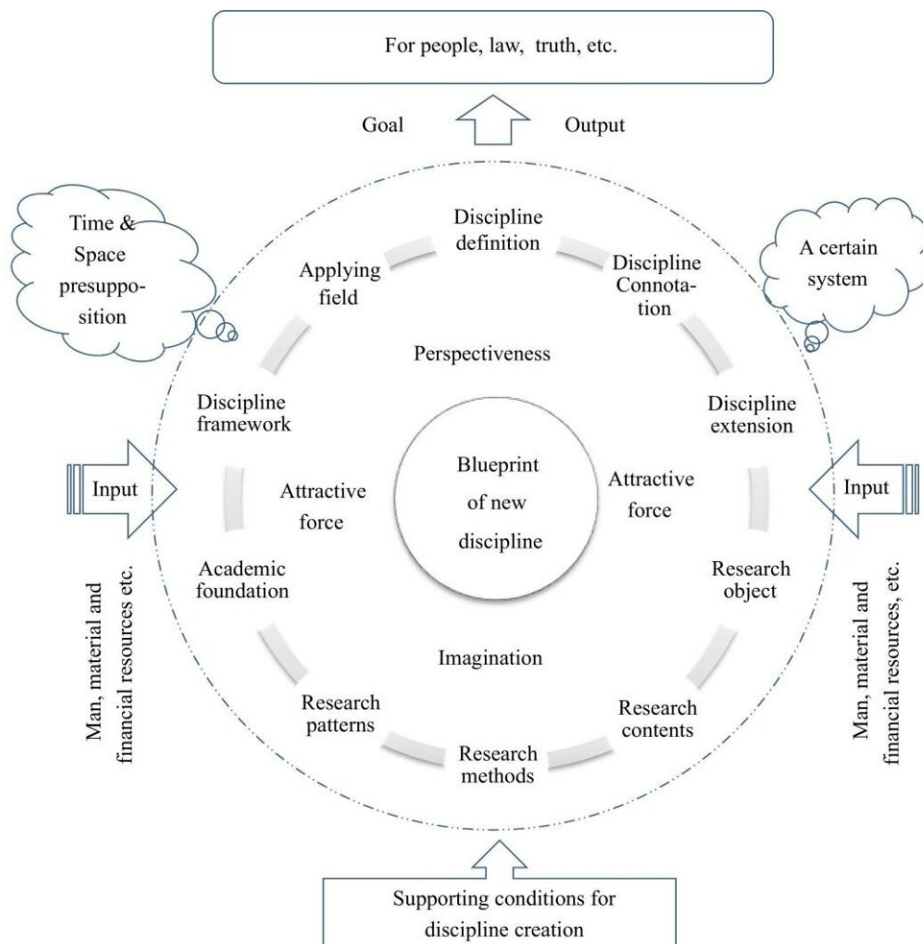# Study highlights emergence of new safety and security science disciplines

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Research paradigm in the embryonic stage of new discipline of SS science.
Credit: Emergency Management Science and Technology

A study published in *Emergency Management Science and Technology* has summarized the conditions, academic thoughts, methodologies, paradigms, and modes for creating these new safety and security science disciplines based on practical experiences and analysis over the past decade.

Traditionally, safety science has primarily focused on workplace safety, but with the rapid development of society and advancements in science and technology, the integration of safety and security has gained prominence. This integration has created numerous opportunities for the development of safety and security science. However, the theoretical development of this field has lagged behind its practical needs, and existing theories and disciplines have not been able to meet the demands of current safety and security development.

Safety and security science is a comprehensive interdisciplinary field encompassing production safety, public security, disaster prevention, health and epidemic prevention, national security, information security, and more. The interdisciplinary nature of this field provides ample room for research and the creation of new disciplines. Recognizing the need for further development, researchers have undertaken the task of establishing new safety and security science disciplines.

The study highlights 40 essential new disciplines of safety and security science that have been created through extensive practical experience and research. These disciplines contribute to the construction theory of safety and security science, encouraging the development of additional disciplines and shortening the incubation and growth cycle of new disciplines in this field.

Creating new disciplines within safety and security science requires researchers who are attuned to social and human needs, possess interdisciplinary knowledge, employ suitable research methods, and

consider external conditions. The integration of multiple disciplines and new interdisciplinary thought is crucial in driving the creation of these new disciplines.

The process of establishing new safety and security science disciplines involves several key elements, including defining the discipline's space-time presupposition, connotation, extension, research objectives, content, methods, programs, basis, system framework, and application fields, to form a blueprint of the new SS science discipline and attract more resources.

The gene for the new discipline of SS science is a new growth point formed by the development of existing disciplines and the integration of multidisciplinary groups. The researchers summarized the 18 modes of breeding new disciplines of SS science by summarizing the creation processes of many new disciplines of SS science and the research experiences of predecessors.

These modes include the following: cross, edge, integrated, common, transverse, node, subdivision, crystallization, problem, demand, theoretical, conjecture, experimental, virtual, artificial intelligence, big data, combined multi-modes and uncertainty modes, etc. These modes are suitable for all disciplines, not just SS science.

The research group responsible for this study has successfully developed 40 new safety and security science disciplines, filling significant gaps in the theory of the field. These new disciplines serve as a foundation and have long-lasting significance. Moreover, they validate the effectiveness of the new safety and security science disciplinary theories proposed by the research group.

The findings of this study not only enrich the discipline construction theory of safety and security science but also hold great potential for

future applications. The blueprint provided by each new discipline serves as a guide for their development, attracting resources and facilitating their rapid maturation into established disciplines.

The study's results mark a breakthrough in interdisciplinary research and offer promising prospects for the advancement of safety and security science. As society continues to evolve, these new disciplines will play a vital role in ensuring the safety and security of individuals and communities.

More information: Chao Wu et al, Theory of creating new disciplines of safety and security (SS) science and essentials of 40 practical examples, *Emergency Management Science and Technology* (2023). DOI: 10.48130/EMST-2023-0002

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