

E-Finance Services in Russia



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INTRODUCTION

This work presents the emerging e-finance services in Russia. Russian e-finance market is characterized by progressively efficient e-finance services implemented by Russia's and global e-business, banking and financial companies, network operators, service providers and enablers. Innovative financial services are being introduced for both consumers and businesses, which are analyzed here with the help of the e-finance taxonomy framework.

BACKGROUND

Digital technologies, including the Internet and other related technologies, and extensive explosion of data, commonly referred to as big data, are changing the way the companies do business (Peitz & Waldfogel, 2012). Digital or electronic business (e-business) usually refers to a business conducted over the Internet, but in general, any network, public or private, can be included. Thus, Internet and related technologies are more than just new delivery channels: they are a completely different way of providing financial services. Electronic finance (e-finance) is a part of e-business and provides financial services through electronic channels (Allen, McAndrews & Strahan, 2001; Shahrokhi, 2008; King, 2010; Yablonsky, 2014a,b). There are several branches that come from e-finance. They cover the sectors of e-banking, e-brokerage, e-payment and some other activities. Both financial organizations and customers (individuals, companies or government) benefit from the use of electronic channels and e-banking services (Claessens S., Glaessner T. & Klingebiel D., 2002). These services offer consumers a great deal of convenience, saving time when managing financial matters, and also lower costs, reducing service charges.

E-finance is identified as an area with an inherent need for reusing and exchanging information. The financial services industry is one of the most data-rich environments on the Web today; however access to this data is often inhibited by the lack of adoption of standards by the industry. The current standards activities that are likely to be of interest for the financial services industry include (A Discussion of the Role of Standards in the Financial Services Industry, 2011):

- Accredited Standards Committee X9 (ASC X9), who is accredited by American National Standards Institute (ANSI), and also acts as the secretariat for International Organization for Standardization Technical Committee 68 (ISO TC 68), who is working on standards in the areas of payments, securities and related security technologies;
- North American Security Standards Productions Organization (NASPO), also accredited by ANSI, about work they are doing in the areas of identity proofing and verification and fraud countermeasures;

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- Payment Card Information (PCI) Security Standards Council about their work on setting security standards to secure card-related data;
- The Santa Fe Group about the Shared Assessments Program which provides standards and tools for assessing IT outsource vendors; and
- World Wide Web Consortium (W3C) about their standards activities in Web technologies, with emphasis on the emerging semantic web. There are several technologies being used by the e-finance providers in delivering their e-finance services: Electronic Data Interchange (EDI), Electronic Funds Transfer (EFT)
- Electronic Benefits Transfers (EBT), Electronic Trade Confirmations (ETC).

A clear and precise description and structuring of the information in the e-finance domain are prerequisites for a common understanding of the information exchanged among different partners of e-finance. It also fosters semantic interoperability in the context of global data exchange among public administrations, facilitates electronic interoperability among e-finance businesses (ebXML, XBRL, FpML) and improves statistics on e-finance. Ontologies, taxonomies and other types of controlled vocabularies are the preferred means to achieve such a common understanding by specifying the terms of the domain, disambiguating them from each other, controlling synonyms, and structuring the domain via term relationships. Taxonomy is comprised of a hierarchy of concepts linked by a transitive subsumption relation (often called *isA* or *subClassOf*) whereby each instance of a class can be inferred to be an instance of all parent classes. Taxonomies are strict hierarchies: each class has at most one parent. A lightweight ontology typically consists of a hierarchy of concepts and a set of relations holding between those concepts (Poli, Healy & Kameas, 2010). If we specify only a hierarchy of concepts related using a subsumption relation, then we have taxonomy. Heavyweight ontologies add classes (concepts), instances (objects) of classes or concepts, attributes (aspects, properties, features, characteristics, or parameters that objects and classes can have), relations and more (Poli, Healy & Kameas, 2010). Ontologies and taxonomies, by modelling concepts and their relationships, make possible descriptions of domains in a machine processable way.

In the domain of finance several ontologies exist. Financial Industry Business Ontology (FIBO) OMG/EDM reflect some degree of community consensus and contain, readily available, a wealth of concept definitions plus a hierarchy. Suggested Upper Merged Ontology (SUMO, <http://www.ontologyportal.org/>) includes a subset related to finance domain, which is richly axiomatized, not just taxonomic information but with terms formally defined. Finance ontology (Vanderlinden, 2011) follows ISO standards and covers several aspects (classification of financial instruments, currencies, markets, parties involved in financial transactions, countries etc.). In this paper

The qualitative research presented in this paper aims to collect and analyze quality data regarding the current status and prospective evolution of e-finance services offered by Russia's leading e-business and banking companies that are running businesses in the e-business sector. A few points should be noted concerning methodology. They include the method in which knowledge was extracted from a particular domain, the classification and organization of domain concepts, validation issues and development tools. An appropriate knowledge source consists of documents that constitute the entire knowledge domain including Global and Russian market (for example, text books: Haan, Oosterloo, & Schoenmaker, 2009; Joshi, 2010; King, 2010; Rezaee, 2011; Gup, 2011, etc. published from 2001 up to 2015; foundational RDF/OWL ontologies and taxonomies, for example, OpenCyc, SUMO, Linking Open Data (LOD), UNSPSC, eCI@ssOWL, WordNet), a set of documents that form a representative sample of the domain

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