Preface: Proceedings of the STPIS 2026 Socio-Technical Security Workshop (STPIS 2026: SEC)

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Abstract

This volume contains the proceedings of STPIS 2026: SEC – Socio-Technical Security Workshop (Risk & Protection), co-hosted by the 12th International Conference on Socio-Technical Perspectives in Information Systems (STPIS 2026). To address the rising complexity of contemporary digital and organizational ecosystems, the conference co-hosted two complementary workshops: the Socio-Technical Overall (STO) workshop and a sister workshop dedicated to Socio-Technical Security. While both tracks shared a foundational socio-technical philosophy, each targeted distinct areas of research and practice. To foster transdisciplinary collaboration, all conference participants enjoyed open access to both workshops, with submissions peer-reviewed and allocated based on thematic relevance.

Keywords

paper template, paper formatting, STPIS-WS

1. Introduction

The STPIS 2026: SEC Workshop represents the strategic defense pillar of the conference's decade-long tradition, focusing on the fundamental reality that information security challenges are inherently "*human-intensive*". It challenges the pervasive assumption that technical protocols alone can safeguard organizational assets, reinforcing the principle that risk management, behavioral dynamics, and system protection are entirely inseparable from the social context. Hosted by the University of L'Aquila, Italy, at the historic Palazzetto dei Nobili, the physical venue mirrored the conference's core pursuit: balancing historical human paradigms with rapid modern transformations. Reflecting this collaborative environment, the STPIS 2026 conference hosted two distinct workshops, each resulting in its own dedicated proceedings volume. The Socio-Technical Security workshop (STO) and the sister Socio-Technical Overall workshop (SEC); this text serves as the preface to the SEC volume.

1.1. Key Themes and Philosophy

The workshop provided an interactive forum to explore how human-centric security frameworks navigate an increasingly hostile and complex digital landscape. The 17 accepted papers in this volume center on five vital thematic pillars:

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1. **Socio-Technical Ethics & By-Design Frameworks:** Re-evaluating ethics as a core structural dimension of digital infrastructure, interrogating whether "*Ethics-by-Design*" delivers genuine accountability, and mapping structural dependencies between algorithmic rules and social responsibilities.
2. **Organizational Threat Intelligence & Defensive Negotiations:** Exploring Cyber Threat Intelligence (CTI) as an active socio-technical practice rather than a static IT function, evaluating organizational preparedness against malicious digital influence operations, and framing security culture as an ongoing negotiation.
3. **Protection of Vulnerable Demographics & Digital Traces:** Investigating parental understanding of children's digital traces, building interdisciplinary legal and technical roadmaps for the protection of minors online, and unpacking cognitive risk perceptions or normalization behavioral models among adolescent girls.
4. **Behavioral Economics & Cross-Industry Cyber-Psychology:** Analyzing consumer behavior through neutralization techniques used in emerging e-commerce models (e.g., Temu), alongside discovering operational commonalities between video game cheating and malicious hacking to foster cross-industry collaborative learning.
5. **Tactical Governance & The Socio-Technical Battlespace:** Tracing cybersecurity awareness governance models across Industry 5.0 environments, studying deception and self-sabotage in modern information warfare, utilizing serious games for incident post-mortems, and advancing co-designed intentional frameworks for civic cohesion.

1.2. The "STPIS Spirit"

True to the overarching ethos of the venue, both workshops shared a unique, interactive format designed to bridge theory and practice through specific collaborative elements:

- **Interactive Industry Case:** Practical sessions where researchers and practitioners co-solved real-world organizational and security "*messes*".
- **Tales from the Trenches:** First-hand accounts from industry that valued practical failures and successes equally with theoretical rigor.
- **Integrated Fika:** Shared coffee and networking sessions designed to cross-pollinate ideas between participants from both tracks.

1.3. The Workshop Case

While the STPIS featured an identical industrial case study across both workshops to ground our discussions, it was analyzed through distinct lenses aligned with each workshop's specific scope. Within the SEC workshop, the case was evaluated through a risk, protection, and sociotechnical security perspective.

The workshop case investigated the adoption of a digital twin based approach to the Urban Governance. A DigitalTtwin (DT) is an emerging technology that may transform society in many dimensions. It is a virtual representation of a subject or object in the real-world, e.g., a person, organization, or machine that continuously exchanges data with its physical counterpart. Its adoption across multiple domains motivates the investigation on civic DTs and on the integration of ethical reasoning into civic and urban settings.

