

## **Q-PLM**

LdV/DOI

Project Nr° 538379-LLP-1-2013-AT-LEONARDO-LMP

### **Deliverable 16**

#### **Partner Report about software Analysis (and field analysis)\***

\*this report also includes most information/data of Del. 17: see explanation on the report

## Explanation to the report:

**IMPORTANT:** Deliverable 16 and deliverable 17 are based on each other, so we decided to summarize both main information and the overall questionnaire in one Deliverable. Therefore Del. 16 includes nearly all questions and data, also the one, that was foreseen for Deliverable 17. This explains, why Del. 16 includes a lot more information (and pages) than Del. 17.

## Organisation data

Name of organisation	bfi Steiermark
Type of the organisation (Vocational training center, university, Chamber, ...)	Vocational training institution
Size of the organisation (staff)	420 employees, 1.140 freelancers
City	Graz
Country	Austria

# Field analysis in PLM

## Report about software analysis

## Research on Quality Management

### 1. Does your organisation use a certified (EFQM, ISO, ...) or other quality management system? Does this system relate to your processes and/or products? Please describe.

In Austria there is a wide range of educational services with more than 5000 training providers at the Austrian VET market. This sector is heterogeneous with a lot of individual organizations and a certain lack of transparency due to the inequality of the different VET institutions.

The size of VET institutions also varies widely. There are freelancers, individual and small businesses, medium businesses and large enterprises.

Smaller VET providers in Austria don't have a systematic QA system. Larger vocational training institutes use international quality systems, e.g. ISO 9001:...as well as national ones (ÖCERT, TÜV,...).

**bfi Steiermark** is a non-profit association and has an annual training program with 2600 courses, 37 214 participants in 402 616 training units per year, 420 employees and 1,140 freelance trainers.

bfi Steiermark has operated a **certified quality management system** in compliance with the EN ISO 9001:2008 since 27 June 1996. The overall system features a continuous process of improvement which also ensures the highest levels of customer satisfaction in the delivery of bfi services.

Furthermore, bfi Steiermark has been incorporated in the register of Austrian high quality providers and received the **Ö-Cert-certificate**.

Measurement tools/categories for customer satisfaction at bfi Steiermark:

- Participants' evaluation
- Feedback sessions
- Client surveys
- Trainers' feedback

Latest data (year 2013) of customer satisfaction:

- 91 % rated the learning content as very good
- 95 % rated the trainers as very good
- 90 % rated the seminar rooms as very good

In addition bfi Steiermark has a lot of other standardized procedures and processes.

Nevertheless, the lifecycle of educational products is so far unnoticed: PLM is not known and used at all on the Austrian VET market, neither at the bfi Steiermark, nor amongst the Austrian VET providers in general.

### **Quality Management System:**

One of the aims of the quality management at bfi Steiermark is the definition of organizational standards for bfi Steiermark. It is very important to correspond to the quality demands of clients.

The quality management system (QMS) has been implemented in order to support the employees with relevant documents and detailed regulations. A summary of the regulations can be found in the Quality Management Manual (QMM).

The quality management system is divided into three levels:

- quality manual
- process descriptions
- operating procedures, checklists and guidelines

For employees bfi Steiermark's quality manual serves as a "red thread" through the entire quality management system.

The main purpose of the system is, besides securing the fulfillment of customer's requirements and expectations, to enhance employee satisfaction through transparent internal structures, procedures and processes.

The overall system is designed through quality-assured products to increase our client satisfaction, in order to give significant contribution to the continued existence as an competent institution.

### **Structure of our Quality Management Manual:**

The structure of the Quality Management Manual is chosen such that the requirements of EN ISO 9001:2008 can be fulfilled. The main sections are divided into sub- chapters with detailed information. The following elements have been identified:

- QM system
- Management responsibility
- Management of resources
- Product Realization
- Measurement, analysis and improvement

To summarize, the focus of the quality management system at bfi Steiermark is based on the costumers' satisfaction and on the enrollment rate and both indicators have clear effects on the product development and innovation of VET products.

