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The Interpretation of Banking Marketing through the Semantic Web

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ABSTRACT: *An economic ontology describing how banking marketing working inside of the bank and how banking marketing can be interpreted through the Semantic Web. The first chapter analyzes introductory concepts of banking marketing and proves why it is a complex process (theoretical part). The second chapter explains the concept of the Protégé program & emphasizes how the structure & marketing strategy can be described through the program. The whole creation of the ontology & its practical applications is also described in detail, as all the conclusions deriving from the ontology are mentioned.*
KEYWORDS-*Banking Marketing, Protégé, Greek Banks, Semantic Web*

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I. INTRODUCTION

The concept of banking marketing [1-2,4-7,12-15]is an important process as well includes all the promotional actions of a bank's products. It is essentially the way of advertising & promoting the image of the bank but, more generally it includes other important sectors such as economics.

The representation of all semantics [3, 8-11, 16-17] comes into close contact with concept of ontology. The interactions that take place between inside the bank but also in relation to its customers is the heart of the ontology and is one of the little ontology [20,22]that deals exclusively with the banking sector. The conclusions that come from this ontology are varied and indicative, related to the function of one banking organization, the parties and how they assist in the banking process marketing and to what extent ontologies can be interpreted as complex procedures involving relationships with banking customers and associates organizations.

Ontologies [8, 22] in themselves are particularly useful because they are important piece of information between organizations. Accuracy in ontology is achieved through hierarchy and whether the structure of ontology is connective or not.

The most common ontology languages for the Web are:

- **RDF** is a model of data on objects and the relationships between them. Provides simple semantics for the specific data model and these models can be represented in XML syntax.
- **RDF Delf** is a vocabulary description language that can be used to describe the properties and classes of RDF resources.
- **OWL** is a richer language for describing properties and classes, and is the lexical extension of RDF. It Provides additional dictionary set includes class correlations (e.g. rat), number (e.g. exactly one), equality, more types of properties (and), properties of properties (e.g. conferences).

II. DESCRIPTION

The BankofGreece class has been created according to the PROTÉGÉ [9] program and consists of a total of five main classes. All five major classes have subclasses and several subcategories always according to its organization chart Bank of Greece. In each case all the properties that are displayed characterize whether they are data properties or object properties.

