart connectivity and service management**, and beyond, showing its effectiveness at the intersection of 6G connectivity, computing infrastructure management and security.
- HORSE proposes a novel human-centric, open-source, green, sustainable, coordinated provisioning and protection evolutionary platform, which can inclusively yet seamlessly combine advancements in several domains, as they get added to the system.
- It is envisioned that HORSE will also include predictive threats detection and impact analysis, proactive business-wise threats and breaches mitigation actions, programmable networking, semantic communications, Network Function Virtualisation (NFV), intent-based networking, AI-based techniques, in-network computing, and cross-layer management of physical layer features as they emerge in the 6G realm.
- HORSE outcomes will be validated in two highly innovative, performance demanding and representative scenarios, tentatively distributed operation of transport systems and multiuser remote rendering in extended reality.

HORSE PARTNERS & EUROPEAN DIMENSION

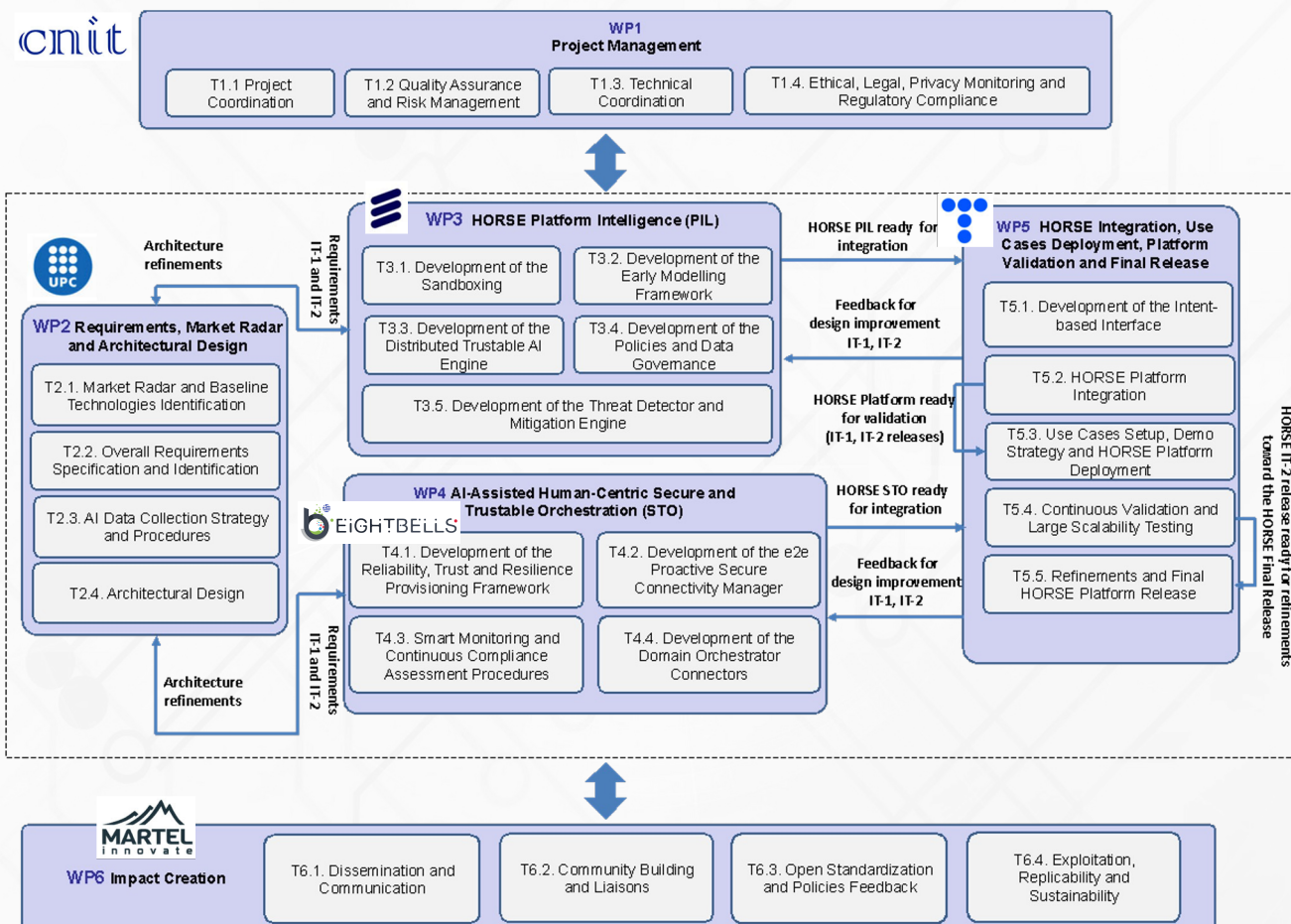




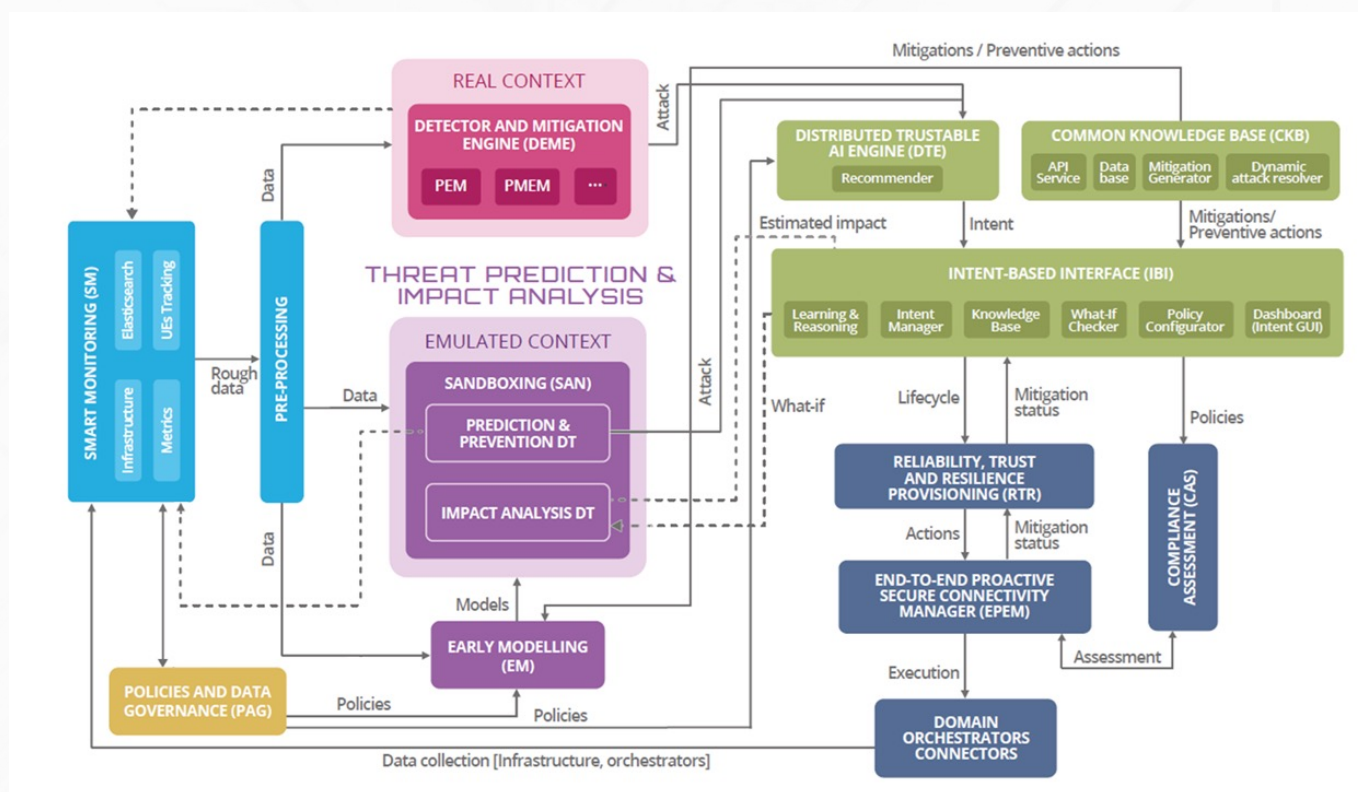
HORSE OBJECTIVES



PROJECT STRUCTURE



THE HORSE FUNCTIONAL ARCHITECTURE





THANK YOU FOR YOUR ATTENTION



horse-6g.eu



Co-funded by
the European Union

6G SNS

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the other granting authorities. Neither the European Union nor the granting authority can be held responsible for them."