### **2. If you evaluate your products, what are the most important Key Performance Indicators that are used?**

Market potential

Participant rate

Enrollment rate

Participant's satisfaction and feedbacks on:

- Organisation of the training programme
- Infrastructure and technical equipment
- Learning contents and learning outcomes
- Teaching and training materials
- Satisfaction with the trainers

- Training methods
- Pedagogical competences of trainers
- Successful completion of training
- Investment in participants motivation

Cost analysis

Turnover

Staff availability

Marketing

Quality checks after / during the training

Feedback due to the status quo of a product by the performing training centres ( 20 different centres) to our centralised product development department (quarterly meetings and exchange of experts)

### 3. Please indicate if your quality management system on product level makes use of:

*(combinations are possible)*

☐ **cause- and effect diagram**

*Identifies many possible causes for an effect or problem and sorts ideas into useful categories*

☒ **check sheet**

*A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes*

☒ **control chart**

*Graphs used to study how a process changes over time*

☒ **histogram**

*The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs*

☐ **pareto chart**

*Shows on a bar graph which factors are more significant*

☐ **scatter diagram**

*Graphs pairs of numerical data, one variable on each axis, to look for a relationship*

☐ **flow chart**

*A technique that separates data gathered from a variety of sources so that patterns can be seen*

☐ **other:**.....

☐ **other:**.....

### 4. What does the flow of your Quality Management System look like? What are the main steps in your quality management process when it comes to your products?

Product development for all markets is generally characterized by fast product innovation, by increasing individualization of products and services for customers, by short product life cycles, by permanent pressure to innovate and by strong competition.

What is a VET product?

A VET product is a bunch of content and time related activities that are required to achieve certain educational goals at a particular time in a particular training process for learners and with learners.

The development, innovation and introduction of new training programs and the adaptation of existing services are the key success factors for vocational educational training institutions.

The main challenges of our product development are the competitiveness and the resulting pressure to innovate. Product development is an active process which is always associated with extensive research work. Market observations, competitor analysis and internal and external feedbacks, feedbacks from training staff, sales staff and from corporate networks form the basis for new product ideas. In addition, new legal requirements also provide the initial impetus for new product developments. The close cooperation and exchange of information between different organisations/centres of bfi all over Austria is also very important for the product development process.

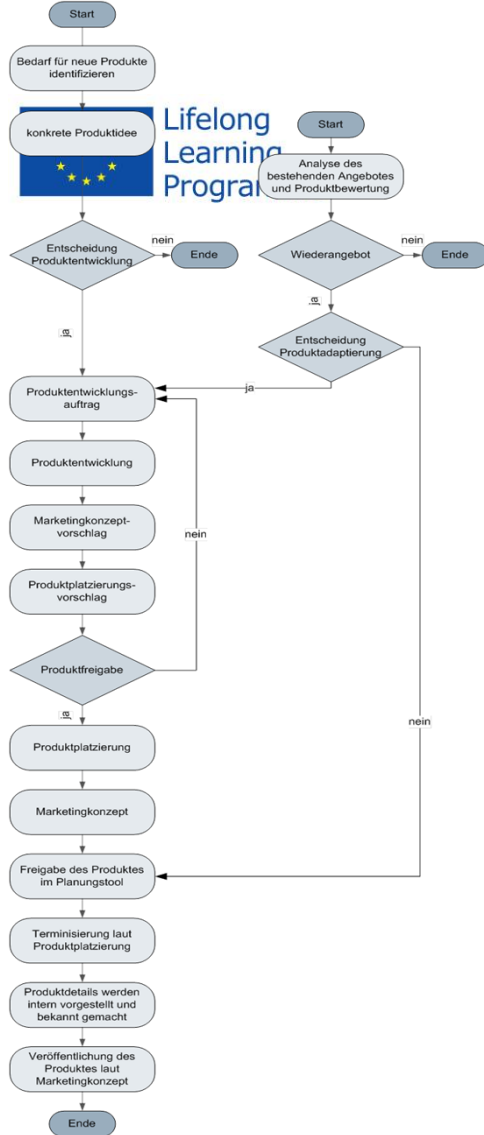
Product development process at bfi Steiermark:

At bfi Steiermark we have different teams of experts who are disposed in “competence teams” and who are responsible for the development and control of different fields of VET offer at bfi Steiermark.

