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An Empirical Study on the Usage Intention of Geological Cloud Service Based on DTPB and TTF Integration – A Case Study of Geological Cloud • Shaanxi Sub-Node

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Abstract:

This article from the theoretical perspective, IT adopted process based on the TOE framework, from the technical characteristics, organization situation and environment dimension identification and analysis of key factors affecting geological cloud platform to accept, combined with the Task Technology Fit model (Task - Technology Fit and the vera.ttf) and the Theory of deconstruction Task Technology Fit (Decomposed and found of Planned behaviors, DTPB) SEM model of geological cloud platform framework, with geological cloud platform service of geological survey industry users as the research sample, SPSS and Amos were used to verify the research hypothesis and model through questionnaire survey to explore the acceptability of geological cloud platform. The results show that willingness, subjective norm and perceived behavior control all have a positive and significant influence on the geological surveyors' service acceptance intention in The geological cloud (Shaanxi), among which attitude and perceived behavior control have the most significant influence, followed by subjective norm. Users' ease of use of the "geological cloud" service, usefulness and task technology fit sexy, geological data under the situation of compliance motivation, perceived behavior control of self-efficacy, resources convenience conditions and technical conditions are the key factors can't be ignored, accordingly puts forward related Suggestions to provide geological survey reference for the decision-making body.

Keywords: *Geological cloud service, The knowledge sharing, Willingness to use, Influence factor, IT innovation adoption.*

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I. INTRODUCTION

Geological data is a kind of time and space is big, is mainly produced in basic geology, mineral geology, hydrogeology, engineering geology, environment geology, disaster geology investigation, exploration and corresponding geological scientific research, is the human survival environment, development and utilization of natural resources necessary data, the wide application of geological data has made it become an important part of national big data[1].The United States, Canada, Australia and other developed countries attach great importance to study the information in the field of information sharing and service, has set up and carry out the national system construction work, such as the United States geospatial one-stop portal (GDS), Canada Geo-Connections plans, and geographic information portal FIND Australia, effectively for the country, the government, enterprises and academic groups and the social public provide geographic information query, share, and intelligent analysis decision[2].In November 2017, the China Geological Survey officially released "Geological Cloud 1.0".This is the first cloud comprehensive integrated application platform in the field of geological survey in China, aiming to solve the "data island" and "information chimney" and other problems in the above-mentioned work results[3].As a high-value link in the big data industry chain, big data services can meet the multiple data needs of multi-objective and multi-type users and have a broad development prospect[4].It can be said that as an emerging technology and model innovation, geological cloud is a new way of using geological data resources to provide users with timely and effective geological information services. As a new type of geological data service, geological cloud service makes up for many defects of traditional geological information service. It is an important practice to realize the unified management of natural resources, serve the transformation and development of geological survey business field, and support the construction and operation of smart city.

In recent years, domestic scientific research institutes have carried out research and practice on the framework of national geological cloud[5].The National Geological Cloud is designed by the national geological big data center architecture of physical distribution of 1 (main center) +6 (regional sub-center) +12 (professional sub-center). It is an advanced architecture and technology system based on Web Service to discover, gather, utilize and distribute various services. Geo-cloud Shaanxi sub-node architecture design includes three systems: application architecture design, logical architecture design and technical architecture design in terms of national geological cloud level structure. Combined with the business characteristics of Shaanxi Province and the current situation of information system construction, the application architecture design of "Geo-cloud" should be divided into five areas: basic platform area, professional application area, management support area, decision support area and information service area; "Geo-cloud" platform was designed according to the four-layer architecture of infrastructure service layer (IaaS), geological

