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Path Analysis of Digital Transformation of CPA Industry in the Background of Digital Economy

-- A Case based Analysis of RSM China CPA LLP

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Abstract

The digital economy is developing rapidly and digital technology is accelerating the reconstruction of the global economic ecology. How to adapt to the fast-developing digital economy and systematically promote accounting firms to realize digital transformation more quickly and efficiently has become an urgent issue. Taking RSM China CPA LLP as an example, this project uses the method of combining rooted research and case analysis, with the help of NVivo12.0 auxiliary coding tool, to analyze the interview data in-depth, and step by step to distill out the five main categories of external driving factors, internal driving factors, transformation capability, transformation mode, and transformation effectiveness, and on the basis of which, we condense the digital transformation path, so as to establish a digital transformation path suitable for our country. path, thus establishing a theoretical model of digital transformation path suitable for China's accounting firms. The conclusion of this paper expands and deepens the theoretical research on digital transformation in the digital economy environment, which is of guiding significance to the practice of digital transformation of accounting firms.

Keywords

Digital Transformation; Path Analysis; CPA Industry; Accounting Firms.

1. Introduction

In 2021, China Institute of Certified Public Accountants (CICPA) released the "Development Plan of CPA Profession (2021-2025)" and the "Informationization Construction Plan of CPA Profession (2021-2025)", and decided to carry out the theme activity of "Year of Digitalization Construction" in the whole profession, which pointed out the direction for the digitalization construction of CPA profession and the development of auditing work. This has pointed out the direction for the development of digital construction and auditing work of the CPA industry. CPAs should closely follow the pace of the times, make up for the short board of informationization construction as soon as possible through the innovation of concepts, methods, technologies and tools, and promote the overall digital transformation of the industry with the help of information technology, so as to ensure that the development of domestic and international digital economy is in the same frequency. [1] "Digital empowerment" accounting firms high-quality development is a general trend, accounting firms need to actively promote the digital transformation, the establishment of a large number of databases, optimize the workflow, through the implementation of online and offline change management in parallel to further promote the digitalization of business landing. This paper takes RSM China CPA LLP as

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an example to explore the specific path of digital transformation of accounting firms, in order to enrich the feasible path of digital transformation.

2. Research Methodology and Design

2.1. Research Methodology and Case Selection

Case study is one of the important research methods in the field of management, this paper focuses on exploring the driving factors and the formation path of the digital transformation of the CPA industry, using the case study method can be based on the realities of the accounting bookkeeping firms to describe and analyze the digital transformation process, so as to solve the problem of why and how to carry out the digital transformation of the enterprise. At the same time, Zagan theory is used to identify the driving factors of digital transformation in the CPA industry, identify the dynamic development process of the digital transformation path of accounting firms, and make up for the shortcomings of quantitative research that cannot analyze individual cases in depth. Therefore, this paper adopts a combination of two qualitative research methods: case study and rooted theory.

2.2. Presentation of Case Background

RSM China CPA LLP is a specialized, institutionalized and internationalized large-scale professional service organization. since its establishment in 2013, RSM China CPA LLP has been deeply engaged in the field of professional services in the capital market, and has provided auditing services for more than 300 A-share listed companies, and professional services for hundreds of proposed listed companies. in 2019, it ranked No. 7 among the 100 ranked domestic firms published by the China Institute of Certified Public Accountants, and year by year steadily improving, and ranked No. 3 in 2022.

RSM China CPA LLP has continuously improved its service level and service quality in recent years by utilizing computer and network technologies to process accounting information provided by enterprises in structured, relational databases with very clear logical relationships.

In terms of digital auditing, the first article in the series of "Digital Auditing", "Exploring the Auditing Changes of Digital Intelligence Trend", discusses the future development trend of the auditing industry, i.e. the integration of data, knowledge and technology. In this trend, RSM China CPA LLP puts forward the digital audit construction idea of "small core, big universe", reconstructs the traditional audit system, and creates a value-oriented digital audit of the whole life cycle.