During the planning phase and consideration whether to start the development of a new training programme or not, ideas are analyzed in detail by our thematic competence teams.

New products/seminars have to correspond to bfi’s strategy; product benefits need to be evident for bfi Steiermark and resources need to be available (teaching staff, administrative staff, infrastructure, equipment,...).

The product development process comprehends complex steps and has to consider the following components: training contents, objectives, target groups, the necessary conditions, duration of the seminar, legal requirements, funding opportunities, price. All these components lead to the final design concept.



**Product briefings** for the staff involved, ensure optimal implementation of quality of education and training for our colleagues. These product briefings are carried out on several levels: 1st of all, we offer regular product trainings for staff of seminar management, they are actively informed in their daily work.

Furthermore we use **SharePoint**, which is ideal for companies who want to provide an integrated platform for efficient collaboration of team members to search for corporate resources, experts and company data to manage content and workflow, as well as the use of business information for better decisions.

bfi Steiermark implemented this Content Management System to share the knowledge concerning all relevant product-specific contents and documents for future reference. The entire product information supports all colleagues in our training centres to sell and implement the training products. In addition to product based information and data, you can find relevant internal

information and documents about financial management, IT, QM, HR, administration, department notes, guidelines etc.

After product placement according to a previously created marketing plan, new products are published on the bfi website , in the educational program, in folders and flyers, in print media, on our facebook page and our mobile app.

## 5. In what phases do you pay attention to quality management:

(combinations are possible)

- ☒ Design phase of a product
- ☒ Development phase of a product
- ☒ Delivery phase of a product
- ☒ Evaluation phase of a product
- ☒ Other: permanent process!

**6. What (type of) software do you use for the management of your product portfolios in general? Try to describe:**

- We are using MS Dynamics NAV on MS SQL Server for the management of all data within the organisation (management of products, documentation, analysis and evaluation as well as for the controlling, CRM and marketing)
- We are using SharePoint as an internal information system providing information to employees (e.g. curricula, legal obligations, training material, checklists for the implementation, lists an material of trainers,...)
- Excel ist used for a lot of reports and feedbacks
- Moodle is used as a platform for the exchange of trainers and trainees

**7. Whether or not you make use of software, what would you expect from software supporting the management of you product portfolios and the quality management of your product?**

- If we use a software for the management of our product portfolios, it should be simple, clearly structured and able to deliver graphic charts automatically.
- It's very important that the software is suitable with our other programmes and data basis.
- We are using MS Dynamics NAV on MS SQL Server, if the PLM runs on MS SQL it's compatible, Size limitation of data is no issue, we are using NetApp Storage and so it's simple to gain more diskpace.
- If PLM runs on MS SQL, it's important to have a closely documentation on tables and rable-relations, fieldmapping, etc ... We are using the BI version of SQL, thus we are able to create nearly any report, that is necessary.



## 8. Field analysis in PLM:

**Please provide feedback about the use of PLM in your country. In which economical fields is it used (probably mainly in industrial environments)? Could you describe these companies? Do companies use the concept of PLM within the management of their product portfolios? What are the advantages? Why do companies use PLM software?**

Product lifecycle management can be considered cornerstones of company. All companies need to manage their product planning and development.

PLM describes the engineering aspect of a product, from managing descriptions and properties of a product through its development and useful life; it refers to the commercial management of life of a product in the business market with respect to costs and sales measures.



A generic lifecycle of products

[http://en.wikipedia.org/wiki/Product\\_lifecycle\\_management](http://en.wikipedia.org/wiki/Product_lifecycle_management), 14.03.2014

PLM is a comprehensive concept with the aim to control the products during their entire life cycle effectively and efficiently. PLM is a concept for the integration of all the information generated during the life cycle of a product.

PLM emerged from the product data management (PDM) and became a dominant tool in product development in the industry.

PLM is based on product information that arises in the context of product creation inside and outside a company. PLM is provided by processes, methods and tools; it provides product information in the right time, quality and at the right place.

In industry, product lifecycle management (PLM) is the process of managing the entire lifecycle of a product from inception, through engineering design and manufacture, to service and disposal of manufactured products. PLM integrates people, data, processes and business systems and provides a product information backbone for companies and their extended enterprise.