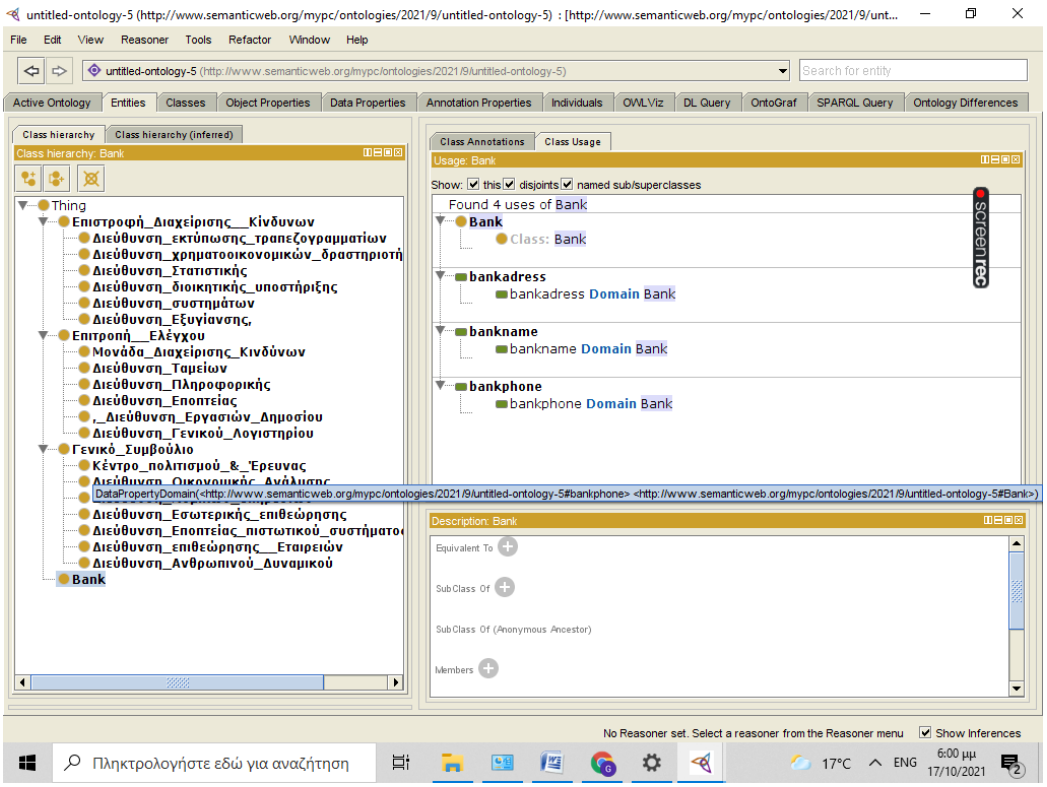

Figure1: Representation of the whole of Ontology

Risk Management [1-2, 4-7, 21, 23] Return Class includes all information about management and forecasting risks concerning the Bank of Greece as a whole, e.g. in the annual report to report a decline in partner organizations operating with the Bank of Greece. The main class has four object properties and four data properties.

A) Addresses of Collaborating Institutions: Refers to the number of cooperating institutions that are customers of the Bank of Greece and are called single string because each time they get a unique value. B) Names of Collaborating Institutions: Includes the names of all partner institutions of the Bank, again characterized as a single string.

C) Institutional Phones: includes all the telephones of the collaborators institutions and is characterized as multiple strings, as it can take multiple prices each time.

D) Vat no: refers to the Tax Registration Number (TIN) of partner institutions and is characterized as single.

The second category of properties includes the following:

1) Update: connects the Risk Management Return class with class Audit Committee for matters relating to the audit e.g. contingencies unreliable future collaborating institutions. It is characterized as multiple because the issues may concern more than one partner institutions.

2) Interest in: connects the Risk Management Return class with class Audit Committee on issues related to finding future candidate institutions.