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big data service layer (DAAS), geological cloud platform service layer (PaaS) and geological cloud big data application service layer (SaaS). "Geological cloud" logical architecture design, mainly focus on the logical relationship between geological survey business, to describe relations between system and subsystem, on the whole can be abstract as 5 layer structure, namely: the infrastructure layer, data resource layer, application layer, application layer and security service, business system, Oracle, PostgreSQL, mapgis IGSever software to build the underlying software environment, such as setting the shaanxi geological cloud system, groundwater resources system, the geological hazards prevention and control system, the urban geological research on information sharing and socialized service system and so on four platforms[6].According to the existing researches, the academic researches on geological cloud mostly focus on the overall architecture and technical implementation, and there are few researches on the interaction between users and big data services[7].Geological survey of geological work in the new period from the traditional to the transformation and upgrading of knowledge service, and in the framework of geological survey knowledge service system of geological cloud platform can realize network effect as soon as possible, set up surrounding geological survey platform of service of the whole flow of ecosystem, the value of the virtuous "cycle", is not just about cloud computing, big data and other information technology advanced or not, you also need to "people" of cognition, accept and execute. Therefore, it is of great importance to understand users' attitudes and identify the factors that affect users' behavior intention for comprehensively improving the data collection, aggregation, mining, processing, analysis, sharing and ubiquitous service application of Geo-Cloud platform. Scholars define the one-dimensional concept of adoption as: adoption is a user's decision to use a certain information technology innovation (Rogers, 2003); Adoption is the willingness of users to access public services and information through e-government (Warkentin, 2002); Adoption is the willingness to use (Gilbert, Balestrini, 2004). The multi-dimensional concept defines the dimensions of adoption as: deciding whether to use, the frequency of use, the scope of use and the tendency of adoption (Kumar et al., 2007), or the three dimensions of symbolic adoption, initial acceptance and continuous use (Jiang Xiao, 2011).

Geologists are the producers of geological data and the first users of geological data, and they are the important users of geological cloud services. Providing them with whole-process information and intelligent tools, cloud computing and cloud storage services, and improving the efficiency and quality of geological data acquisition are the fundamental goals of geoscience big data construction. The transformation process of IT innovation in an organization can be seen as a process from IT innovation adoption to application, then to IT innovation absorption and integration, and finally to realize IT value creation[8].User acceptance of geological cloud service is directly related to its development and value creation, and thus impact study big data industry development and the evolution of the ecosystem, as the object of this study is of geological cloud services platform, is in the business management of geological survey in the process of a kind of technology innovation, geology survey technicians and geological survey managers such as whether or not to accept is the precondition of the success of the business users, so choose geological workers as the research sample, and will adopt the unidimensional concept is defined, the geological survey employees accept geology cloud services platform, analysis the user for geological cloud services using the will of the influencing factors.

Thus, in this paper, using the TOE framework, from the technical characteristics, organization situation and environment dimension identification and analysis of key factors affecting geological cloud adoption, combining the theory of deconstruction task technology fit, extend the theory of planned behavior geological cloud platform to build the initial accepted theory of SEM model framework, through the questionnaire survey to explore the geological industry users' willingness to use, to set up the technical personnel for geological survey and geological investigation manager the business user demand-oriented cloud services such as development mode to provide theoretical guidance, and put forward relevant Suggestions on the basis of geology survey decision-making body reference, has certain practical significance.

II. THEORETICAL MODEL AND RESEARCH HYPOTHESIS

Research on specific technology acceptance can start from behavioral intention or actual use behavior, and relevant theories include rational behavior theory (TRA), technology acceptance model (TAM), planned behavior theory (TPB), deconstructed planned behavior theory (DTPB) or task technology adaptation model (TTF)[9].The interpretative ability of TAM, TPB and DTPB models in information technology acceptance IS the highest (Taylor & Todd)[10]. DTPB makes up for the deficiency of the original innovation models that only pay attention to technical characteristics, and highlights the influence degree of the belief of the behavior subject on technology adoption. Compared with TAM model, DTPB can effectively predict and explain the behavioral intention of using IS. As can be seen from the above literatures, individual behavior research theories, such as influencing technology acceptance and adoption theory, have been widely adopted in behavioral research. DTPB model is suitable as the theoretical basis and research starting point of this paper.

