

Focusing on Theory, Investigating Subtleties for Application: A Review of the Postprint of *Information Science Theory: Philosophical Foundations and Applied Development*

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Abstract

[Purpose/Significance] This article provides a review and introduction of the book “Information Science Theory: Philosophical Foundations and Applied Development”, aiming to enable readers to comprehend the foundations, structure, methodologies, and practical applications of information science theory.

[Method/Process] Through content analysis and inductive-deductive approaches, this article evaluates the book’s principal characteristics from the perspectives of disciplinary requirements, systematic logic, methodological viewpoints, and applied development.

[Results/Conclusion] Grounded in systematic and abundant achievements in information science theory and the author’s relevant scholarly accumulation, the book constructs a comprehensive theoretical framework for information science, attaining a systematic, explicit, thorough, and practical exposition of information science theory. It will significantly contribute to theoretical innovation, application, and development in information science, particularly Chinese information science, as well as to the cultivation of information science professionals.

Full Text

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Title: Focusing on Theory and Meticulous Research for Application—A Review of *Theory of Information Science: Philosophical Foundation and Application Development*

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Abstract

[Purpose/Significance] This review of *Theory of Information Science: Philosophical Foundation and Application Development* aims to help readers understand the foundations, composition, methods, and practical applications of information science theory. **[Method/Process]** Using content analysis and inductive-deductive methods, the book's main features are evaluated from the perspectives of disciplinary needs, systematic logic, methodological viewpoints, and applied development. **[Result/Conclusion]** Based on systematic and abundant theoretical achievements in information science and the authors' relevant academic accumulation, this book constructs a complete theoretical system for information science, providing a systematic, detailed, comprehensive, and practical exposition of information science theory. It will significantly promote theoretical innovation, application, and development in information science, particularly Chinese information science, and will play a major role in cultivating information science talent.

Keywords: information science theory; philosophical foundation; research method; book review

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Theory constitutes the backbone, soul, and core of a discipline. Without theory, no discipline can exist; without rich and robust theory, no science can be perfect. Theoretical research is key to disciplinary development, and a discipline's growth requires continuous theoretical innovation and extensive theoretical application. For researchers, "having a theory" is a marker of research seriousness and respectability [1], and using theory in research signifies academic maturity in their discipline [2]. Although information science is clearly technology-driven, theoretical innovation and application remain important forces promoting its development, and the strong explanatory power of theory regarding social information phenomena is its lifeblood. In today's digital intelligence era, information science development enjoys superior technical conditions and stronger social demand. Correspondingly, if we can achieve higher-level theoretical innovation and broader theoretical application, information science can seize the opportunities of the times and meet new challenges. Otherwise, we may miss opportunities and be eliminated by society.

Looking back at previous information science theories, Chinese information science scholars have made relatively limited contributions. Looking forward, they should be able to contribute more theoretical achievements, as compared with foreign countries, we have richer information activities, more advanced information technology, and a larger information workforce. However, turning this potential into reality requires Chinese information science scholars to engage in more active and effective theoretical innovation and application. For this purpose, we need works that focus on information science theory and systemat-

ically and thoroughly discuss what information science theories exist and how they are generated, innovated, developed, and applied, for information science scholars to study and reference, especially for doctoral and master's students in information science. Therefore, Professor Wang Fang and her team's masterpiece *Theory of Information Science: Philosophical Foundation and Application Development* [3] is timely and meets an urgent need.