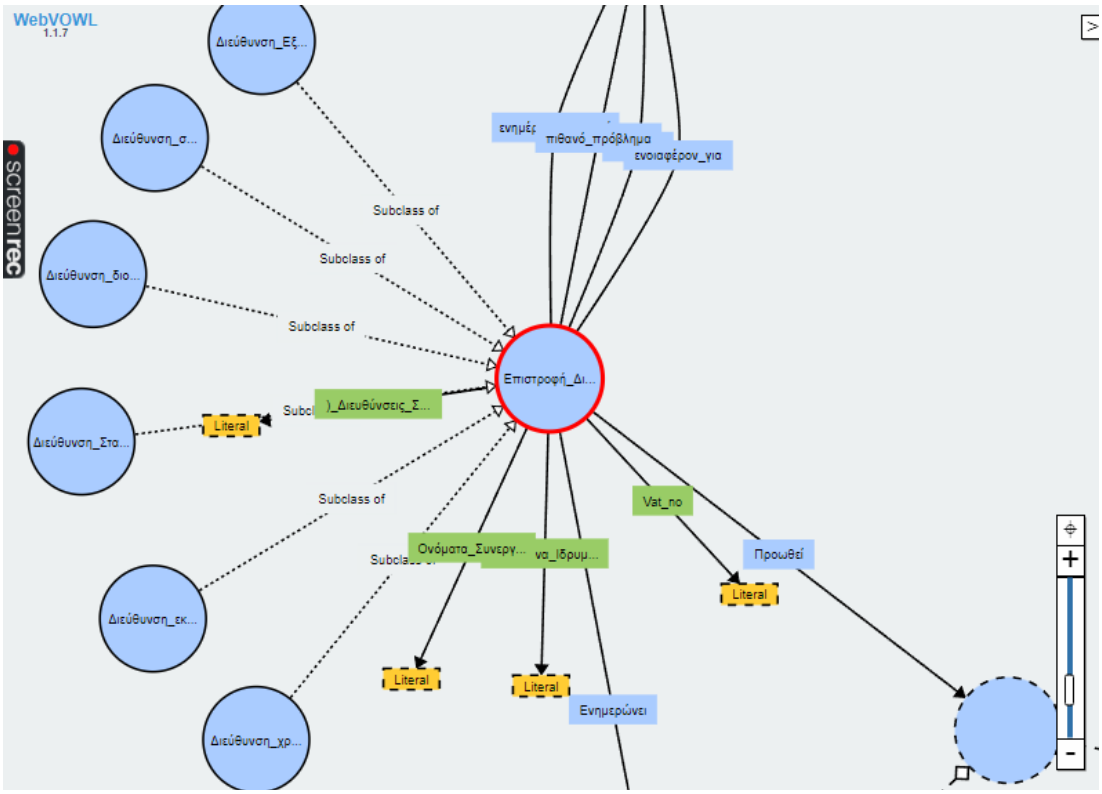

Figure2: Representation of Risk Management Return Class with VOWL

Customer's category refers to customers as natural persons and is independent in relation to the cooperating institutions. Also in this class all customer information is analyzed what relationship have with the bank e.g. how many bank accounts they have or how many lockers are available.

This class has three data properties & two object properties. In The following belong to the first category of properties:

1) Customer Name: refers to the number of customers registered in bank and related to it. It is characterized as a single string because every time gets a unique value, which contains alphanumeric data.

2) Customer Phone: refers to the phone number of customers they have registered in the bank.

3) Type of relationship: describes the type of relationship that the customer has with the bank which means, if the customer is, for example, an investor, what he holds in the bank or even if he is shareholder. It is characterized as multiple strings because it can take one at a time different values, which contain alphanumeric data.

The following belong to the second category of properties:

1) Updates: connects the Risk Management Return class with the class customers. . It is characterized as multiple string because it can take one at a time different prices, as different addresses can inform many different clients on different finances products.

2) Promotes: connects the Risk Management Return class to the class Products. It is characterized as multiple string because it can take one at a time different values, ie an address can promote many and different financial products to many different customers.

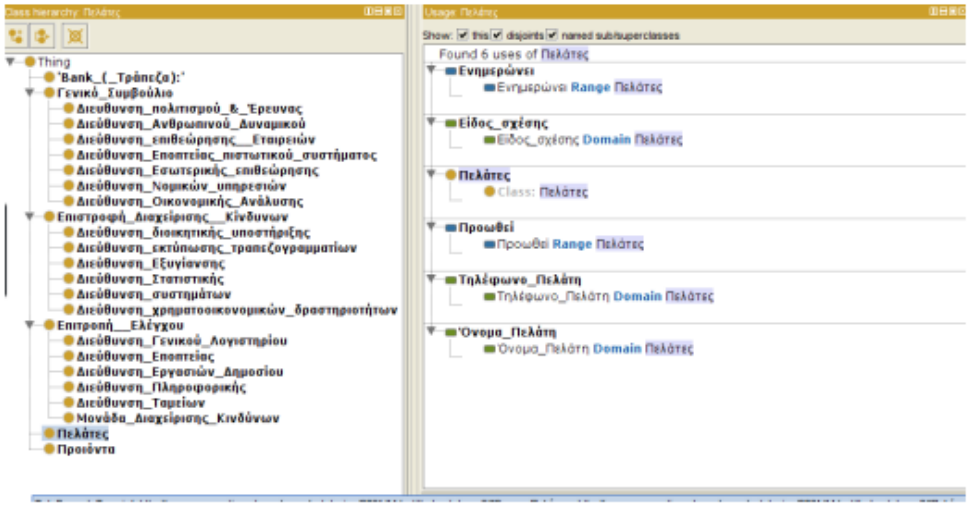

Figure3: Representation of Customers Class

Product class analyzes information related to products offered from the bank to its customers. There are a total of ten data properties.

A) Refers to: analyzes whether a financial product is intended for a specific customer. It is characterized as multiple strings because it can get different prices each time, that is, many and different

financial products can refer to many different customers.

B) Expenses: refers to the expenses that customers may have to incur and which are required for certain financial products. It is characterized as a single string because each time it gets a unique value, which contains alphanumeric data

C) Interest rate: indicates the interest rate that some financial products have. It is characterized as a single integer because each time it gets a unique value, which is an integer.

D) Maximum Amount: refers to the maximum amount that one individual customer can borrow from the bank. It is characterized as a single integer because each time gets a unique value, which is an integer.

E) Maximum Time: indicates the maximum period of time that one client must repay the amount borrowed. It is characterized as single integer because each time it gets a unique value, which is an integer number.

F) Lower Amount: refers to the lowest amount one can borrow individual customer from the bank. It is characterized as a single integer because each time gets a unique value, which is an integer.