At present, RSM China CPA LLP consulting under the Digital Intelligence Innovation Services team under the RSM China CPA LLP IT consulting and digital service center, including a number of professional digital consultants, leading technology team, a full range of digital products, and the integration of RSM China CPA LLP experts in various fields of the industry, connected to a wide range of ecological partners in the field of digitalization, is committed to providing a leading, all-round, and with an international perspective of the digitalization of the service.

RSM China CPA LLP is an important part of China's accounting firms and typical representatives, especially in the digital transformation has a leading edge, so the choice of RSM China CPA LLP as a research case can better fit the core research problem of this paper, the theory and results of the research is more representative [3].

2.3. Research Data Collection

This study acquires case information, data and related materials through multiple sources to form a complete chain of evidence, and triangulation to ensure the completeness and accuracy of the research materials. Data collection methods include: collecting information through one-on-one in-depth interviews with enterprise managers, and then searching for information

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related to the digital transformation of the case enterprise on the Internet (enterprise official website, microblogs, Weibo, WeChat, public numbers, etc.), newspapers, and magazines to collect data to further corroborate the authenticity and accuracy of the interview information. In order to ensure the credibility of the interview data, this paper draws on the practice of Bai Changhong and Liu Huan [2], after each interview, members of the interview team individually write an interview report and submit the relevant evidence, which is audited and checked for accuracy before being used as the basis for further case analysis. After comparing the interview records there are a large number of repetitive descriptions, no new, significant differences in the description of the case appeared, based on the principle of information saturation as well as the usefulness, appropriateness, and adequacy of the data judgment, the interview information reaches saturation, and the data collection work is over. After synthesizing the interview data, internal corporate data and online media data, and based on the digital transformation and characteristics of accounting firms, excluding invalid and repetitive example texts, the collected data were numbered and formally named as digital transformation of accounting firms.

3. Coding Process and Case Studies

The case study in this paper follows the constructive rooted theory research path proposed by Charmas [4], and the formation path of the drivers and of the digital transformation of enterprises in the CPA industry is studied in accordance with the four stages of initial coding, focused coding, spindle coding, and theoretical coding. In order to reduce the errors brought about by personal bias in the process of data analysis and to improve the scientificity and rigor of the coding process, the coding of each stage of this study was decided by team members through repeated discussions.

3.1. Initial Coding

This stage is mainly based on the original transcribed text, supplemented by information obtained by other means, while paying attention to avoiding the interference of personal subjective will[5]. The specific process is as follows: ① textualization of the interview material is converted, the transcribed content is summarized, and the original text statements that can reflect the impact on the digital transformation are condensed; ② the collated text is imported into the NVivo software, and the material is reviewed and analyzed line by line to extract the effective information and carry out the node coding, i.e., labeling; ③ combined with the concepts and the characteristics according to the nodes, refer to the concepts and the characteristics of digital transformation, label coding and merging, preliminary conceptualization, and gradual review and screening of the existing conceptualized text entries. characteristics, label coding and merging, initial conceptualization, progressive review and screening of existing conceptualized text entries, and finally sorting out effective conceptualized entries; ④ The resulting conceptualized nodes are again integrated and further derived to form the initial concept. Through the sorting and analysis of the group, finally a concept is summarized from the original material and 132 initial concepts are mined, see Table 1.

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Table 1. Initial Coding Results