The inspiration for the burgeoning business process now known as PLM came from American Motors Corporation (AMC). The automaker was looking for a way to speed up its product development process to compete better against its larger competitors in 1985, according to François Castaing, Vice President for Product Engineering and Development. After introducing its compact Jeep Cherokee, the vehicle that launched the modern sport utility vehicle (SUV) market, AMC began development of a new model, that later came out as the Jeep Grand Cherokee. The first part in its quest for faster product development was computer-aided design (CAD) software system that make engineers more productive. The second part in this effort was the new communication system that allowed conflicts to be resolved faster, as well as reducing costly engineering changes because all drawings and documents were in a central database. The product data management was so effective that after AMC was purchased by Chrysler, the system was expanded throughout the enterprise connecting everyone involved in designing and building products. While an early adopter of PLM technology, Chrysler was able to become the auto industry's lowest-cost producer, recording development costs that were half of the industry average by the mid-1990s.

PLM has become a strong presence in industrial production and manufacturing industry, in particular in the following fields:

- automotive
- electronics
- high tech
- wood
- textiles
- consumer goods
- aerospace
- engineering
- medical, tool and machine tool industry and
- many other sectors of the manufacturing industry.

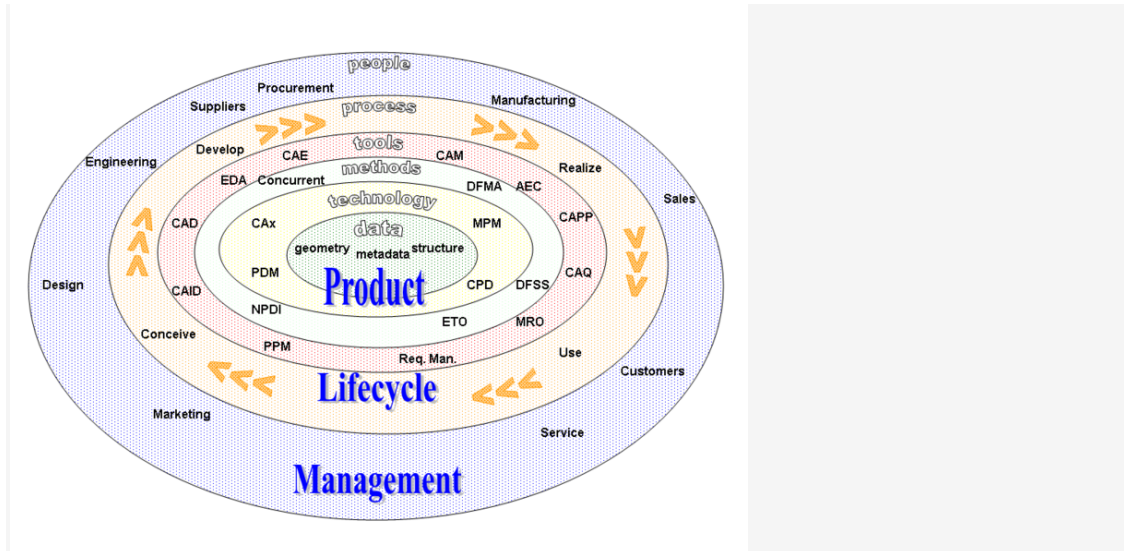
Depending on the scope and specificity are a different approach and special software to use.

In industry, PLM includes the design, construction, production and service with the following components:

- design
- construction
- production
- services

The core of PLM is in the creation and central management of all product data and the technology used to access this information and knowledge. PLM as a discipline emerged from tools such as CAD,

CAM and PDM, but can be viewed as the integration of these tools with methods, people and the processes through all stages of a product's life. It is not just about software technology but is also a business strategy.



<http://en.wikipedia.org/wiki/File:Plm1.png>, 14.03.2014

PLM - software systems enable companies to facilitate the control of product life cycles and to manage the wide range of product data in an efficient way to coordinate all actors involved and logistical chains and reconcile the requirements of the product range with the budget. Optimally coordinated processes across multiple locations allow for quick response to changes in demand in the market. Thus, the right product, at the right time, be brought to market with the right price.