As a university teacher who has taught the doctoral course “Information Science Theory Research,” I had the privilege of reading the entire manuscript before publication. I identify the following distinctive features in this work:

1. Complete System, Logical Structure

The book's system can be summarized as “one-three-five-ten”: one focus—information science theory; three dimensions—theoretical foundations, theoretical composition, and theoretical application and development; five modules—theory of theory, theoretical foundations of information science, theoretical composition of information science, research methods in information science, and application and development of information science theory; and ten major chapters. The book presents clear arguments, a complete structural system, and logical relationships. As a rare major work specifically focusing on information science theory, it first analyzes general knowledge about theory and philosophical thought in social science theoretical research, helping readers better understand the value of theory in disciplinary development and academic research. Second, it analyzes the disciplinary structure and philosophical foundations of information science from a historicist perspective, providing readers with multiple philosophical analytical viewpoints for understanding information science's research objects, fields, and methods. Third, it systematically reviews, introduces, and evaluates the meta-theories, theoretical schools, and specific theories in various subfields of information science, helping readers understand the core theoretical system of information science and gain comprehensive knowledge of its theoretical knowledge and research paradigms. Fourth, it 详细介绍 s important research methods in information science, enabling readers to grasp methods for theoretical innovation and application. Finally, it demonstrates the application and development of information science theory, revealing its evolutionary trajectory and future direction.

This system and logic construct a “holistic outline” of information science theory, panoramically presenting multiple aspects and stages of information science theory. It helps readers understand the evolution of information science theories and paradigms from the perspective of disciplinary development, gain comprehensive knowledge of various research domains in information science—including information retrieval, information behavior, informetrics, information technology, information organization, knowledge management, information processing and analysis, competitive intelligence, and even public security intelligence—and develop clear cognition of the information science theoretical system. It also guides readers to focus on the relationship between philosophical founda-

tions and theory, starting from the underlying logic of the information science discipline, delving into the philosophical thought behind information science theory, excavating the essence of theory, and then advancing to the application and development of information science theory, following a logical progression from general to specific and from foundation to application.

2. Diverse Methods, Substantial Discussion

The book's research and exposition employ diverse qualitative and quantitative methods—including historical literature review, bibliometric analysis, case studies, text mining, machine learning, and comparative research—to systematically discuss information science theory and its applications, deeply revealing the developmental patterns of information science theory with strong evidence and substantial arguments.

The first eight chapters primarily use qualitative methods. Through reviewing and sorting existing literature, they clarify the philosophical foundations, research paradigms, and theoretical schools of information science. Based on core research fields in information science, they meticulously describe specific theories and methods and demonstrate the fruitful achievements of information science theoretical research through application examples. Chapter 9 first uses bibliometric analysis and single-case studies, taking academic papers published in *Journal of Information Science* as samples to reveal patterns in the frequency distribution, temporal distribution, and thematic distribution of literature applying information science theory. Second, using 52 domestic library and information science journals as data sources, it employs machine learning and text mining methods to identify, extract, and quantitatively analyze information science theories based on full datasets, discovering patterns in the field distribution and type distribution of theoretical applications. Simultaneously, it uses comparative research methods to analyze differences in theoretical application between domestic and international information science, comprehensively presenting the current state of information science theory application.

Qualitative research such as literature review and case analysis makes information science theory profound in connotation and rich in content, while quantitative methods such as bibliometric analysis and machine learning-based text mining reveal developmental patterns of information science theory through factual data, making the discussion substantial and persuasive.

3. Philosophical Foundation, Comprehensive Perspective

Based on a philosophical perspective, the book conducts systematic investigation and innovative analysis of information science theoretical research. With systematic thinking, it deeply reveals and analyzes the philosophical thought behind information science theory, including the ontological foundations of information science research, its epistemological positions, its methodological approaches, and propositions regarding meta-theories in information science. This

is quite original and represents a comprehensive integration of epistemological exploration, meta-theoretical refinement, and methodological innovation in information science.

The authors' viewpoint on information science meta-theory serves as an entry point for integrating philosophical analytical perspectives into information science theoretical analysis. They propose that information science meta-theory evolves continuously with active research and practice development, and that it is necessary to analyze and refine meta-theories in various fields according to actual research achievements. The expansion and strengthening of meta-theoretical research constitute the foundation for the mature development of information science as a discipline.