G) Minimum Time: indicates the minimum time period that one client must repay the amount borrowed. It is characterized as single integer because each time it gets a unique value, which is an integer number.

H) Necessary Documents: Refers to the necessary supporting documents to provide customers depending on the financial products they have interested each time. It is characterized as multiple string because it can take different values each time.

I) Product Description: Specifies the general description of each product that the bank offers to customers. It is characterized as single string because each time it gets a unique value, which contains alphanumeric data.

G) Product Title: refers to the title of each financial product which is offered by the bank. It is characterized as a single string because each time gets a unique value, which contains alphanumeric data.

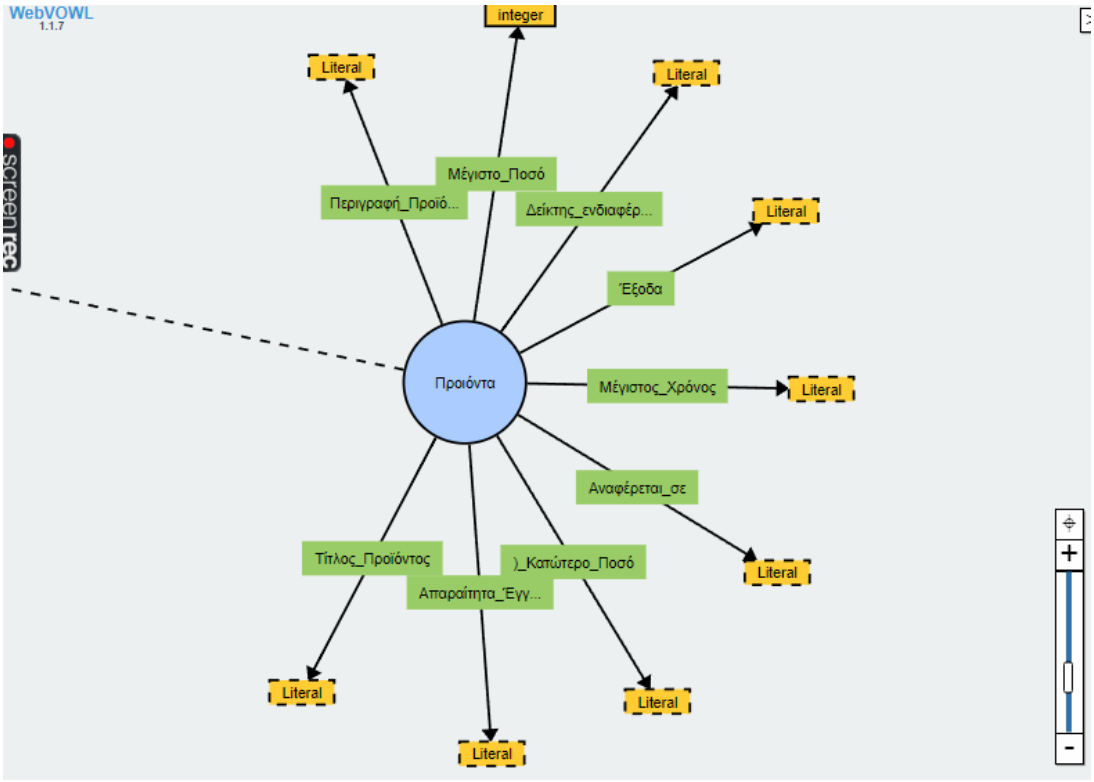

Figure 4: Representation of Products Class

III. CONCLUSION

The evolution of technology and the fast rhythm of life have a huge impact. That's why there are different knowledge management systems where huge volumes of data are stored and then analyzed.

Ontologies are an important ally in solving this problem. Ontologies can be used for interpretation different problems and can help to interpret different ones terms. The main tool used by many scientists involved with the semantic web is the PROTÉGÉ program.

Under the pretext of this ontology as a future field of research will one could study whether ontologies accurately interpret flow exchange of money and financial products between customers of the bank and the bank itself. This way understanding is achieved faster complex banking terms as the various operators and addresses can simplify various processes with the help of ontologies. The result has a double benefit for both the customer and the bank. The customer has a better understanding of how the bank works and where he can invest safely, for example, his money. The bank has better access through of ontology in customer data and can promote larger ones quantities of financial products.

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