2.1 Factors Influencing the Willingness to Use Geo-logical Cloud Services

Innovation expansion theory (IDT) is typical and applicable in the study of user technology adoption behavior[11-13]. Rogers proposed that in addition to communication channels, adopters' characteristics and social systems, innovation attribute is also the decisive factor of information

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technology adoption and communication application. Innovation attribute refers to the innovation characteristics perceived by users. The cognitive attribute of innovation is one of the important explanatory factors of the innovation adoption rate, and the difference of the innovation adoption rate of 49%-87% can be explained by the five cognitive attributes of innovation (Roger, 2010), which mainly include comparative advantage, compatibility, complexity, testability and observability[14]. Relative advantage is equivalent to perceived usefulness in TAM model. Complexity is the same concept as perceived ease of use in TAM model, which refers to the degree of difficulty perceived by users when using new technology. Compatibility refers to the degree to which an innovation is consistent with prior technology and social context. According to IDT theory, technology-organization compatibility considers whether the new technology is compatible with the original technology and the organizational management of the enterprise. Task-technology matching theory (TTF) is derived from cognitive matching theory (Vessey, 1991) and cognitive matching model [15].TTF explains the impact of the consistency of task characteristics and technical characteristics on the relationship between information system and performance, that is, "task characteristics" and "technical characteristics" together affect "task technology matching", which can reduce the complexity of the task, and then affect the use of technology and performance. For the construction of the geological big data sharing service platform, the more support the information technology construction has for the geological survey business needs, the more urgent the demand of the geological information resource service for big data, cloud computing and other information technologies will be greatly increased. From the perspective of geo-cloud service, perceived usefulness refers to the high efficiency, public welfare and contribution that information technology perception brings to geo-cloud service. Whether it can achieve high efficiency, public welfare and contribution depends on the matching degree of "geo-cloud" information technology with the task of geological survey and organization management. In general, external technical factors will have a significant impact on the internal adoption behavior of the organization, that is to say, individual adoption willingness will increase with the enhancement of external technical factors of the organization [16].According to DTPB theory, compatibility, perceived ease of use, and perceived usefulness can affect individuals' attitudes towards use.

The theory of rational behavior points out that subjective norms (SN) refers to users' perception of social pressure caused by significant others in their organization who think they should use a particular information technology, which is determined by normative beliefs and compliance motivation. The stronger the individual's normative belief, the greater the social pressure he feels from the group or others on whether he should take a certain behavior. When the social tendency supports a certain behavior, the stronger the individual compliance motivation is, the stronger the subjective norm is and the stronger the behavioral intention is [17]. Empirical analysis also confirmed that subjective norms can promote the user USES of information technology, the user use

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inexperience and involuntary, when using effect was more significant [18], geological work informationization brings a degree of uncertainty, whether can continue to use as planned depends in part on the influential individuals or groups support attitude and action and the influence of size on their decisions. This paper holds that the subjective specification of geo-cloud service has a positive effect on the adoption intention of geo-cloud service, that is, the higher the degree of subjective specification is recognized by users, the stronger the adoption intention of geo-cloud service.

Different from rational behavior theory, planned behavior theory adds a new concept of "perceived behavioral control" influencing individual behavioral intentions[19].Perceived behavioral control refers to an individual's perception of how easy or difficult it is to perform a particular behavior. Based on the above or resource conditions, the degree of promotion of behavioral intention. Ajzen's research confirmed that perceptual behavioral control and behavioral intention are correlated, and behavioral intention can be inferred from perceptual behavioral control. Meanwhile, behavioral intention will be subject to perceptual behavioral control, that is, perceptual behavioral control has a direct impact on behavioral intention, and can coordinate the relationship between behavioral intention and using behavior. The control of perceived behavior consists of three parts: resource promotion condition, technology promotion condition and self-efficacy. Among them, the resource promotion condition reflects the sufficient degree that an individual can control the capital or time resources to realize a certain behavior; Technological promotion conditions refer to providing technical support for R&D of geological big data technology, etc.; Self-efficacy, on the other hand, indicates a person's confidence in his or her ability to use new technology to complete the task. According to the resource-based theory, an organization's competitive advantage comes from resources including assets, capabilities, knowledge and business processes [20].Therefore, under different resource conditions, the expected ability of geo-cloud platform system to achieve specific tasks will affect their ability to control the use behavior of the cloud platform, and further affect their intention of geo-cloud service.

Based on the above analysis, this paper proposes the following hypotheses:

H1: The use attitude of geological cloud service has a significant positive influence on the use intention of geological cloud service.

H2: Subjective specifications of geological cloud services have a significant positive impact on the willingness to use geological cloud services.

H3: The perception behavior control of geological cloud service has a significant positive

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influence on the willingness to use geological cloud service.