A PLM software be used for the coordination of training programmes in the VET market and for the control of the processes and product portfolios of the training providers. The business processes and the product portfolio can be visualized in a better way and monitored more easily.

The software industry offers PLM- products that companies should enable to integrate the diverse information needs and to satisfy. The largest providers are the following:

- Dassault Systèmes
- Parametric Technology Corporation SAP
- Siemens PLM Software

Some examples for PLM software solutions are

- Contact Software (Product: CIM Database)
- keytech Software GmbH (Product: keytech & PLM DMS)
- Oracle (Product: Oracle Agile PLM)
- Procad (Product: Pro.File)

### Benefits of the use of PLM

Documented benefits of product lifecycle management include:

- Reduced time to market
- Increase full price sales
- Improved product quality and reliability
- Reduced prototyping costs
- More accurate and timely request for quote generation
- Ability to quickly identify potential sales opportunities and revenue contributions
- Savings through the re-use of original data
- A framework for product optimization
- Reduced waste
- Savings through the complete integration of engineering workflows
- Documentation that can assist in proving compliance for RoHS or Title 21 CFR Part 11
- Ability to provide contract manufacturers with access to a centralized product record
- Seasonal fluctuation management
- Improved forecasting to reduce material costs
- Maximize supply chain collaboration

### PLM in VET – as a chance:

**Active Product Lifecycle Management including the use of a suitable PLM software is or can be a tool to monitor and to control the product portfolio of an educational institution. It can be recommended not only for reasons of quality assurance, but also for the facilitating of the product development, for more transparency in the strategic business areas and last but not least for the maintenance of the competitiveness of VET providers.**

9. We would like to get hold of where Quality Management through Product Lifecycle Management or PLM software is used – probably mainly in industrial environments. What brands of PLM software are used in your country (in any organisation, company, enterprise)? By whom are they used? Please try to list as many organisations as possible.

PLM software supplier	Customers in your country
SAP	Porsche, GreenBlue, ResearchPoint, Siemens Austria, L'Oreal
Siemens	Siemens Austria, Procter & Gamble, SQS
Infor	Henkel, RPM International, Promethean
Arena	GoPro, SunLink
Sopheon	PepsiCo, Heinz, Burger King
Kalypso	JK Gourmet, Diversey
Softech	
Aras	Rank Xerox, Motorola
Integware	Caterpillar, Sauer, Honeywell
PTC	Xerox Corp
Other PLM supplier: .....	

10. **Interview: try to find at least one user of PLM software in your country. Interview this person about the advantages of the software and it's impact on the management of the product lifecycles. Why do they use PLM software? What are the components?**

**...if you don't get results and if completely impossible to find at least one user of PLM software, try to describe why.**

Name of organisation	Siemens Transportations Systems
Type of the organisation, economical field	Transportation, rail systems design
Name of person	Helmut Ritter, Head of Engineering Bodies, Siemens AG Österreich
Size of the organisation (staff)	1.500
City	Graz
Country	Austria
Webpage	<a href="http://www.mobility.siemens.com">http://www.mobility.siemens.com</a>  Das PLM-Kompendium: Referenzbuch des Produkt-Lebenszyklus-Managements, Ulrich Sendler, 2006

A centralised data management is the key factor for the product development process.

Since 2006 Siemens Graz uses a PLM system.

Siemens Transportations Systems is leader in the development and production of undercarriages of metros, trams, trains, locomotives and high speed trains.

A centralised data mangement is the key factor to manage the product life cycles and the product development. Siemens Graz has implemented a SAP PLM solution including the CAD system Pro/Enginees and the data management PDMI.ink from PTC. The aim of the data management is to be user friendly and to correspond to the practical requirements and needs of the product developers and to be able to combine sucessfully the processes, data and documents for a sustainable PLM.

Rail transport is a key element in the mobility of communities, moving citizens and goods in comfort and safety while minimizing environmental impact. However, this type of transport can be a source of noise, vibration and pollution, and might therefore be seen as a potential nuisance or threat to the surrounding infrastructure. Whether you are manufacturing train, tram, metro, subway, light rail or monorail systems, Siemens PLM Software offers a comprehensive, integrated design, simulation and manufacturing environment for rail systems. The solutions include test and mechatronic design for noise, vibration and harshness engineering, durability, thermal and energy management, dynamics, controls development and much more.

