

Proceedings of OCTA'2025

Organization of Knowledge and Advanced Technologies : Artificial Intelligence.

Sahbi SIDHOM, Lamia LABED-JILANI, Jamel BELHADJ. (Eds.)



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Proceedings of OCTA'2025

Sahbi SIDHOM,
Lamia LABED-JILANI,
Jamel BELHADJ. (Eds.)

Organization of Knowledge and Advanced Technologies : Artificial Intelligence.

4th Int. Multi-Conference OCTA'2025 & Projects :
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OCTA'2025



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TBMS'2025

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Préface

C'est avec un profond honneur et une vive satisfaction que nous présentons les *Proceedings* de la **Multiconférence Internationale OCTA'2025 – Organization of Knowledge and Advanced Technologies** – et ses cinq projets de conférences, tenue les **6 et 7 novembre 2025** à la **HIDE (Higher Institute of Digital Engineering) Université de Tunis**, en Tunisie.

Fidèle à sa vocation scientifique, interdisciplinaire et collaborative, **OCTA** s'affirme cette année encore comme un espace privilégié de dialogue entre chercheurs, praticiens et décideurs, au croisement de la connaissance, de la technologie et de la société. Cette édition a réuni, sous un même cadre académique, **cinq conférences internationales majeures** :

- **SIIE (10^e édition)** dédiée aux *Systèmes d'Information et à l'Intelligence Économique* ;
- **ISKO-Maghreb (10^e édition)** consacrée à *l'Organisation des Connaissances* dans les sociétés du savoir ;
- **CITED (4^e édition)** centrée sur les *Technologies Avancées, Énergies Durables et Développement Économique* à l'ère de la dématérialisation ;
- **TBMS (3^e édition)** axée sur les *Technologies Big Data pour le Management Stratégique* ;
- **OCTA (4^e édition)** le catalyseur interdisciplinaire fédérant l'ensemble de ces initiatives et stimulant la réflexion stratégique sur la transformation numérique.

Enracinées dans un socle scientifique commun et animées par un esprit d'ouverture, ces conférences traduisent pleinement l'ambition d'OCTA : **construire une plateforme internationale d'excellence**, à la confluence de la recherche académique, de l'innovation industrielle et de la gouvernance numérique dont l'Intelligence Artificielle de demain.

Cette édition illustre la **vitalité** et le **rayonnement international** de la communauté OCTA :

- **252 articles** ont été soumis et évalués selon un **processus rigoureux en double aveugle**, mobilisant entre trois et cinq experts par contribution ;
- **82 communications** ont été retenues et présentées au sein de **18 sessions thématiques** ;
- les **auteurs et comités** proviennent de **28 pays**, confirmant le positionnement euro-méditerranéen et mondial de la multi-conférence.

Quatre **conférences plénières (ou keynotes)**, animées par des experts internationaux issus tant du monde académique que du secteur industriel, ont enrichi les débats et ouvert de nouvelles perspectives pour la recherche et l'action.

Au-delà des résultats scientifiques, **OCTA'2025** s'inscrit dans une dynamique **prospective et collaborative**. Elle promeut la formation d'**écosystèmes de savoir partagés**, l'émergence d'une **innovation "futurable" (ou futur possible)** — à la fois visionnaire et concrètement réalisable — et la structuration de **réseaux euro-méditerranéens** autour de projets de recherche

pluridisciplinaires. OCTA favorise ainsi une **hybridation féconde des savoirs** entre sciences humaines, ingénierie, numérique et économie de l'innovation.

Au cœur de cette démarche, la Communauté Interdisciplinaire OCTA partage une conviction forte : celle d'une **recherche responsable**, fondée sur l'éthique, consciente de ses impacts sociétaux et engagée pour la **durabilité des transformations numériques**.

L'organisation exprime sa profonde gratitude à l'ensemble des **comités scientifiques et d'organisation**, aux **relecteurs** et **partenaires académiques et industriels** dont le dévouement, la rigueur et la générosité intellectuelle ont permis de concrétiser cette édition ambitieuse de 2025.

Puissent ces *Proceedings* témoigner de la **richesse des échanges**, de la **diversité des approches** et de la **qualité scientifique** des travaux présentés. Que ces contributions inspirent les **chercheurs**, **décideurs** et **innovateurs** appelés à imaginer et à co-construire les **futurs possibles** des sociétés du savoir de manière pérenne et durable.

Au nom des Comités d'Organisation et de Programme

OCTA'2025 Int. Multi-Conférence & Projects :

Prof. Sahbi SIDHOM (President, ISKO-Maghreb; University of Lorraine, France)

Prof. Lamia LABED-JILANI (Vice-President, Virtual University of Tunis, Tunisia)

Prof. Jamel BELHADJ (Director, HIDE University of Tunis, Tunisia)

Preface

It is with great honor and genuine satisfaction that we present the Proceedings of the **OCTA'2025 International Multi-Conference – Organization of Knowledge and Advanced Technologies** and its five associated conference projects, held on **6–7 November 2025** at **HIDE (Higher Institute of Digital Engineering), University of Tunis, Tunisia**.