H4: The service compatibility of geological cloud service has a significant positive impact on the use attitude of geological cloud service.

H5: The perceived usefulness of geo-cloud service has a significant positive impact on the attitude towards the use of geo-cloud service.

H6: Perceived ease of use of geo-cloud service has a significant positive impact on the attitude of using geo-cloud service.

H7: The compliance motivation of geo-cloud service has a significant positive impact on the subjective specification of geo-cloud service.

H8: Geological cloud service normative belief has a significant positive influence on behavioral intention of geological cloud service.

H9: Geological cloud service self-efficacy has a significant positive influence on behavioral intention of geological cloud service.

H10: Geological cloud service resource promotion conditions have a significant positive impact on the behavioral intention of geological cloud service.

H11: Geological cloud service technology promotion conditions have a significant positive impact on the behavioral intention of geological cloud service.

2.2 Study Design

Questionnaire scales with high reliability and validity are the guarantee of statistical investigation and research [21].With reference to relevant maturity scales at home and abroad, the survey is gradually modified and improved after being reviewed by experts and scholars in the industry. The survey content includes two parts: one is basic information, including department level, department size, age, gender, working years and administrative level; Second, users' willingness to use and various perception factors as shown in Table I.The determination structure of the model measured in this paper includes four variables: attitude, subjective norm, perceived behavioral control and behavioral intention. Attitude includes four deconstructed variables: task technology compatibility, technology organization compatibility, perceived usefulness and

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perceived ease of use. Perceived behavior control includes three deconstructive variables: self-efficacy, resource facilitation condition and technology facilitation condition. Subjective norms include two deconstructed variables, normative belief and compliance motivation, including 12 dimensions, 36 measurement indicators and literature sources, as shown in Table I.The questionnaire was designed using a five-point Likert scale with a scale of 1 to 5, "1" means strongly disagree, very unimportant, not considered or not considered at all.5 "means strongly agree, very important, very much or completely considered, the higher the value is, the higher the degree of agreement with the content of the question. The measured variables and literature sources of the questionnaire are shown in Table I:

TABLE I. Questionnaire on willingness and influencing factors

VARIABLE	ITEM	LITERATU RESOURCES
CO	1. Geo-cloud platform data can meet my work needs; 2. The new technology of the geo-cloud platform is compatible with the original technology and organization management; 3. Geo-cloud platform IT management can effectively serve the development of geological business;	Xiang-yang Wang etc. (2018)[22]□
PEOU	4. Geo-cloud platform has friendly interface and complete functions; 5. Geological cloud interaction process is clear, easy to realize cloud data sharing and analysis; 6. "Geo-cloud" platform can ensure the owners of geological data property rights to obtain due interests and rights and interests;	Xue Zhou and Cao Guangqiao (2017)[23];
PU	7. Geo-cloud platform information is very useful and helps me to improve my work performance; 8. Geo-cloud platform can increase my knowledge and experience; 9. The launch of geological cloud platform can increase the popularity of the unit;	Xue Zhou and Cao Guangqiao (2017)[23];
AT	10. The geological cloud platform is beneficial to the specialization of geological survey business.	Xue Zhou and Cao Guangqiao (2017)[23];

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VARIABLE	ITEM	LITERATU RESOURCES
	11. I agree with the use of geological cloud platform as the work model of geological survey; 12. Using a geo-cloud platform is a better way to work than the traditional way;	
MC	13. Departments with better performance evaluation attach importance to the use of new technologies such as geological big data and cloud computing; 14. The superior department attaches great importance to the application of geological cloud platform; 15 The top management of the unit attaches importance to the use and construction of the geological cloud platform;	Lu etc.[24];
NB	16. The unit as a whole implements the strategy of geological survey information integration; 17. My colleagues think I should work with geological clouds in my work; 18. My boss thinks I should use the geo-cloud platform in my work;	Lu etc.[24];
SN	19. Most people I know use geological clouds; 20. Of those who matter to me, most want me to use geological clouds; 21. Of those who matter to me, most encourage me to use geological clouds;	Lu etc.[24];
SE	22 For me, I am familiar with the geo-cloud platform and it is very easy to work with it. 23. I can use the GeoCloud platform to get the information I need without anyone else's help; 24. I think, using the geological cloud platform to carry out work, it is a very easy thing;□	Lu etc.[24];□
RFC	25. There is no delay in the construction and promotion fund of geological big data;	Lu etc.[24];

