

MODEL OF THE PROCESSING AND SELLING INSURANCE OVER THE INTERNET

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Case study

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Abstract: The growing demands in providing better services to customers, as well as reducing the cost of the insurance companies; while processing insurance quotes require the use of modern technologies such as the methodology of comparing prices and buying policies through the internet. There is a demand for providing a better customer's quality of shopping, saving customers time and money and integrate all parameters in insurance companies that are important in calculating and creating insurance price.

The current way of exchange - search as integration of data, such as an incident book, would be replaced by a modern automatic search of the database, and use processes that meet all insurance standards. The institutions such as insurance supervisor authorities, state tax office and other institutions will be able to access the data in real-time and receive relevant and accurate information about the insured, the vehicles and the policy.

The research and developing model is based on study of regulation laid down by the Agency for supervision of insurance in Bosnia-Herzegovina and the collection of business data from insurance companies. Although tariffs and prices of vehicle insurance are unique for all insurance companies, there are differences in how the businesses are carried in insurance companies. [1]

Based on these studies and research the new model is developed and proposed for further development and improvement, integration, processing and sale of insurance policies through the Internet.

Keywords: Insurance, insured, bonus, malus, accident, premiums, insurance quote, insurance premium, damage.

THE AIM OF THE RESEARCH

The aim of this research is to learn about methods of the sales of insurance policies, to identify the problems associated with the current methodology of buying and selling vehicles insurance policies and to give a proposal for the modernisation of contemporary models, the design and implementation of which will fully meet the insurance market in Bosnia-Herzegovina.

In terms of Integration with European Union law, the contribution of this paper is to provide better protection to the buyer when purchasing policy as well as a better quality of supply and choice of products including vehicle insurance.

REVIEW SUMMARY

In Bosnia and Herzegovina there is currently no insurance company with a developed integrated system for the sale of vehicle insurance policies over the Internet. Most insurance companies are based on systems that are made in house, within the organisation, with the aim of calculating the prices of insurance policy which could be printed out for a customer at the same time. These systems are not fully integrated and often require duplicated work that causes errors, and are time consuming. In addition, insurance companies consider these systems as a business secret and so there is no possibility of the exchange of information in terms of improving the processing and sale of vehicle insurance. [3],[4],[5]

The backlog in the development and implementation of these systems in Bosnia and Herzegovina are the result of the following factors [3],[4],[5]:

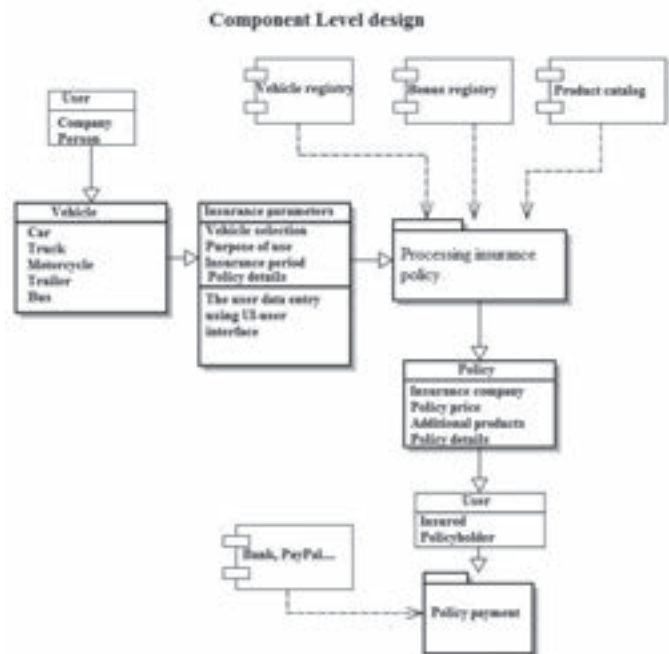
1. Partially caused due to lack of computer usage and computer education in Bosnia and Herzegovina.
2. The Support of the financial institutions with the possibility of payment through Internet transactions, use of credit cards, PayPal and other Internet payment methods.
3. Access to technical data of vehicles and other elements relevant to the operation of applications and information systems. The Agency for Identification Documents, Registers and Data Exchange of Bosnia-Herzegovina is a state institution that controls and updates the records of motor vehicles as well as providing access to registered vehicles. At the moment, access to the registry of motor vehicles is partial without the vehicle registration plate number. The partial registry is available only via downloading the data in Excel format. These data are updated once a month, causing a delay in the availability and accuracy in the process of buying insurance. Control and access to the registry is limited by many factors such security vehicle owners, protection from theft and so on. However, access to this data, such as in the European Union, should be available to all businesses and legal institutions to which these data are essential for the development and operation of their organisations.
4. Agencies for supervision of insurance companies do not have or have very limited regulation and written instructions that regulate the sale of insurance policies through the Internet. For these reasons, the formation of an insurance company that sells insurance for vehicles via the internet is difficult and faces a number of bureaucratic obstacles.
5. Access to the register of insurance bonuses and malus is limited and partial. When searching for a driver's current bonus the Insurers currently use the so-called Book of bonuses (Microsoft Excel spreadsheet). Based on the information of the damage caused to the vehicle and a third party, the bonus and malus could be determined. Register of bonuses and