Numble	Primitive Statement	Labeling	Initial Concepts
1	It turns out that before the implementation of EAS, all the negatives needed to be printed offline. The paper version of the drafts were sent for review, bound, organized and then sent for review of the paper version of the drafts. Later, after the implementation of paperless office, EAS system developed, all the drafts are issued online, and then sent for review online, online report	EAS system developed to facilitate audit operations	Development of systems to facilitate operations
2	Now that the nation's top eight domestic firms and a number of other firms are implementing paperless offices, there is a need for a powerful new system	The need for a paperless office in the industry	Industry Needs Foster Digital Transformation
3	Due to project requirements, auditors may need to be assigned to various parts of the country, requiring frequent traveling	Characteristics of the decentralized nature of audit operations	Operational decentralization
4	We may also resort to external database systems such as Pantech and Vantech to solve the problems we face	Processing of operations through external database systems	Utilization of external databases
5	There is a technical service department with specialized technical staff in charge, probably dozens of people	Enterprises set up specialized technical service departments and personnel	Enterprises have technical departments and personnel
6	There is regular training, which is organized every year for new students when they start their careers. One of the subjects of the centralized training is the use of all our office software.	The company regularly conducts centralized training for its employees, including the use of technical software	Enterprises conduct regular training
7	The Institute of Certified Public Accountants will regulate the profession or the ethics of the profession. In addition, when we approach companies, for example, if we want to use their data, we usually sign a confidentiality agreement with them	The industry safeguards customer data in a variety of ways, including industry guidelines and confidentiality agreements	Enterprises safeguard customer data
8	Using an online system does save time and labor costs	Use of the system saves time and labor costs	Cost savings from the use of the system
9	The use of online management system is more convenient to control the work of personnel, saving human resources, deployment of human resources is more convenient.	The management system facilitates the control of human resources and promotes economy of effort.	Utilization of digital systems to facilitate human control
...	...	...	...

3.2. Focus Coding

In contrast to initial coding, focused coding distinguishes, categorizes, and synthesizes initial concepts with respect to their associations, and condenses and aggregates category-associated initial concepts. [6] The initial coding process formed 132 concepts, although it has a certain level of abstraction but the correlation, genus, and agreement between the concepts are not

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reflected. Therefore, the focused coding process re-categorizes these 132 concepts and gradually builds relationships between categories. The definition of digital transformation in this study emphasizes the keywords of technology services, development needs, organizational development, and team building, and the initial coding also highlights these characteristics. Therefore the focused coding forms multiple initial categories based on the results of the initial coding, such as digital technology development, intelligent work platform, industry competitive landscape, corporate top-level capabilities, talent team building, and organizational culture change. For example, according to the initial coding results, the use of digital systems can save costs (a8), digital systems to reduce the collection of paper materials (a15), which can constitute the category of work cost reduction; the formation of digital professional team (a21), the introduction of information technology high-end talent (a22) with digital human resource management system (a25) can constitute the category of digital talent construction; regular training (a6), which can guide the workforce to learn digital skills (a7), which can lead to the development of digital skills (a8), which can lead the workforce to learn digital skills (a9), and which can lead the workforce to develop digital skills (a20), which can be used as the basis for the development of digital technology. Regular training (a6), guiding the workforce to learn digital skills (a25), and improving employees' ability to solve problems with digital thinking (a26) can constitute the category of empowering employee development. Finally, 24 initial categories are summarized from the 132 concepts.

3.3. Axical Coding

As an extension of the focus coding, the main axis coding discovers the potential logical connection between the categories based on the initial categories obtained from the focus coding, summarizes and combines them, and further condenses them into the "main category".[7] Enterprise digital transformation is a behavior driven by the internal and external environments, and is the starting point of enterprise digital transformation. [7] Enterprise digital transformation is a behavior driven by the internal and external environment, which is the starting point of enterprise digital transformation. By exploring the ability of digital transformation of case accounting firms, the digital transformation model and the effectiveness of the firm's digital transformation, based on the decision-making logic and practice law of China's accounting firms' digital transformation, we can ultimately achieve the goal of summarizing and refining the common characteristics of China's CPA industry's digital transformation and the development trend of the industry.

Focusing on constructing the formation path of digital transformation of accounting firms, closely following the existing research results, the 24 initial categories are summarized, refined, integrated, and distilled into spindle-type codes, which are summarized as external drivers (AA1), internal drivers (AA2), transformation capability (AA3), transformation mode (AA4), and transformation effectiveness (AA5), so as to realize a more comprehensive and accurate understanding of the process of enterprise digital transformation formation, and test the rationality of the categories while constructing, see Table 2.