Managing the pass-by-noise of trains is a constraint in cities with dense populations, and the functional performance and reliability of rail systems are a major operational concern. Siemens PLM

Software offers solutions to predict and to test the noise impact of rail designs on the environment, as well as verify the effect of countermeasures. Several 3D simulation techniques, complemented by advanced testing methodologies, help you solve noise problems.

To address soaring oil prices and increasing pollution, governments and transportation authorities are exploring alternative options, such as electrical propulsion. The Siemens' solutions help rail manufacturers to design electromechanical components for optimal performance, while 1D solutions and dedicated model libraries help you optimize the entire propulsion system in early design stage.

Train manufacturers must offer a quiet and comfortable ride. Comfortable seats, low background noise and an optimal design of in-vehicle audio systems add a lot of value to the travel experience, and are seen as key differentiators.

Siemens PLM Software offers rail design, simulation and testing solutions to optimize noise and vibration comfort at the seats, and to design audio systems for optimal speech intelligibility.

Using 3D simulation, complemented by testing, you can optimize the position and orientation of speakers and choose the best acoustic treatment for the unit's panels.

Siemens PLM Software solutions enable smart design decisions, so that rail systems carry people and freight cheaper, faster, quieter and cleaner.

**Many thanks for your cooperation!**

## **Q-PLM**

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<p><b>WP 5: Research and analysis-planning</b></p> <p><b>Research Report on partner level</b></p>
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### Organisation data

Name of organisation	
Type of the organisation (Vocational training center, university, Chamber, ...)	
Size of the organisation (staff)	
City	
Country	

## Field analysis in PLM

### Report about software analysis

### Research on Quality Management

**11. Does your organisation use a certified (EFQM, ISO, ...) or other quality management system? Does this system relate to your processes and/or products? Please describe.**

ISO9001-2008

Q\*for

The ISO system relates to all the core processes of the entire organisation i.e. the development of training courses, the commercialization, the preparatory organization and the training and coaching processes.

It is built on the ISO quality circle in which the management is responsible for defining the strategy and the targets and providing the necessary tools i.e. HR, financial means and equipment. Taking into consideration the needs of the market, a training product is then developed, sold and realized. Finally it is evaluated on customer satisfaction and a number of KPI's after which the circle starts anew. ....

The different processes are described and supported by a number of procedures.

The Q\*for certification is based on a external process scan.....

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**12. If you evaluate your products, what are the most important Key Performance Indicators that are used?**

- Financial income (subscription fees) related to planning
- Financial margins (income – costs) related to planning
- ratio planning vs realization of training
- ratio developed new products vs realized new products
- “retention” rate (=number of participants finishing the training)
- The customer satisfaction rate
- The trainers’ satisfaction rate
- Number of registered complaints .....

**13. Please indicate if your quality management system on product level makes use of:**  
(combinations are possible)

- ☐ **cause- and effect diagram**  
*Identifies many possible causes for an effect or problem and sorts ideas into useful categories*
- ☐ **check sheet**  
*A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes*
- ☐ **control chart**  
*Graphs used to study how a process changes over time*
- ☐ **histogram**  
*The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs*
- ☐ **pareto chart**  
*Shows on a bar graph which factors are more significant*
- ☐ **scatter diagram**  
*Graphs pairs of numerical data, one variable on each axis, to look for a relationship*
- ☐ **flow chart**  
*A technique that separates data gathered from a variety of sources so that patterns can be seen*
- ☐ **other:**.....
- ☐ **other:**.....

**14. What does the flow of your Quality Management System look like? What are the main steps in your quality management process when it comes to your products?**

Design and development of a product

Marketing and commercialization of a product

Organisational preparation of the Product/service

Delivery (realization) of the product/service

Evaluation of the product/service .....

**15. In what phases do you pay attention to quality management:**  
(combinations are possible)

☒ Design phase of a product

☒ Development phase of a product

☒ Delivery phase of a product

☒ Evaluation phase of a product

☐ Other: .....