malus is updated once a month. Every insurance company updates its own data related to damages and emails it to the agencies for supervision of insurance companies, where data is migrated and sent back to all the insurance companies. This causes delays in access to this critical data.

6. Tariffs and insurance premium vehicles are the responsibility of the agency for the supervision of insurance companies. At the moment they are fixed and identical for all insurance companies. Price liberalisation would allow better quality of insurance product supply in the market of vehicle insurance. It would allow competition and prestige in insurance companies in order to attract new customers and retain existing customers of vehicle insurance.

THE DEVELOPMENT OF A NEW MODEL OF SELLING INSURANCE

Bearing in mind all the things mentioned in the previous chapters, such as: the impossibility of selection and purchase of insurance policies via the



Figures 1. Models of insurance policies sale [1]

The new model of selling insurance over the Internet is designed with the satisfaction of all the principles of software engineering such as design, development, maintenance and testing of the new model.

Internet, the incomplete integration of information relevant to the calculation of policy prices, manual processing of policy prices, and the possibility of making mistakes, etc., a new model of selling insurance policies via the Internet has been developed.

The following Figure 1 shows the diagram and the concept of a new model of insurance policy sales, which is the process of comparison and choice of the product, which is vehicle insurance in this case. [1],[8],[9]

The new model of development is systematic and worked out in order to be operational and not exposed to the high costs of maintenance and use. The new model meets the economic principles of reliability and effectiveness in the use of computer equipment. [8],[9]

For the start, the model is developed for the following insurance types: passenger cars, trucks, trailers, motorcycles, tractors and buses. There is a possibility of further extension such as life, travel, property and other insurances.

This model is integrated with the register of vehicles, register of driver's bonuses and catalogue of products.

The new model is modular and consists of the following modules [1]:

1. User register
2. Insurance parameters
3. Processing insurance
4. Overview of insurance data
5. Insurance payment

Administration model consists of the following modules [1]:

1. Admin modules e-osiguranja.com
2. Admin modules police (MUP-a)
3. Admin modules insurance company

THE CATALOGUE OF ADDITIONAL PRODUCTS

In addition to selling motor insurances, insurance companies are able to sell additional products that are in some form related to motor insurance. These

additional products are optional when buying vehicle liability insurance (AO). [1]

The main reason for including these products is to provide better service to the customer and to provide insurance with better coverage. In order to attract customers to buy the policy, the insurance company gives a better deal with better conditions of insurance coverage. Therefore, insurance companies can be recognised on the insurance market in order to offer better prices and quality products, in this case the insurance of motor vehicles. Additional products vary by type of vehicle.

The catalogue of additional products currently includes seven products that may be included with the mandatory insurance offered as a package for motor insurance [1]:

1. Voluntary excess

This is the total amount the driver needs to pay towards the cost of the claim. Compulsory excess which is set by the insurer, and a voluntary excess which is amount driver agree to pay towards a claim in addition to the compulsory excess. This excess is paid by the mandatory addition and volunteer allowance. The Voluntary access reduces the price of insurance.

