

Realization of Underwriting and Vehicle Examination Mobile Application for Motor Vehicle Insurance

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Abstract---Mobile Internet represents the merging of mobile communication and Internet. It further breaks the limits of time and region and is a new "industrial revolution" in the 21st century. It has great significance for today's enterprises to optimize their workflow, save operating costs, and improve competitiveness. At present, the domestic insurance industry has developed rapidly and the insurance ecosystem has entered the era of "fast fish eating slow fish." How to improve efficiency while controlling costs has become a compulsory course for insurance companies. This article describes the use of combining mobile internet with computer technology to create a set of digital tools specifically for motor vehicle underwriting and vehicle examination work. It has the characteristics of fast time, short process and low costs, and avoids the common risks in the traditional workflow effectively. It is the right assistant to promote business development for today's property insurance companies.

Index terms---vehicle insurance; vehicle examination; image; check insurance; mobile APP

I. INTRODUCTION

With China joining the WTO, the domestic insurance industry is booming. Insurance companies springing up like mushrooms have made the industry competitions unprecedentedly intense. How to do something unconventional and stand out from many insurance companies? It depends on the solvency and run cost space of insurance. The most effective way for companies to maximize profits is to reduce the loss ratio, improve the quality of business, and eliminate some of the man-made risks in the market[1]. Therefore, when the motor vehicle insurance is underwriting, the insurance object should be effectively identified to prevent the situation of insurance after risk. The content of this article is to analyze how to use today's mobile internet technology combines with relational business processes to achieve the purpose of improving efficiency and avoiding risks.

II. DEMAND ANALYSIS

When the motor vehicle owner insures car insurance, the insurer (insurance company) needs to understand the vehicle status before sign a contract of insurance with the

insured (vehicle owner) in order to avoid the situation of loss after the insurance, this process is called underwriting and vehicle examination. The traditional process is that the examiner carry camera to take pictures of the target vehicle and then bring the photos back to the underwriter for approval. The whole process is limited by many factors such as time and space, and the time of photo shooting is not well controlled and more likely to be modified in some external sales channels. The existence of moral hazard will reduce the quality of the insurance business and inflate the loss ratio, that makes the insurance company's claim handling expense reserve releasing excessively and reduce its solvency. At present, the sales model of China's property insurance industry is highly channelized and most motor vehicle insurance products are sold to customers through external agency channels, it causes difficulties in control of risks when the vehicles are underwriting[2]. The external partners are concerned about the most direct agent fees rather than profit and loss of insurance business, then only through validating the car to avoid the risks of cheating for insurance and compensation. The vehicle examination process is very similar. The vehicle examiner carry special cameras take pictures of underwriting vehicles and then bring the photos back to the underwriter for approval before the insurance contract is signed, then the vehicle examination process is finished. The entire process has the following problems: First, the long process affects the time-effectiveness of a single order and reduces the customer experience. Second, links are so many that increases the chances of the vehicle examination image was tampered. Furthermore, with the expansion of sales outlets, the cost of special camera for the vehicle examination increasing; finally, the vehicle examination work is so cumbersome that causes a waste of human resources. It is very costly to rely solely on manpower to make the vehicle examination work really efficient. If we use computer technology combines with today's mobile internet to create a set of specialized mobile applications, it has great significance for insurance companies to control operating costs and reduce underwriting risks. Nowadays, mobile devices have cameras functions and can connect to the network anytime and anywhere. That can effectively breaks the limitations of time and space, reduces the vehicle examination process, improves the

efficiency of the vehicle examination, and saves the cost of cameras. Not only that, we can effectively avoid moral hazard if we control photo session and upload time.

III. TECHNICAL IMPLEMENTATION OF THE SYSTEM

The system to be developed is divided into photography and upload of the front desk and background inspection and management. The front desk is installed on the mobile phone by salespersons or customers to self-help take pictures of vehicles insuring and instant upload vehicle examination image, it can asks the program not upload past image files to ensure that the vehicle image reflects the condition of the vehicle truly and effectively. Image will be archived and preserved through mobile internet to serve of vehicle examination image test and management. The background will provide a window of vehicle image of long-term preservation for the underwriter testing in order to make prepare for examine of claims service in the future[3].