In particular, Civic Digital Twins (CDTs) may move citizens from subjects of monitoring to co-designers of urban governance, but the field largely stays at the level of vision, describing what a CDT should do without specifying how its concepts hang together. Even socio-technical digital twins that bring people, culture, and goals into the model leave ethics outside it: the values guiding collective choices and the uneven impact of policies on vulnerable groups remain context rather than first-class modeling concerns. Within this vision, workshop participants discussed the potentiality of a metamodel for ethics-aware CDTs, organized into three compartments. The Real World compartment captures the socio-technical fabric of the city, i.e., people, processes, infrastructure, and data. The Ethical Reasoning Layer models how policies are negotiated under goals, constraints, and the ethical and vulnerability profiles of the agents involved. The Virtual World compartment simulates the system's evolution and brings predicted outcomes back to decision-makers. By elevating citizens, their values, and their structural vulnerabilities to first-class entities, the model makes the asymmetric impact of civic decisions explicit at the metamodel level.

1.4. Review Process and Submission Statistics

The STPIS 2026 venue attracted a strong pool of global submissions, receiving 64 papers in total. All submissions underwent a rigorous, multi-stage evaluation process to ensure the highest academic quality:

1. **Initial Review Phase:** Each submission was subjected to a strict peer review by at least two independent expert reviewers from the program committee, followed by a detailed editorial review.
2. **Revision & Re-evaluation:** Selected papers underwent a comprehensive revision phase. Following their presentation, these revised manuscripts were subjected to a second round of review by committee members to verify that all reviewer feedback had been successfully addressed.
3. **Reviewer Representation:** Austria (1), Bulgaria (1), Cyprus (1), Czech Republic (2), Denmark (2), Finland (1), France (2), Italy (12), Netherlands (1), North Macedonia (1), Norway (1), Philippines (1), Portugal (1), Singapore (1), Sweden (8), United Kingdom (10), United States (1), Vietnam (1). Women accounted for roughly 34% of the reviewers.

Following this quality assurance process, 37 papers were accepted (out of 64) across the entire venue (yielding an overall acceptance rate of 57.81%) and allocated into two specialized volumes:

- **STPIS 2026: STO (Companion Volume):** 20 papers were accepted for final publication, representing 31.25% of the total submission pool.
- **STPIS 2026: SEC (This Volume):** 17 papers were accepted for final publication (inclusive of 2 Keynote Papers, 14 Research Papers, and 1 Workshop Case), representing 26.56% of the total submission pool.
- **Community Participation:** Reflecting the global reach of the venue, this specific volume features the work of 40 unique contributing authors and participants, fostering a diverse and collaborative exchange of transdisciplinary ideas. Across both workshops, women accounted for approximately 32% of the unique authors. For the Security Workshop (SEC) specifically, women make up roughly 40% of the authors, which is exceptionally high for a security workshop. The entire STPIS venue brought together 71 unique contributing authors, organizers, and participants across both specialized workshops, bringing together

a community dialogue. A total of 12 unique countries are represented overall. Alphabetically, they are: Austria (2), Brazil (2), Canada (1), Finland (14), France (1), India (2), Italy (20), North Macedonia (1), Norway (5), Portugal (3), Sweden (16), United Kingdom (9).

1.5. Citation and Open Access

The papers included in this volume are published as an open-access proceedings collection, intended to freely advance research across systems sciences, cybernetics, and organizational management.

• Form of Citation: Papers in this volume should be cited as: *Author Name(s), "Paper Title", in Proceedings of the STPIS 2026 Socio-Technical Security Workshop (STPIS 2026: SEC), L'Aquila, Italy, September 16-17, 2026.*

2. Accepted Papers in This Volume

Keynote Papers

- Ethics as a Socio-Technical Dimension of Modern Digital Systems
  - Paola Inverardi (Gran Sasso Science Institute, Italy)
- What's Ethics Got to Do with It? Is Ethics-by-Design Really Ethics?
  - Antonio Marturano (University of Rome Tor Vergata, Italy)

Research Papers

- Protective Security within Industry 5.0: a socio-technical perspective
  - Robert Kennedy (University of Portsmouth, UK)
- Cyber Threat Intelligence as Socio-Technical Practice in Organizations: A Systematic Literature Review
  - Patrick Shirazi (University of Skövde, Sweden)
- Krise i Syndstad: A Post Socio-Technical Incident Report on a Serious Game
  - Thomas Richard McEvoy, Grethe Østby, Erjon Zoto, and Stewart James Kowalski (Norwegian University of Science and Technology, Norway)
- Visible Traces, Hidden Processes: Parents' Understanding of Children's Digital Traces in Sweden
  - Erik Bergström, Görkem Kılınç Soylu, Bindhya Muhammed Basheer, and Daniel Lidén (Jönköping University, Sweden)
- Towards a Cybersecurity Awareness Governance Framework
  - Edoardo Carlini, Erik Bergström, and Joakim Kävrestad (Jönköping University, Sweden)
- The Socio-Technical Battlespace: Deception, Complexity, and Self-Sabotage in Modern Information Warfare
  - Peter Bednar (University of Portsmouth, UK & Lund University, Sweden)
- Exploring the impact of advanced technologies on the physical security profession: A sociotechnical perspective
  - Mia Korhonen and Moufida Sadok (University of Portsmouth, UK)
- Video Game Cheating and Malicious Hacking: Exploring Technical Overlap and Opportunities for Cross-Industry Learning and Collaboration
  - Berk Can Altindag, Linus Eriksson, Joakim Kävrestad, and Görkem Kılınç Soylu (Jönköping University, Sweden)
- Information Security Culture as Socio-Technical Negotiation