2. Legal assistance

Provides legal expenses cover in the event that the driver needs to take legal action following a motor accident that is not their fault.

3. Courtesy car

Provides the driver with a courtesy car if the insurers approved repairer is used, subject to availability. This cover normally excludes fault claims where the vehicle is written off or a theft claim is made.

4. Windscreen cover

Coverage for repair of damaged or cracked windcreens, if it is possible to repair or replace the damaged windshield.

5. Personal accident covers

Coverage for the insured if they are injured in an accident and which is considered to be their fault.

This coverage is usually up to a maximum of (the sum of KM).

6. Breakdown cover

It includes roadside assistance, vehicle back on the road and start the vehicle at home if needed.

7. Bonus protection

The bonus is protected in the event of a driver's fault.

The parameters and data of add-on products from the catalogue are related to the insurance company. Updates of additional products are carried out by an insurance company that has an active contract with e-osiguranja.com.

The data that could be updated:

1. Availability of the product (Active)
2. Type of additional products
3. The price of additional products

Figure 2 shows the process of user registration and of users set up on the insurance portal. Registration of a new user on the portal is the standard procedure used by most web applications. The user must have a valid email address and access to the email inbox. The checking of the validity of email addresses is accomplished after the registration on the portal. The user must accept the privacy and terms and conditions of use the portal in order to complete the registration. In the event that the email address has been used in the past, user registration is disabled. The user cannot make the registration using the same email address. After accepting the terms and conditions of use of the portal, an email is sent to user with instructions on how to activate account and complete the registration. After the successful registration of a user account, the user is able to log on to the web portal. [1],[8],[9]

When user log-on on e-osiguranja.com web portal the user is able to [7]:

1. Change password
2. Change user data
3. Change user profile (first name and last name)
4. Change the address (Street and number, city, postal code, phone)
5. Check-out from the portal

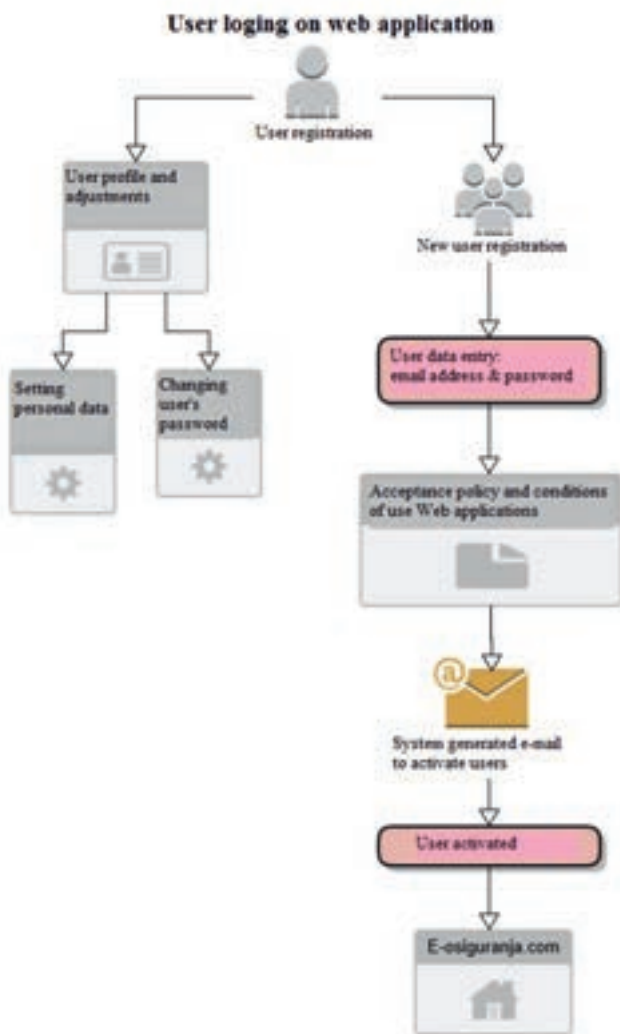


Figure 2. The process of logging in, registration and user setup [1]