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Table 2. Axical Coding Results

Main Category	Initial Category	Scope Connotation
AA1 External Drivers	A1 Digital Technology Development	Is the impact of digital technology on transformation decisive
	A2 Client Numerical Degree	High level of digitization of auditees pushes firms to digitize
	A3 Industry Competitive Landscape	Digital economy development rewrites the rules of the industry Service content expansion
	A4 Government Association Support	Government welfare policies and associations actively regulate and guide the digitalization of firms
	A5 Major Emergencies	The Accelerating Role of the New Crown Pneumonia Epidemic in the Digital Transformation of the CPA Profession
AA2 Internal Drivers	A6 Self-development Needs	Impact of Digital Transformation on Business Performance and Governance Levels
	A7 Top-level Corporate Competencies	The decisive role of entrepreneurial competence in the digital transformation and upgrading of companies
	A8 Digital Funding Inputs	Funding for digital transformation impacts firm efficiency and quality
	A9 Operational Digital Requirements	The need to use digital technology to address audit work
AA3 Transformational Capacity	A10 Digital Data Base	Status of databases owned by firms
	A11 Digital Collaboration in Higher Education	Does School-Business Collaboration Help Firms Master Digital Technology
	A12 Organizational Restructuring	Impact of digitization on the formation of digital or informationalized sectors
	A13 Digital Talent Building	Informatization top talent and digital workforce are key factors for transformation
	A14 Intelligent Work Platform	The firm's current mastery of digital technology
AA4 Transformation Model	A15 Audit of Digital Transformation	The impact of digitization on the shrinking of conventional audit engagements and the rise of new ones
	A16 Audit Data Synergy	Utilization of Internet technology to access financial data of audited units in the audit operations platform
	A17 Audit Draft Synergies	Collaboration of drafts between the project team and QCs
	A18 Online Review Function	Remote, online quality review via the EAS platform
AA5 Transformational Effectiveness	A19 Follow-up on Customer Needs	Firm digitization further enhances service capabilities
	A20 Reducing the Cost of Work	Digital transformation can reduce labor and materials in a number of ways
	A21 Reducing Audit Risk	Reduction of audit risk through the construction of an electronic correspondence center, intelligent audit workflow, etc.
	A22 Organizational Culture Change	Transformation of firm value processes, corporate culture, etc. by digital technology
	A23 Empowering Employee Development	Enhancement of employees' digital competence through training
	A24 Efficient Business Management	Significant changes in the form of organization and management system of enterprises caused by information technology

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3.4. Theoretical Coding

Theoretical coding is the process of refining the core categories based on spindle-based coding, making possible relationships between the main categories concrete, analyzing and verifying their internal logic, and supplementing and refining the categories with imperfect conceptualization [8].

The core task of this study is to identify the formation path of digital transformation in accounting firms. With the help of the logical lineage between the six aspects of causal conditions-phenomena-vein-mediating conditions-action/interaction strategies-results in the exemplary model, the capabilities and modes involved in the process of digital transformation of accounting firms and their interrelationships are identified, and the existing theoretical literatures are merged to construct the formation path of digital transformation of accounting firms, which further reveals the intrinsic logic among the key action choices of digital transformation of accounting firms see Figure 1.