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VARIABLE	ITEM	LITERATU RESOURCES
	26. Organize big data construction and coordination, research or business contact regularly every year; 27. Our company has sufficient IT personnel resources, who not only have outstanding experience in professional skills, but also have high relevant skills;	
T FC	28. The superior departments or cooperative institutions provided technical support for the construction of geological big data; 29. In my opinion, the basic resources of the company are fully guaranteed, with abundant broadband and safe and reliable hardware and software environment; 30. Our unit attaches great importance to investment in research and development of geological big data technology, and often provides geological information technology training for employees.	Lu etc.[24];
PBC	31. I think the organization is very supportive of resource investment in the research and development, implementation and promotion of geo-cloud technology; 32. I think the Geo-Cloud platform enables IT architectures to support traditional work environments 33. For me, it's very easy to accomplish a task with a geo-cloud platform;	Lu etc.[24];
BI	34. It is highly possible for me to continue to use the geo-cloud platform to carry out business work in the future; 35. I will keep trying to use the geo-cloud platform to obtain more valuable information and expand the knowledge learning outside the business field; 36. I would recommend to current or potential partners or recommend others to use the GeoCloud platform.	Lu etc.[24]

Source: collated by the author

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III. EMPIRICAL ANALYSISE

3.1 Description of Respondents and Samples

In this study, the geocloud · Shaanxi sub-node is taken as the case, and the research objects are geological survey workers. Questionnaire collection is completed on the questionnaire network for the target group. During the questionnaire survey period from April 10, 2020 to May 30, a total of 235 samples are investigated. After deleting the questionnaires with overly concentrated answers and too many omitted values, 216 questionnaires were obtained, with an effective questionnaire rate of 91.9%.

In the effective sample, the position distribution of interviewees, namely senior managers, middle managers, grass-roots managers and technical personnel, accounted for 17.9%, 22.3%, 16.5% and 43.3%, respectively; In terms of working years, less than 2 years, 2-5 years, 5-10 years, 10 years and above accounted for 13.6%, 24.4%, 32.8% and 29.2% respectively; In terms of department size, the number of employees below 50, 51-100, 101-200, 200-300 and above 300 accounts for 31.2%, 33.4%, 15.7%, 12.6% and 7.1% respectively.

3.2 Reliability and Validity Test

After the data were effectively collected, in order to ensure the reliability and validity of the data analysis results, SPSS21.0 and AMOS8.0 software were used to test and evaluate the reliability and validity of the questionnaires respectively. The reliability test results show that the Cronbach's coefficient of the overall internal consistency is 0.912, and the Cronbach's coefficient of the latent variable is 0.824 and 0.949, both of which are more than 0.8. Therefore, the data of the whole questionnaire and each dimension have good consistency reliability. Then, maximum likelihood method (ML) fitting and relative degree of fit (CFI) fitting were performed using AMOS., model, the original goodness of fit (GFI), modified goodness-of-fit (AGFI), chi-square value (chi square/df), as the root mean square error (RMSEA), incremental quasi sum Numbers (IFA) and so on six validity judgement indexes conform to the requirements of the reference standard (as shown in Table II), proved that the theoretical model has higher goodness of fit, can effectively describe the geological cloud services using the mechanism of action of intention and its influencing factors.

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TABLE II: **Fitting indes and reference value**

FITTING INDEX	CFI	GFI	AGFI	χ2 /df	RMSEA	IFA
OPERATION	0.917	0.854	0.828	3.365	0.059	0.919
REFERENCE	>0.900	>0.800	>0.800	[2,5]	<0.100	>0.900

3.3 Estimate Results

The AMOS8.0 software was used for graph drawing and maximum likelihood estimation, and the normalized path coefficient graph (Fig. 1) was output. The following conclusions were drawn:

(1) Perceived ease of use had positive and significant effects on use attitude, resource promotion condition and self-efficacy on perceived behavior control (P <0.01).