True to its scientific, interdisciplinary, and collaborative vocation, **OCTA** reaffirms itself this year as a privileged forum for dialogue among scholars, practitioners, and decision-makers at the intersection of knowledge, technology, and society. The 2025 edition brought together, within a unified academic framework, **five major international conferences**:

- **SIIE (10th edition)**, dedicated to *Information Systems and Economic Intelligence*;
- **ISKO-Maghreb (10th edition)**, focusing on *Knowledge Organization* in knowledge-driven societies;
- **CITED (4th edition)**, centered on *Advanced Technologies, Renewable Energies, and Economic Development* in an increasingly dematerialized era;
- **TBMS (3rd edition)**, devoted to *Big Data Technologies for Strategic Management*;
- **OCTA (4th edition)**, the interdisciplinary catalyst that brings together these initiatives and stimulates strategic reflection on digital transformation.

Anchored in a shared scientific foundation and driven by a spirit of openness, these conferences embody OCTA's core ambition: **to build an international platform of excellence at the confluence of academic research, industrial innovation, and digital governance—shaping the Artificial Intelligence of tomorrow**.

This edition highlights both the vitality and the international reach of the OCTA community:

- **252 papers** were submitted and rigorously evaluated through a **double-blind review process**, involving between three and five experts per contribution;
- **82 papers** were accepted and presented across **18 thematic sessions**;
- contributors and committees represented **28 countries**, confirming the Euro-Mediterranean and global scope of the Multi-Conference.

Four **plenary lectures (keynotes)**, delivered by leading international experts from both academia and industry, enriched the scientific dialogue and opened new avenues for research and innovation.

Beyond its scientific results, **OCTA'2025** is part of a forward-looking and collaborative dynamic. It promotes the creation of **shared knowledge ecosystems**, the emergence of **“futurable” innovation**—both visionary and realistically achievable—and the development of Euro-Mediterranean research networks built around multidisciplinary projects. OCTA thus encourages

a productive hybridization of knowledge spanning the humanities, engineering, digital sciences, and the economics of innovation.

At the heart of this endeavor lies a strong conviction shared by the **Interdisciplinary OCTA Community**: the commitment to a **responsible, ethically grounded research practice**, fully aware of its societal impacts and dedicated to the sustainability of digital transformation processes.

The organizers express their profound gratitude to all **scientific and organizing committees, reviewers, and academic and industrial partners** whose dedication, rigor, and intellectual generosity made this ambitious 2025 edition possible.

May these Proceedings reflect the richness of the exchanges, the diversity of perspectives, and the scientific quality of the contributions presented. May these works inspire researchers, decision-makers, and innovators as they imagine—and co-construct—the possible futures of knowledge societies in a sustainable and enduring manner.

On behalf of the Organizing and Program Committees

OCTA'2025 Multi-Conference & Projects:

Prof. Sahbi SIDHOM (President, ISKO-Maghreb; University of Lorraine, France)

Prof. Lamia LABED-JILANI (Vice-President, Virtual University of Tunis, Tunisia)

Prof. Jamel BELHADJ (Director, HIDE University of Tunis, Tunisia)

Proceedings of OCTA'2025

Organization of Knowledge and Advanced Technologies : Artificial Intelligence.

This volume presents the Proceedings of the OCTA'2025 International Multi-Conference, a global forum where knowledge, technology, and society converge. Bringing together five renowned conferences—including SIIE, ISKO-Maghreb, CITED, TBMS, and OCTA itself—this edition reflects a shared commitment to scientific excellence and interdisciplinary innovation.

With 252 submissions rigorously reviewed and 82 papers selected from 28 countries, OCTA'2025 showcases the vitality of an international community shaping the future of digital transformation. Keynotes delivered by leading scholars and industry experts further illuminate emerging challenges and opportunities across data, intelligence, governance, and sustainable development.

These proceedings stand as a testament to OCTA's mission: fostering hybrid ecosystems of knowledge, advancing responsible and forward-looking innovation, and inspiring researchers and decision-makers to imagine—and co-create—the possible futures of knowledge-driven societies.

Sahbi SIDHOM, Lamia LABED-JILANI, Jamel BELHADJ. (Eds.)



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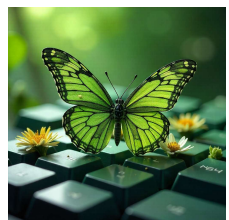
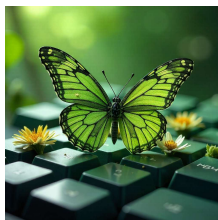
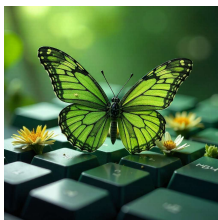
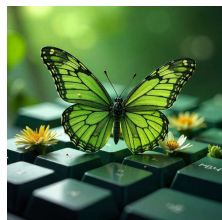
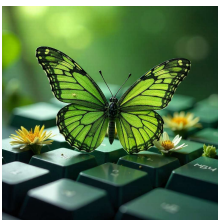
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