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Understanding Continuance Intension of E-RTTIS
(Internet-based Real-time Traffic Information
System) Usage: An Information Quality
Perspective

從信息質量的角度考察基於網路的實時交通資
訊系統的持續使用意圖

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Abstract

An E-RTTIS refers to an Internet-based real-time traffic information system, e.g., Google Maps, Baidu Maps, AMAP. It usually has two versions, i.e., computer websites and mobile devices.

An E-RTTIS helps users make informed travel decisions about destinations, travel modes, departure times, routes, parking and trip cancellation. An E-RTTIS provides information for real-time traffic conditions, which can improve network performance and relieve traffic congestion by assisting drivers in selecting more efficient pre-trip routes and adjusting en-route travel patterns. Also, an E-RTTIS can support navigation (route guidance) under real-time traffic information, which allows drivers to select quicker paths to their destinations than they would find unaided. In addition, An E-RTTIS provides information for services around such as gas stations, hotels, parking stations and transit systems.

With the development of E-RTTISs, more and more people plan their trips and navigate the routes by using E-RTTISs. There are many factors that affect users' choices of retain acquiring and using E-RTTI. Hence, more thorough research on the continuance intention of E-RTTIS usage is

necessary to gain the maximal benefit from an E-RTTIS and improve its performance.

The users' perception of information quality (IQ) of an E-RTTIS is crucial to the evaluation of users' satisfaction with the E-RTTIS. It is obvious that offering users with high quality information and improving users' satisfaction essentially determine the success of an E-RTTIS. A majority of the previous studies emphasize the importance of IQ and identify its multiple dimensions. However, few of these earlier studies empirically collect data about IQ characteristics from users. Specifically, the area of transportation lacks a theoretical IQ framework tailored to E-RTTISs. It is not clear how IQ and IQ dimensions affect the users' continuance intention of E-RTTIS usage and there are not enough real data from the users to support the relevant claims.

Normally, E-RTTISs have two versions, i.e., computer websites and mobile devices, which have different information environments. First, the accessible resources for a mobile device is much more limited due to the smaller size of its screen, the relatively lower multimedia processing abilities, less convenient input or output devices, etc. Second, a mobile device can access the Internet anywhere and anytime. Third, a mobile device is usually involved in various contexts of use (e.g., in a car, while

walking). Previous research on how different dissemination methods affect the use of an E-RTTIS is inadequate.

Hence, to address the above two research gaps, this dissertation endeavors to (1) distinguish the important IQ dimensions which may increase users' continuance intention of E-RTTIS usage in different channels of E-RTTIS services; (2) investigate how the two versions (i.e., computer websites and mobile devices) influence users' continuance intention of E-RTTIS usage, which is an innovative research project in the area of transportation.

This study puts forward an extended ECM (Expectation Confirmation Model), which explores the users' continuance intention of E-RTTIS usage and mainly investigates the effect of factors such as IQ and the versions of E-RTTISs. We build a general IQ framework specific to the context of E-RTTISs, which encompasses six dimensions, i.e., accuracy, completeness, timeliness, relevancy, accessibility and coverage. The dimensions are constructed by expanding the prior research on IQ and aim to reflect the attributes of an E-RTTIS. Our hypotheses are: (1). The six IQ dimensions influence users' perceived IQ in a positive way, which further affects users' continuance intention of E-RTTIS usage. (2). The relative importance of IQ dimensions changes with the different versions of E-RTTISs. To confirm our research hypotheses, an extensive Internet survey

with E-RTTIS users is conducted.

The data analysis results show the following points: (1) The six IQ dimensions, i.e., accuracy, completeness, timeliness, relevancy, accessibility and coverage, significantly and positively affect the IQ of an E-RTTIS. (2) The result confirms the moderation effect of the two versions on the relationships between the four IQ dimensions (i.e., accuracy, completeness, timeliness and accessibility) and IQ of E-RTTISs. With the increase of accuracy, completeness, timeliness or accessibility, people's perceived IQ is enhanced faster in the mobile version than in the website version. Also, the result shows that at the current stage, people's perceived IQ of E-RTTISs is higher with the website version than with the mobile version. The other two hypotheses, i.e., the versions of E-RTTIS moderate the relation between relevancy and IQ, and the versions of E-RTTIS moderate the relation between relevancy and IQ, are not supported. (3) In the ECM for E-RTTIS usage, the IQ of an E-RTTIS positively and significantly affects satisfaction and perceived usefulness of the E-RTTIS. Thus, the IQ of an E-RTTIS can affect users' continuance intention of E-RTTIS usage in two indirect ways, i.e., by influencing perceived usefulness of the E-RTTIS and by impacting users' satisfaction with the E-RTTIS. Moreover, perceived usefulness of an E-RTTIS is found to influence significantly and positively users' satisfaction with the E-RTTIS, which suggests that users' belief in the usefulness of an

E-RTTIS is a critical precursor of their perception of satisfaction.

Furthermore, it is found that confirmation of an E-RTTIS is a significant predictor of users' gratification with the E-RTTIS and perceived usefulness of the E-RTTIS in the research model.