Resources to promote conditions influence on perceived behavioral control coefficient (0.39), while leadership and staff are good at learning knowledge and application of geological survey data, at the same time attaches great importance to the fund asset management and organization and coordination and organization security work, but there are still large geological data construction to promote the long cycle of project funds in place, the total scale down too big problems, influence the project execution schedule at the same time, also lead to constant adjustment of scheme, waste a great deal of manpower. In addition, the effect coefficient of perceived ease of use on the use attitude is 0.26, 0.24, the reason is that the user interface of Shaanxi geological cloud portal and construction is not friendly enough, the function is still lacking, the data grading and sharing system has not been formed, and the quality, availability and network environment of geological big data need to be further improved. The path coefficient of self-efficacy on the control of perceived behavior is 0.43, which indicates that the innovation of geological survey information technology drives the transformation of geological survey work mode. Geological workers have high information literacy and are able to meet the transformation and reform of geological survey business in the new period with a calm and confident attitude.

(2) Perceived usefulness had positive and extremely significant effects on attitudes, compliance motivation and subjective norms, and technological facilitation conditions on perceived behavior control (P<0.001).Technology for conditions on the perceived behavior control has the highest influence coefficient of 0.67, the most significant impact, shows that in the process of construction in geological data, the higher authorities or cooperation mechanism for the large geological data construction provides the technical support, senior leadership attaches great importance to the geological data technology research and development investment, in the aspect of team building

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provides geological data continuing education training, resource security in basic resources, has the rich resources of broadband and safe and reliable software and hardware environment, big data for geological data platform development provides a good technical support. It is worth noting that the significant influence of perceived usefulness on attitude (0.61) and compliance motivation on subjective specification (0.35) indicates that under the strategy and influence of geological survey information integration, geological workers pay more attention to whether geological cloud service can improve geological survey information knowledge, ability and accomplishment and work performance. Therefore, in order to improve the acceptance of geo-cloud service by geological work users, the key is to effectively improve the quality and availability of geological big data. Only when geological practitioners truly recognize the role of geo-cloud service, will they use it more in their work.

(3) The use intention of geo-cloud services is jointly affected by attitudes, subjective norms and perceived behavior control. Attitude and perceived behavioral control had a positive and extremely significant effect on behavioral intention (P<0.001), while subjective norms had a positive and significant effect on behavioral intention (P<0.01).

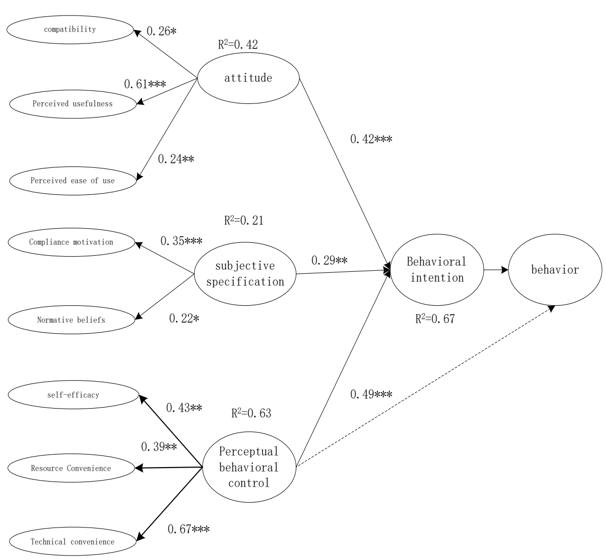

Fig 1: Structure model fitting diagram based on DTPB and TTF integration perspective

Note: “***” means p ＜0.001, “**” means p ＜0.01, “*” means p ＜0.05

Note: "* * *" said p < 0.001, p < 0.01, "* *" said "*" said p < 0.05

The path coefficient of normative beliefs to subjective norms was 0.22 (P<0.05), indicating that the path coefficient of subjective norms to behavioral intention was small, which was mainly caused by the influence of normative beliefs. The above data show that geological workers choose to use the geological cloud platform after careful consideration, and are less affected by external factors or

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external pressure than by superior pressure or the influence of colleagues, which provides a guarantee for gradually realizing the high quality of geological survey work mode reform. In addition, the task technology fit with the attitude path coefficient was 0.26, significant at 0.05 level, the task technology fit through attitude indirectly affected the behavioral intention of geological workers most to participate in the research of geological personnel at the stage of early exploration geological cloud services, has yet to fully tap the platform function to support their work tasks. Therefore, the platform design and development should try to meet the needs of different business fields in geological work, and reduce the difficulty of geological information work.