Photography and upload of the front desk is divided into two parts, one is for the IOS system of Apple's mobile terminal, and the other is for the Android operating system. The application of the IOS system needs register and file to the Apple's application market and pay service fees on time. It can be searched in the Apple's application market and can also be downloaded through QR code is produced by download link from the insurance company's official website or We Chat platform. The application of the Android operating system uses the current popular Java language. Application system installation package can be searched from the specified url directly and can also be downloaded through QR code is produced by download link from the insurance company's official website or We Chat platform. The background system will adopt the B/S structure to provide more flexibility for the underwriter to examine the vehicle examination images. The details are as follows: Web application adopts ASP.net 4.5 platform, background development language is C#, client page adopts html5 + css3 standard, and development of auxiliary functions uses JavaScript, JQuery, Ajax, etc. The WWW server use Microsoft's IIS8.5 and the operating system uses Windows Server 2012 R2. For hardware selection, you can divide the virtual host and can also select the physical server; it focuses on network throughput and storage space for Receiving and storing image files. The database uses Sql Server 2008 or later and qualified companies can use Oracle.

The mobile terminal is built for the user of the vehicle examination. It is characterized by small size, easy to download and install, good compatibility, friendly interface, easy operation, and it is very convenient to upload the vehicle image to the background through the network. After downloading the mobile application, we use the mobile registration method to confirm the identity of the user. In order to confirm the authenticity of the user information, we use to send a verification code to the mobile phone. We use the short message

interface here, there are many operators of the short message interface now and the price of the group access will be very cheap that usually costs 5-7 cents one piece. After the SMS verification is successful, the mobile phone number will be used as the login user name. The operator needs to set the login password and finally login the system. After logging in, the app will remain logged in. Future password recovery will also require SMS verification. Of course, you can provide the original password if you only need to change the password.

The module of taking pictures first needs to input the vehicle information, only required to input the license plate numbers (new car needs to input Frame after six numbers) and policyholders for operation is sample, jumping to the window of taking pictures after confirming the information. There are five necessary photos, which are clear photos of the front left, right front, left rear, and right rear of the vehicle, and a photo of the frame number. Driving license, ID card, the photo of person and vehicle can be placed in other unnecessary image projects. After photos are taken and appeared on the screen in its place, we can click on the corresponding area to take a photo again if we are not satisfied with photos. We must click upload in 5 minutes after photos are taken, the upload time will be taken from the server and stamped on photos.

After entering the browsing and checking module, in order to retrieve the image to be queried accurately, first enter the screening interface, we can narrow down the view by selecting upload period, license plate number, policyholders or other information, all images uploaded by the user will be retrieved if no restrictions are imposed. Click on the query, the system will list the retrieved catalog information, license plate number, policy holder and upload time, click the corresponding item can enter the uploaded image view to browse and check.

The management end is a computer-side application developed specifically for system administrators and underwriter. The system administrator can increase users according to their needs. Underwriters only have permission to examine photos and cannot modify or delete images. Image archivist can archive images. The underwriter can login system after obtaining an account from the administrator, the first login uses the default password while the system will force to change the password before entering the system, and the password must meet the strong password rules. The system provides a password change function, but the forgotten password can only be reset by the system administrator. The system provides login switching user functions. After the underwriter login system, they can quickly and accurately retrieve the image information of the vehicle to be insured through the search interface and make a reasonable assessment of the insurance contract. Browsing photo interface has function of previewing and magnifying picture so that the underwriter can watch the vehicle image details and make reasonable judgments. Archivist can archive historical image files to reduce the storage space of the production system[4].

IV. CONCLUSION

The application of vehicle examination mobile APP can greatly reduce the underwriting risk of insurance companies, shorten vehicle examination link, save the cost of vehicle examination equipment, save human resources. As a result, companies can reduce operating costs while avoiding risks.

The mobile internet is extension of the computer internet once again; the mobile terminal's good portability and wide coverage make mobile applications gain huge advantages. We will get good results if we develop a targeted application program through clever ideas and business scenarios.

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