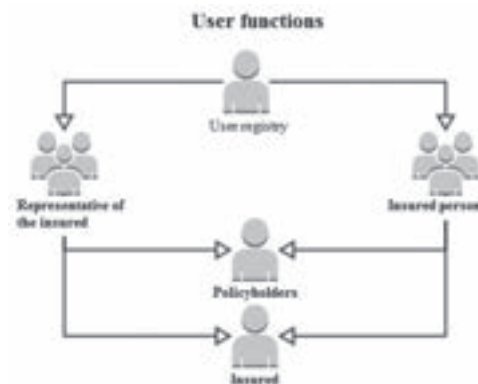


Figure 3. The user functions in the application [1]

ADMINISTRATIVE MODULES

The basic and most important administrative module is a module of the application eosiguranja.

com (Portal). This module regulates and sets other modules. User login to the admin module is done by the same principle as logging by insurance. [1]

Administrative modules are divided into three groups:

1. E-osiguranja.com module
2. The police (MUP) module
3. The insurance company module

The basic functions of the modules are [8],[9]:

1. Module E-osiguranja.com portal
 - Creating and setting up users of other modules
 - Installation and adjustment of parameters of insurance companies
 - Regulate (activate) the contracts with insurance companies
 - Sets the vehicle registers and a catalogue of bonus and malus
 - Managing and regulates accounting and profit distribution
 - Create and produce various reports
2. The police (MUP) Administration module
 - Search for the vehicle by policy number
 - Search for the vehicles by license-plate number
 - A search for the driver by driver name, surname or personal identification number (JMB)

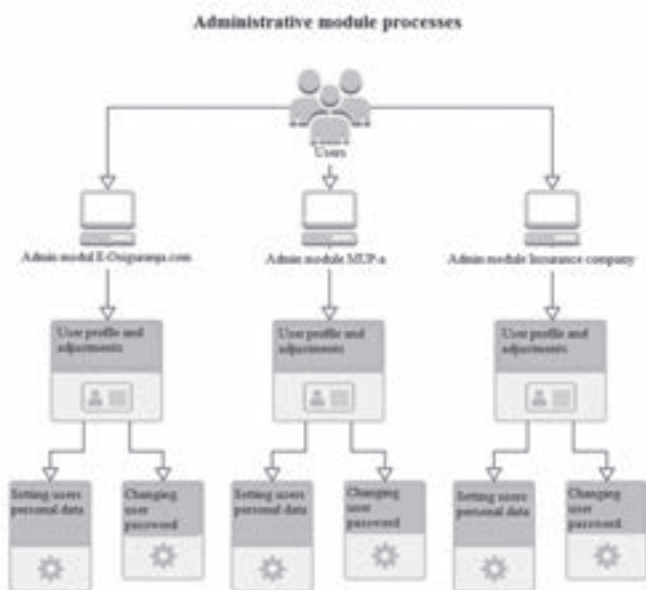
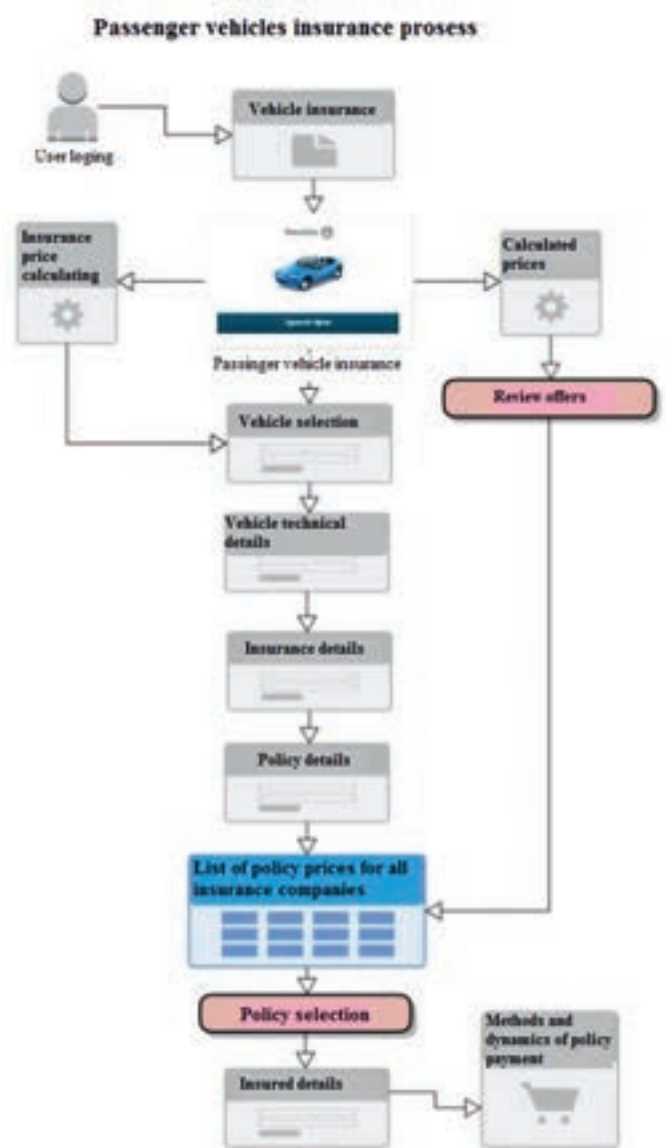