IV. REVELATION AND PROSPECT

As a preliminary study, this paper can provide some references for the subsequent related studies. On the whole, attitudes, subjective norms and perceived behavioral control all have a positive and significant effect on the acceptance intention of geological survey personnel, with a total of 67% variance of the explanation behavioral intention. Among the variables influencing the acceptance intention of geo-cloud service, the influence of attitude and perceived behavior control is the most significant, followed by subjective norms. The key factors that cannot be ignored are the user's usability, usefulness, task technology adaptability, compliance motivation, self-efficacy of perceived behavior control, resource convenience and technical convenience in the geological big data scenario. Although the above factors are the internal psychological cognition at the individual level, they fundamentally reflect the effect of the "Internet +" modern geological survey environment on the work mode innovation of geological survey practitioners.

Taking the above factors into consideration, the following suggestions are proposed:

First, to improve practical geological data quality, ease of use and availability, increase of data input, the unified storage and management methods, guided by the demands of geological applications of big data, in-depth study is suitable for industry data characteristics, can meet the demand of industry of visualization technology, data analysis process, man-machine collaboration technology, etc., and service of geological work, providing a solid basis for geological big data applications, from the data aggregation service value to create a dominant logic perspective, combined with service innovation ideas, to explore the law of demand conforms to the data resources services geological survey collaborative information service mode.

Second, due to dispersion of the geological survey units office between each other to realize information transfer via the Internet, can only form a public data flow, greatly limiting the sharing scope and degree, in order to reduce information cost, and protect the interests of their own

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intellectual property rights and organization, should be to build a Shared data classification system as soon as possible, from the original office automation, business system and public welfare geology survey information service system and so on the basis of the software system fragmentation service mode gradually to the multi-agent (data) data aggregation ecological service mode transformation, to ensure the safety, stability of data sharing network environment.

Third, Suggestions from the global height at the head of the informatization construction, information construction planning, from the hardware, software, network, security, operational, technical standards, organization guarantee and quality system construction, solve the budget, quality assurance, etc., according to such problems as inadequate, on the basis of do not apply, avoid redundant construction and waste of resources, set up the geological cloud services platform information ecosystem is the concept of complex systems, with thinking to look at and study on the complexity of geological cloud service platform of information ecosystem evolution, to cultivate geological cloud service platform which provides the theoretical foundation of information ecosystem, to more effectively promote the new period of geological survey information service to achieve sustainable development and service.

Finally, in order to avoid the business and information technology issues of "two pieces of skin", online reform from existing business systems and set the geological cloud, to design a fully integrated elements of all kinds of geological survey, collect existing geological database, create the classified data and can share data, preprocessing, after finishing, unified coordinate system, cutting database system figure configuration parameters, such as data warehousing \ migration program, realize the government affairs service system, public service system, integrated business management system and scientific research service system cross-system collaboration services such as scheme, the whole process, the whole process, the whole network and the omni-directional data aggregation service mode of geological survey can meet the needs of users at different levels. Based on the application of DTPB and TTF integrated model in the field of "geological cloud" service, this paper uses empirical method to investigate the preliminary acceptance of "geological cloud" service by geological survey practitioners and the key influencing factors. The shortcomings of the study are as follows: the research samples are from the geological survey institutions in Shaanxi Province that use the geological cloud platform, which affects the applicability of the conclusions to some extent. In the future, the research scope can be expanded to improve the typicality and representativeness of the samples.

Model still needs to be further perfect, can be in the future "geological cloud" service, on the basis of preliminary accept influence path further inspection last intention and use behavior or to explore the relationship between geological cloud services IT absorb the content such as the relationship between value creation, in order to more fully explain the user acceptance of the process of "geological cloud services platform".

In short, geological practitioners' acceptance of geological cloud services, IT absorption and its influencing factors are a dynamic process, and the above deficiencies need to be considered and further deepened in the follow-up studies.

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