

**ORACLE IMPLEMENTATION IN VÕRU
VOCATIONAL TRAINING SCHOOL
- Training course development -**

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1. Background information

Survey made at the beginning of 2006 about Võrumaa youngsters' plans for future gave positive feedback and indicated that young people are willing and want to live in Võru county. The main problem is the lack of motivating work positions and occupations in the area. Survey affirmed the fact that in the central position of all opportunities what helps to create new and remunerative occupations, is the county educational network. Therefore the extensive goal of "Võrumaa education development plan for 2006-2010" is to support vocational education, entrepreneurs environment development and increase work engagement.

More precisely, vocational education development in Estonia is still at its beginning. There is a lack of skilled specialists on many fields. Information technology, engineering and manufacturing are only few examples. Hereby it is appropriate to mention also Europe where trained people with technical knowledge and skills are always welcome.

Based on the survey, considering Võrumaa education development plan and other aspects, like for instance the tendency of distant working, arose idea to raise competitiveness of vocational education in IT sector in Võru County.

Overall back-round information for decision to invest to Oracle systems in Võru County is based on the fact that the technological innovation is necessary to stay in competition with more developed areas.

1.1. Objective

The whole goal is to raise the competitiveness of vocational education in IT in Võru Vocational Education Centre (Võrumaa Kutsehariduskeskus). The best option is to choose one needed IT subject and implement it to the curriculum. When the base is created for a certain development direction, the further co-operation and students opportunities for continuing studies or starting successful career are possible to achieve.

1.2. Baltic Rural Broadband Project Input and Output

The participation of Võru County in the project Work Package 3, Applications and Services, established a great support for the innovation of IT studies. Furthermore a technical platform was created. Oracle based applications and services will be produced in the same rural area by young students study process in co-operation with experts from elsewhere.

Work Package 3 included also E-Learning module development with an aim to make a difference in communication in quality and quantity. This was a great opportunity for Võrumaa Kutsehariduskeskus for a real innovation in study process through video-conferencing in order to gather necessary information from Oracle professionals all over the world. Not less important was the presentation of the process and results of the project through video-conferencing to the other project

partners. From another point of view, also E-Learning has a great potential to implement in study process and experience sharing.

In conclusion, the Baltic Rural Broadband Project gave the vision with capability to carry out such ideas. Being part of a rural areas network gives more advantages to the further interesting co-operation and experience exchange.

1.3. Why Oracle to Achieve the Objective?

- Oracle systems have a huge variability of services and application development tools available.
- Oracle systems are acknowledged and widely exploited in the IT world.
- There is an existing base for technical advancement. Project partners' Võrumaa Kutsehoiduskeskus curriculum for IT students include needed technical IT knowledge base and a basic preparation for the further Oracle course development. For instance students have a database projection course and learn MySQL (although it is different from PL/SQL what uses Oracle).
- There's a need for innovation in IT studies in Võrumaa vocational education with a practical need for an Oracle course.
- Rising need for the competitive specialists in Oracle.
- Further need for base in IT communication and co-operation on international level.

Besides, many of the biggest Estonian companies use Oracle as :

- IF (Estonian leading insurance company) <http://www.if.ee/eng>
- Estonian Energy <http://www.energia.ee>
- EMT (Telecommunications related services, solutions and environments) <http://www.emt.ee>
Elion (Estonian largest telecommunications and IT provider) <http://www.elion.ee>

2. Implementing Oracle in teaching program

2.1. Logical Framework

INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS	SOURCES OF VERIFICATION	ASSUMPTIONS
<p>OVERALL OBJECTIVE</p> <p>E-learning development and sustainable creation of new application and services.</p>	<p>Established co-operation with project partners in order to test video-conferencing for continuous networking and presentations of applications development.</p>	<p>Project partners meetings, also online and held video-conferences are documented briefly.</p>	<p>Networking and experience exchange between project partners.</p>
<p>PROJECT GOAL</p> <p>IT studies innovation in the county including E-learning and creation of new applications and services.</p>	<p>Project activities detailed planning and implementing first phase.</p>	<p>Technical specifications and demos for applications and services. E-learning study-cases.</p>	<p>Project partners base of experiences for E-learning development.</p>
<p>RESULTS</p> <p>Implementation of new curriculum for Võrumaa Kutsehariduskeskused.</p>	<p>Project Work Processes implementation second phase.</p>	<p>Gathered information and contacts. Oracle curriculum.</p>	<p>Applicable (included visitor and online) teachers and technical platform is provided and prepared during the project.</p>
<p>ACTIVITIES</p> <p>Description in following paragraph: Work Processes</p>	<p>MEANS</p> <ul style="list-style-type: none"> - 6 processing units - Consulting and minimum 3 training sessions for people participating in work processes 	<p>COSTS</p> <ul style="list-style-type: none"> - - TOTAL 	<p>Project budget.</p>

2.2. Work process

FIRST PHASE

- Project preparation period:
Collecting and analysing background data and choosing target and tool.
- Hardware preparation period: Buying hardware and software licenses,
Oracle server training, server installation and configuration.
- Software preparation period: Software installations,
sample demo application creation and documentation for course support,
basic software training.

SECOND PHASE

- Course preparation period:
Collecting information (technical details, requirements and teachers etc) in
order to start the course,
Composing and co-ordinating course curriculum and test lectures.
- Course improvement period:
Creating contacts (for teachers and trainees) with Estonian companies
where Oracle is in use. Finding visitor-teachers, online and video -
conference courses.
- Applications creation and implementation period:
Creating and implementing practical solutions. (First for Võrumaa
Kutsehariduskeskus IT network administration for technical facilities,
licenses and network maintaining and services for Võru County
Government.)