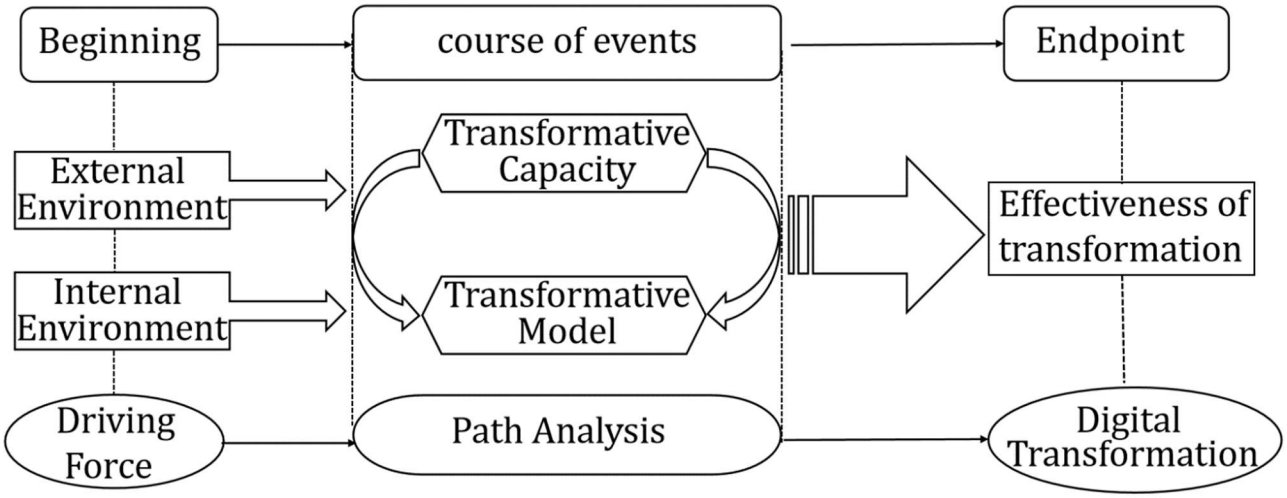

Figure 1. Two or more references

3.4.1. External and Internal Environments as Drivers of Digital Transformation

The digital transformation of accounting firms is not formed in a vacuum and will be affected by influences from both the external and internal environments. In the context of the rapid development of the digital economy, big data, artificial intelligence, cloud computing, the Internet of Things and blockchain and other technologies are accelerating the global economic ecosystem shaping, the survival and development of enterprises is changing the environment. At the same time, the Party Central Committee and the State Council have formulated some special strategic plans around "digitalization" and put forward guidance to guide China's enterprises to carry out digital transformation. With the rise of "digitalization" as a strategic guideline at the national level, digital transformation has also become a trend and breakthrough for the CPA profession to seek development.

Enterprise digital leadership at the macro level affects the transformation of the industrial environment and the benefits of science and technology in society, at the organizational level affects organizational performance and development through its role in organizational innovation, and at the individual level affects the innovation ability and performance of employees.

3.4.2. Transformation Capabilities Determine Firm's Digital Penetration and Application Focus

Developing digital tools, i.e., developing an intelligent audit operation platform, including remote collaboration tools with clients and other business support tools such as data analysis.

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Making full use of computer and network technologies, it is only through the platform that data collaboration in terms of raw data collection, centralized data storage and online collection of audit evidence can be realized, as well as audit collaboration in terms of sharing of audit drafts, online review and online marking of audit evidence, and a variety of measures to safeguard the quality of audits, such as control of the audit process, automated sampling, data validation and correspondence tracking. At a higher level, the general problem of audit transformation and upgrading can only be solved by selectively putting into practice the latest technologies such as big data and artificial intelligence, and by making full use of mature and well-facilitated information technology to realize a basic audit operation system based on solving practical problems in audit work from the point of view of specific needs.

To effectively implement the audit transformation and upgrading work, accounting firms also need to make preparations in terms of personnel reserves and system construction. This mainly includes strengthening the investment in information technology, increasing the training of information technology personnel and manpower reserve; paying full attention to information technology and fully recognizing that information technology has not only a tool-level impact on the audit business, but will have a far-reaching impact on the audit mode of work and the evaluation of the quality of the audit, among other aspects.

3.4.3. Transformation Model

The audit model of RSM China CPA LLP CPAs includes the process of obtaining data, the completion of the audit report, and the review stage. Specifically divided into three parts:

First, data synergy. Audit operations platform using database and Internet technology, from the acquisition of the audited unit's financial data, to the initial analytical procedures, planning audit work, audit sampling, sample testing, and then audit adjustments, trial balance, etc. to generate audit data, to help the firm to achieve the audit business process, as well as the sharing of the client's financial data of the various user endpoints, the audit of the business data processing. In addition, the audit platform can be collected with the client data software, correspondence management system, the client to provide information systems, and management systems to achieve data sharing and synergy, to avoid the firm's information systems between the "information island".

Secondly, the synchronization of audit drafts. On the basis of the outsourced network disk components, EAS special network disk was developed and deployed on the server and user terminals to realize the automatic synchronization function of the audit drafts of project team members and quality control reviewers (computer terminals).EAS network disk automatically synchronizes the audit drafts of each auditor to the network disk server, and then automatically maps them to EAS network disk of the members of the same project team, which not only realizes the coordination of the audit drafts between the project team and the quality control personnel but also ensures that the latest audit drafts are automatically stored to the network disk server. The latest audit scripts are automatically stored on the web server. Through the high load operation in the busy audit season, the performance of EAS NetDisk has been very stable, especially the function of centralized storage of audit drafts in EAS NetDisk server, which is a substantial improvement from the synchronization function of many audit software, which is "only exchange but not centralized storage" of the draft files.