- Guro Bråten Olsborg (Norwegian University of Science and Technology, Norway)
- From Normalization to Awareness: The Impact of Empowerment-Oriented Problem Exposure in Reshaping Adolescent Girls' Digital Risk Perception
  - Laura Tarantino, Dajana Cassioli, and Antinisca Di Marco (University of L'Aquila, Italy)
- Exploring organisations' preparedness to address malicious digital influence operations: A professional perspective
  - Michael Thorn (University of Portsmouth, UK)
- Protection of Minors in the Digital Environment: A Roadmap Integrating Legal and Technical Perspectives
  - Mashal Afzal Memon, Lisandra Suárez Fernández, and Marco Autili (University of L'Aquila, Italy)
- Not Guilty Until Proven Guilty: Neutralization Techniques in the Context of Temu Shopping
  - Tiina Kaleton, Matilda Holkkola, Markus Makkonen, and Lauri Frank (University of Jyväskylä & Tampere University, Finland)
- An Intentional Sociotechnical Framework for Civic Cohesion
  - Gill Hagan-Green (Digital Safety CIC, UK)
- Workshop Case: When the City Simulates Itself. Ethical Legitimacy in a Civic Digital Twin for Urban Access Regulation
  - Antonio Bucchiarone, Anas Bilal, Marco Autili, Arianna Burzacchi, Marco Pistore, Giuditta Bellosi, and Roberta Calegari (SWEN / Università degli Studi dell'Aquila, Fondazione Bruno Kessler & Università di Bologna, Italy)

3. Volume 2: Security Workshop Author Index

- Altindag, Berk Can — Jönköping University, Sweden
- Autili, Marco — University of L'Aquila / SWEN, Italy
- Bednar, Peter — University of Portsmouth, UK & Lund University, Sweden
- Bellosi, Giuditta — Università di Bologna, DISI, Italy
- Bergström, Erik — Jönköping University, Sweden
- Basheer, Bindhya Muhammed — Jönköping University, Sweden
- Bilal, Anas — SWEN / Università degli Studi dell'Aquila, Italy
- Boughton, Daniel — University of Portsmouth, UK
- Bucchiarone, Antonio — SWEN / Università degli Studi dell'Aquila, Italy
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- Kävrestad, Joakim — Jönköping University, Sweden
- Lidén, Daniel — Jönköping University, Sweden
- Makkonen, Markus — Tampere University, Finland
- Marturano, Antonio — University of Rome Tor Vergata, Italy
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- Memon, Mashal Afzal — University of L'Aquila, Italy
- Olsborg, Guro Bråten — Norwegian University of Science and Technology, Norway
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- Sadok, Moufida — University of Portsmouth, UK
- Shirazi, Patrick — University of Skövde, Sweden
- Soylu, Görkem Kılınç — Jönköping University, Sweden
- Suárez Fernández, Lisandra — University of L'Aquila, Italy
- Tarantino, Laura — University of L'Aquila, Italy
- Thorn, Michael — University of Portsmouth, UK
- Zoto, Erjon — Norwegian University of Science and Technology, Norway
- Østby, Grethe — Norwegian University of Science and Technology, Norway

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4.1. Volume Editors & Workshop Co-Chairs

1. Antinisca Di Marco, University of L'Aquila, Italy
2. Mikko Rajanen, University of Oulu, Finland (Volume Editor)

4.2. Workshop Organizing Committee Members

3. Marija Topuzovska Latkovikj, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia
4. Amany Elbanna, Sussex University, UK

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5. Declaration on Generative AI

During the preparation of this manuscript, the author utilized Google Gemini (Gemini 1.5

Pro) to improve the readability, narrative structure, and thematic cohesion of the text. The author reviewed, edited, and verified all outputs generated by the AI assistant and assume full accountability for the accuracy, originality, and integrity of final text and references.

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