2.3. Methods

Course preparation materials and requirements for teacher should include:

Oracle server hardware and software installation and configuration experience.
Any Oracle Certificate from university or course, preferably Oracle server course
Certificate or equivalent.

Oracle APEX knowledge and experience.
Any Oracle Certificate from university or course, preferably Oracle HTML DB,
APEX or PL/SQL Course Certificate or equivalent.

2.4. Time Frame

Work - flows and timing is planned as following:

Project preparation period: January – December 2005

Hardware preparation period: March – June 2006

Server was bought - 29. March

Training: "Oracle Database 10g: Administration Workshop I" 24. - 28. April

Training: "Oracle Database 10g: Administration Workshop II" 5. - 9. June

Server installations and configurations in June

Software preparation period: September – December 2006

Installations on 12. – 30. September

Demo creation in November

Demo documentation and presentation in December

Course preparation period: January – May 2007

Course improvement period: May 2007

Applications creation and implementation period: January 2007

3. Some technical information about Oracle server

Complete instruction to develop a simple Oracle web-based application with rapid development tool APEX exists in Estonian only. The target group is in the first hand mostly the IT students of Võruma Kutsehariduskeskus.

Web-based application creation assumptions are basic knowledge of following topics:

- General web-services architecture;
- Relational databases;
- Linux OS;
- HTML;
- Oracle APEX;
- SQL ja PL/SQL (Oracle).

3.1. Oracle Server Installation and Configuration

First some operation system parameters should be assigned. Then follows the installation of necessary packets and start of Oracle Installer. Be ready for some differences in installation process if there appear some difficulties in case the installation version is for standard 32bit system and in practice you need to install to more powerful 64bit system.

Next must be started "Listener" what allows observing the net connections. Then follows creation and starting the database. Hereby space size allocated for data in current project is approximately 20GB.

3.2. Basic Commands

Main configuration is easiest to implement through web interface:
Oracle Enterprise Manager.

Main commands from SQL row are:

STARTUP – starts database and SHUTDOWN IMMEDIATE – stops database.

The more detailed list of necessary commands including database backup and new version installation commands, should be provided for the interested students.

3.3. Hard- and software components

Oracle Server Hardware components:

- OS: Linux Redhat Enterprise Edition AS (64 bit)
- RAM: 2 GB memory,
- HDD: 72 GB,
- CPU: Intel Xeon two processors 3,2 GHz (supports Intel EM64T (64 bit processor)),

Access to software:

- Oracle free of charge support for 1 year (valid until April 2006).
<http://metalink.oracle.com>
- Access to download software <http://edelivery.oracle.com>
- Oracle 10g server, Oracle Database Standard Edition One (restriction: maximum server with 2 processors can be used)
- Before project started there already was SQL 2005 server what could be needed additionally.

Additional Requirements:

- In order to obtain a teaching license , Võrumaa Kutsehariduskeskus has to be subscribed with an Oracle Academic Initiative.

4. Perspectives and Follow-up Activities

Accordingly to the idea of the WP3, creating web-services and applications and supporting e-learning perspectives in following areas are clearly outlined:

- Co-operation in national level with companies to develop Oracle course implementation in teaching program.
- Collaboration with Oracle Academy Institute could be very necessary and at the same time fruitful addition for course curricula.
- Advantages are new vacancies in local level for Oracle teachers.
- Further potential is raised in Võrumaa Kutsehariduskeskus to educate and train specialists in Oracle for national and international level.

List of web services and applications ideas what could be considered to build; idealistically these could be the tasks for Võrumaa Kutsehariduskeskus IT students for course or final diploma work project:

- Logistics questions resolving system
- Schools and other institutions pictures database
- Inventory (included tech) maintaining system
- 3D virtual analysing system for cards on cards server.

4.1. Web Sources Recommendations

Oracle Estonia training: <http://www.oracle.com/global/ee/education/index.html>

Oracle e-learning environment:

http://ilearning.oracle.com/ilearn/en/learner/jsp/user_home.jsp

Oracle e-learning trial environment, what could be partly a good sample how learning process could be organised:

http://ilearning.oracle.com/ilearn/en/learner/jsp/player.jsp?rco_id=126481443&classroom_id=126661037

Oracle Academy Video: <https://academy.oracle.com/index1.html>

4.2. Useful Contacts

Oracle Estonia

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4.3. Challenges

From the very beginning of the project main challenges are to pay interest how to decrease and hold the affordable level costs, related to maintaining hardware, software and teaching. Trained and experienced teachers and external experts demand proper salary and no extra commitments what is quite high expectation from Võrumaa Kutsehariduskeskus. Educating and training new Oracle teacher is with rather high costs also.

Collaboration with Oracle Academy Institute could be very necessary and at the same time fruitful addition for course curricula. Hopefully subscription expenses and other related costs won't become an obstacle.

Most important is to assure sustainability later when investment period ends. Therefore should be found long-term teachers and visitor-teachers, Oracle trainers and experts in advance with suitable prizes and agreements. Advantages of participation in the Baltic Rural Broadband Project network should be used as much as possible during the project.

5. Expected Results

Successful Oracle implementation in teaching program in Võrumaa Kutsehariduskeskus:

- Active Oracle course with professional Oracle lectors, also through videoconferences and Online channels and forums.
- Visitor lectors and experts from companies where Oracle products are in use.
- Real career opportunities in Estonian companies where Oracle is in use.
- Excellent preparation to work with Oracle for IT students in Võrumaa Kutsehariduskeskus.
- Sustainability in development and improvement of course program
- Access to additional Oracle courses made available to Võrumaa Kutsehariduskeskus IT students.
- Graduated students stay in connection with Võru County and have an opportunity to practice distant working and develop an international networking.
- Web-services and applications for citizens and companies.