CONCLUSIONS

HORSE IMPACT: (SOCIAL) NETWORKING



TECHNICAL SPONSORS



HORSE IMPACT: RELEVANT CONTRIBUTIONS

The HORSE logo, featuring a stylized blue horse head icon to the left of the word "HORSE" in a bold, blue, sans-serif font.

Exploring 6G Security via H
Real-time Threats and Mit
in AR Server/Client Inter

LET'S MEET TH

Leesa Joyce
HOLO Light

Mert Ülker
HOLO Light

Ramin Rabbani
HOLO Light

ETSI ETSI Security
Conference 2025 6-9 Oct
Sophia
France

horse-6g.eu

The 6G SNS IA logo, with "6G" in large blue letters, "SNS" in smaller white letters, and "IA" in blue letters.

The Voice of European
Industry and Research
for Next Generation
Networks and Services

A large, glowing blue shield with a white padlock icon in the center.

6G Security and Trust: Insights from European SNS JU Projects

Security Working Group

Mitigation in XR Server/Client Interactions

Watch later Share

Exploring 6G Security HORSE platform

A red YouTube play button icon.

Real-time Threats and Mitigation
in AR Server/Client Interactions.

Webinar

Architecting Trust in 6G: Technical
Insights from SNS JU Projects

iTrust6G

PRIVATEER

NAT WORK

MARE

RIG



horse-6g.eu

This Proof of Concept, in the context of the HORSE project, is showcasing the





THANK YOU FOR YOUR ATTENTION



horse-6g.eu



Co-funded by
the European Union

6G SNS

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the other granting authorities. Neither the European Union nor the granting authority can be held responsible for them."