The book also comprehensively and deeply presents the achievements of information science theoretical research from multiple perspectives. Taking time as the axis, it systematically reviews information science theoretical schools and research paradigms from a historicist perspective. The theories in information science research have certain inheritance characteristics and significant field clustering features. Using fields as markers and a field analysis perspective, it 详细介绍 s and analyzes important theories in various information science fields corresponding to theoretical schools along the timeline. From a philosophical analysis perspective, the authors examine the relationships between ontology, epistemology, and methodology in the research process, starting from the 梳理 of relationships among paradigms, meta-theories, and theories. Combining the development of information science meta-theory and paradigm shifts, they elaborate and analyze specific research methods used in information science research under the guidance of meta-theory and methodology, comprehensively and diversely presenting the dynamically evolving research methodology system in information science. This has important reference value for theoretical research work in information science.

4. Detailed Theory, Strong Practicality

Through in-depth and detailed research and interpretation of information science theory, the book can provide references and examples for theoretical innovation and application in information science, demonstrating strong practical value.

On the one hand, Chapters 6-8 classify and hierarchically detail various theoretical schools and doctrines in information science, specific theories in various fields, and research methods. First, based on the disciplinary development process, it divides information science into ten theoretical schools, lists several representative theoretical doctrines for each school, and explains what types of information science problems they are suitable for, providing readers with historical orientation and helping expand research thinking. Second, it 详细介绍 s approximately 50 important theories and technical principles in eight subfields of information science, including the origin, connotation, development, and ap-

plication of each theory in its corresponding field. This enables researchers to select, use, or draw upon appropriate theories according to their needs while promoting academic mutual learning across different fields. Finally, based on information science methodology, it introduces ten categories of approximately 20 research methods, deeply and meticulously describing the principles, implementation steps, and applications of each method in specific information science research fields. This has strong reference value and guidance, and can to some extent alleviate researchers' confusion in method selection and operation.

On the other hand, the book analyzes the current application status of information science theory from multiple dimensions, including quantity distribution, frequency distribution, type distribution, thematic distribution, and international comparisons of theoretical applications in information science journal papers. This multi-dimensional analysis provides various ideas for proposing development paths for information science theory and has practical guiding significance for theoretical diffusion, theoretical integration, and new theory generation in information science. It can provide readers with objective, scientific, and effective guidance for innovating and applying information science theory.

5. Insight into Reality, Focus on Development

Chapters 9 and 10 of the book are based on empirical research, conducting quantitative analysis of methods and achievements in information science theory application and development innovation research, and proposing suggestions for the future development of information science theory.

First, using papers published in domestic and international information science journals as samples, it deeply explores the current status of theoretical application in Chinese information science, the field and temporal distribution of information science theoretical research, identifies the most frequently used information science theories in actual information science research, and grasps the practical application of information science theory in other disciplines. Most importantly, the book adopts a developmental perspective to explore deficiencies in theoretical application in domestic information science research and points out differences and gaps between Chinese and international information science theoretical applications.

Second, it conducts empirical analysis of the application of newly generated information science theories, theories used as research foundations, and theories used as arguments in research papers from domestic information science journals. The book extracts 26 newly developed or proposed information science theoretical models in China, further clarifying the field distribution of theoretical development research in Chinese information science and the sources and changing trends of theories applied in information science research. Precisely because the discussion encompasses rigorous and standardized empirical processes and valuable empirical results, the development strategies for information science theory proposed in Chapter 10 are no longer "paper talk." Based on analysis

and reflection of the current state of information science theoretical research and application, the book proposes six strategies for the future development of Chinese information science theory, which have significant practical relevance.

Suggestion

If I were to offer a suggestion, I would hope that in future editions, the book could more tightly integrate information science theory with research methods, providing more concrete demonstrations of how classical information science theories emerge and develop in conjunction with research methods.

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Note: Figure translations are in progress. See original paper for figures.

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