Figure 4. The process of data flow in administrative module [1]

3. The insurance company module
 - Set up the parameters and data related to own organization (policy prices, the prices of additional products and other information for the policy sale)
 - Set up the contract parameters
 - Create reports related to the own organization

Possibility of functions extension and adding new modules is unlimited. Each module has the same principles of setting up user data as well as logging on to the web portal.

When logged on the insurance web portal the user can choose the type of insurance that is inter-



Figures 5. The process of passenger vehicles insurance [1]

ested in. In this paper is shown only creating and buying vehicles insurance.

Vehicle insurance is divided into the following categories [3],[4],[5]:

1. The passenger’s car
2. Cargo truck
3. Motorbike
4. Trailer
5. Buses

The web portal users can calculate the new price of the vehicle insurance and views already calculated prices for each vehicles category within the period until the quote expire.

In calculating the new vehicle insurance prices, web portal guides the user through the selection and enter the necessary vehicle technical details (parameters). The application is designed to enable easy data entry and guiding the user with a logical flow of entering information. The information related to the selection and the technical data of the vehicle are [3],[4],[5]:

1. Vehicle type
2. Vehicle technical details
3. Insurance period
4. Policy details

After entering the data into required fields, the application checks the data format in the field and the accuracy of entered data. In the case of error the application prompts the user and returns to the field where the error was made. Each field is hooked up with the information button that gives concise information about the entered the field.

After entering the necessary vehicle technical data, the application performs the calculation of the policy price and generated quote overview including the additional products prices for each insurance company that has a valid contract with e-osiguranja.com.

The user is able to look at all of the entered data and the calculated policies prices for each insurance company. The application generates and sends an email to the customer with all calculated prices.

After selecting the policy to buy, the user must enter the data of the insured person. The user could be insured representative or insured person.

The last process is buying the policy and payment. Depending on the insurance company and their settings, the buyer will have the option of choice the dynamics of policy payment. After selecting payment dynamics (yearly, half-yearly, quarterly or monthly)

Insurance company	Price	Voluntary excess	Legal assistance	Coverage	Windscreen cover	Personal accident covers	Residence cover	Break protection	
	720,28	X	✓	X	X	✓	✓	X	Details Available
	723,79	X	X	X	X	X	✓	X	Details Available
	737,75	X	X	X	✓	✓	✓	✓	Details Available
	740,71	X	✓	✓	✓	X	✓	X	Details Available
	744,33	✓	X	X	✓	✓	X	✓	Details Available

Figure 6. Email with a review of insurance policy quotes [1]