Third, the online review function. Based on the EAS data synergy, manuscript synergy function, the quality review within the project team, quality control department independent review of the quality review, can be implemented remotely through the EAS platform, online. At the same time, the reviewer's review records can also be fed back to the auditors through the EAS platform in a timely manner.

3.4.4. Transformation Effectiveness is the Ultimate Goal of Firm Digital Transformation

(1) Follow up on Customer Needs

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RSM China CPA LLP is constantly upgrading its technology, utilizing digital tools to strengthen its business capabilities and broaden its scope of business to provide better and more valuable services to its clients while improving the quality and efficiency of its work. The use of correspondence management system, EAS network disk, etc. to facilitate the business staff to deal with a variety of practical business needs.

(2) Reducing the Cost of Work

RSM China CPA LLP adopts a number of office software, complete and smooth office processes make office efficiency has been greatly improved. Online review function makes the project team can be through the EAS platform to remote, online way to implement quality review, quality control department independent review of the quality review, and review the review records can also be through the EAS platform timely feedback to the auditors, rapid and efficient to meet the requirements of the enterprise. At the same time, the implementation of paperless office within the enterprise, data uploaded and saved to the computer, to avoid repeated printing and carrying of information offline, to meet the needs of remote operation of the auditor, greatly saving human resources and office hours, reducing the cost of work.

(3) Reducing Audit Risk

Digital transformation helps the audit business process to be online, thanks to the characteristics of big data, huge data, accurate analysis and judgment, and it is more conducive to the staff to fully grasp the progress of the audit by transforming the audit information into the form of data, which plays an important role in making timely adjustments in the area of risk misstatement.

(4) Organizational Culture Change

Initiate or support changes in organizational structure, value processes, corporate culture, etc. with the help of digital technology and methods, in order to promote the transformation of the traditional organizational form of enterprises to a new form of digital, platform and ecological organization, and to guide and support the change of organizational culture.

(5) Empowering Employee Development

Leverage greater impact on employee development and team building through digital technologies and approaches, enhance the development of digital skills and competencies in the organization's workforce, and also have the ability to leverage digital technologies for digital talent management.

(6) Efficient Business Management

Information technology has fully penetrated into all business aspects of the enterprise, prompting significant changes in the form of enterprise organization and management system.

4. Conclusion and Discussion of the Study

This study takes the digital transformation of RSM China CPA LLP as an actual case, and with the help of the research method rooted in theory, systematically researches and analyzes the textual information of the case enterprise, and finally summarizes the driving factors and paths of digital transformation of enterprises in the CPA industry. This study concludes that digital transformation is a necessary path for CPA firms driven by both external and internal factors. The transformation capability and transformation mode of the enterprises determine the effectiveness of their transformation.

① From the perspective of digital transformation generation, digital technology development, industry competition pattern, government association support, etc. are the external key factors for enterprise digital transformation. Self-development needs, corporate top-level capabilities, business digital needs, etc. are the endogenous driving force of enterprise digital

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transformation. The driving force of the general environment and the internal environment change makes digital transformation has become an inevitable trend.

②From the perspective of the digital transformation process. The internal growth of digital technology determines that digital transformation is not static, but in a dynamic evolutionary process. Enterprises cooperate with universities and other institutions to promote the continuous iterative innovation of the data platform and explore the further online and efficient audit business. Therefore, the enterprise digital transformation model is a process of continuous exploration and gradual progress.

③ From the perspective of digital transformation results. The effectiveness of enterprise digital transformation involves many aspects: following up customer needs, reducing work costs, reducing audit risks, organizational culture change, empowering staff development, and efficient enterprise management. In order to enhance the competitiveness of enterprises and win a larger market share, digital transformation is inevitable.

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