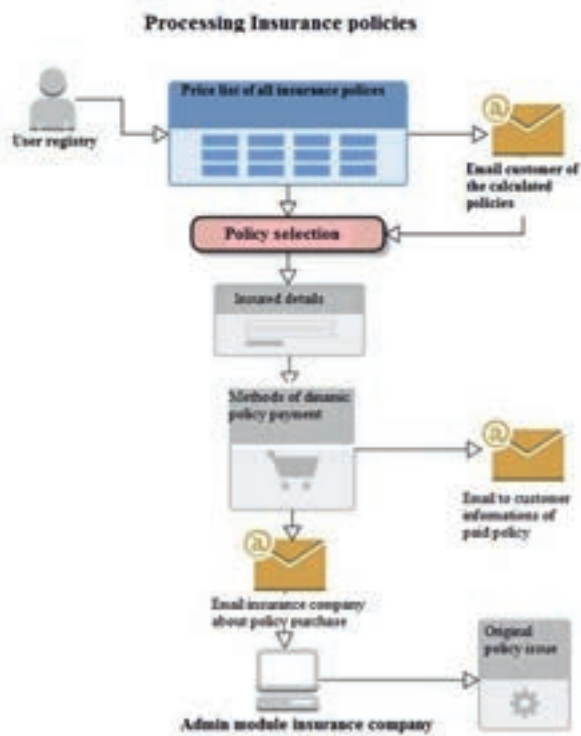


Figure 7. Process of generating insurance quotes [1]

nal policy was sent to the customer.

In application all quotes are saved for each user (customer) and insurance company separately. The users have possibility to access their policy prices and quotes in the past (the historical policies data) and even buy a policy if the quote is still valid. The user can update the same data, create a new quote and buy a policy based on past data in valid quotes. Every insurance company can set the valid quote period. After a while, the insurance quote expires and become invalid but user can still view the quote with details. The user can delete a quote from the historical data if is no longer interested in the quote. [8],[9]



Figure 8. Calculated insurance policy price [1]

user has is prompted to payment. Policy payment is web link to the Bank through protected connection. However the user must own a valid credit card to complete policy payment. [8]

REVIEW INSURANCE POLICIES QUOTES

When transaction payment is successfully completed, the buyer will receive an email with payment information as well as information about the purchased policy.

If the insurance company set the parameter for automatically getting email with information about the sold policy will receive the email that the customer has purchased policy with all relevant data, including the customer and policy details. In addition to this when the insurance company log into the insurance portal can see all sold policies with all the data, customer details and prices.

The insurance company will then make its original policy, and within seven days send to the customer by mail. The insurance company will then register in the web application admin module that the origi-

PROCESS OF PASSENGER VEHICLES INSURANCE



Figure 9. The model of passenger vehicles insurance [1]

THE CONCLUSION

The new model has been developed with the aim to modernize and eliminate all the failures of the old system and enabled the purchase insurance over the Internet, the incomplete integration of the essential data for the policy prices calculation. Mostly of current models selling insurances have manual processing of the insurance policy prices, and therefore there is high chance of possibility of making mistakes, data duplication and the lapse in interpretation of legal regulations in insurance industries, etc.

The new model using modern method of comparing prices and quotes and the insurance quote is created in one place and at one of essential data entry for all insurance companies. In developed countries this method selling on internet is widely used on the market for selling various products including insurance policies.

With this modern technology which is used in the development of this model led to the account of the buyer to gain as a better offer with high quality services when buying insurance policies. The insurance companies increased the quality of their services when selling insurance policies and at the same time drastically reduced their administrative processes and the costs within their organizations. This model for

the start includes the insurances for passenger cars, commercial vehicle, trucks, motorcycles and buses and left the possibility of further extensions on life, travel and property insurance and other insurance. In addition to the sale of the motor vehicle insurance policy insurance companies are able to sell additional products that are in some form attached to the motor vehicles insurance (product catalogue). Additional products catalogue currently contains seven products that can be included with the obligatory insurance (AO) as motor insurance package deals. The model allows for full integrations and share data between insurance companies and the agency for supervision of insurance companies. Integration with AZORS [3] and the NADOS [5] is accomplished by using web service as well as the ability to access insurance policy data by signing up to the application. Integration with IDDEEA [2] could be through a web service for the purposes of access to the vehicles register and vehicle technical data. Integration with damage registry allows you to specify the premium grade and could be established via a web link. [11]

The methodology of comparing and buying products online, such as insurance policies brings many advantages in the modern mode of sales.

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