**16. What (type of) software do you use for the management of your product portfolios in general? Try to describe:**

Own developed ERP system that is completely and only related to the activities of Syntra West.

The system provides all necessary data related to customers, training programs, financial data, quality related registrations, ... and can generate all sorts of scoreboards, tables, graphs, ...  
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**17. Whether or not you make use of software, what would you expect from software supporting the management of you product portfolios and the quality management of your product?**

- Flexibility and adaptability
  - User- friendliness .....
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**18. Field analysis in PLM:**

Please provide feedback about the use of PLM in your country. In which economical fields is it used (probably mainly in industrial environments)? Could you describe these companies? Do companies use the concept of PLM within the management of their product portfolios? What are the advantages? Why do companies use PLM software?

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**19. We would like to get hold of where Quality Management through Product Lifecycle Management or PLM software is used – probably mainly in industrial environments. What brands of PLM software are used in your country (in any organisation, company, enterprise)? By whom are they used? Please try to list as many organisations as possible.**

PLM software supplier	Customers in your country
SAP	
Siemens	
Infor	
Arena	
Sopheon	
Kalypso	

Softech	
Aras	
Integware	
PTC	
Other PLM supplier: .....	

20. Interview: try to find at least one user of PLM software in your country. Interview this person about the advantages of the software and its impact on the management of the product lifecycles. Why do they use PLM software? What are the components?

...if you don't get results and if completely impossible to find at least one user of PLM software, try to describe why.

Name of organisation	
Type of the organisation, economical field	
Name of person	
Size of the organisation (staff)	
City	
Country	
Webpage	

**Many thanks for your cooperation!**

## **Q-PLM**

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<p><b>WP 5: Research and analysis-planning</b></p> <p><b>Research Report on partner level</b></p>
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## Organisation data

Name of organisation	FONDO FORMACIÓN EUSKADI S.L.L. (FFE)
Type of the organisation (Vocational training center, university, Chamber, ...)	Vocational Training Center
Size of the organisation (staff)	46 workers
City	Trapagaran
Country	Spain

# Field analysis in PLM

## Report about software analysis

## Research on Quality Management

### 21. Does your organisation use a certified (EFQM, ISO, ...) or other quality management system? Does this system relate to your processes and/or products? Please describe.

FFE is certified in an integrated Quality Management System ISO9001:2008.

According to this standard, different procedures have been developed to guarantee the quality of the services offered (training activities).

Among others, 2 specific procedures have been developed related directly to the training activities:

- **P07.01 – Management of a training activity**

This procedure describes and establishes the process to control de training activities to ensure the quality.

- Before starting the training activity, a learning pathway (F-P07.01-001) is designed according to the client needs including information about the aims, contents, materials, teachers profile,...
- During the development of the training activity, different documents are followed: Learning pathway, attendance list, participant file, interim evaluation, competences evaluation file, ..
- At the end of the training activity, the participant fill in a questionnaire to identify the improvement aspects and the degree of fulfilment with the aims; a final report is made by the teacher; ..

During all the process a training technician is responsible of the process.



- **P07.01.01 – Evaluation of the training activities**

This procedure describes the criteria and indicators that are evaluated in all the training activities by:

- The participants
- Teacher
- Responsible of the training activity

According to these procedures the quality is integrated from the design until the end of the training activity.

The control of VET training programs in FFE starts with the design of them (taking into account the needs and demands of the client (company, public administration, learners..) and finishes at the end of the training course with the evaluation, the elaboration of the final report; and the closure of the training portfolio.

**22. If you evaluate your products, what are the most important Key Performance Indicators that are used?**

- Degree of compliance of the product with the requirements of the client.
- Appropriate learning contents and duration of the training activity.
- Knowledge and preparation of the trainer.
- Satisfaction of the trainees.
- Accordance between the didactic resources and the training course.
- Resources used.

**23. Please indicate if your quality management system on product level makes use of:**

*(combinations are possible)*

- ☐ **cause- and effect diagram**

*Identifies many possible causes for an effect or problem and sorts ideas into useful categories*

- ☒ **check sheet**

*A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes*

- ☐ **control chart**

*Graphs used to study how a process changes over time*

- ☐ **histogram**

*The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs*

- ☒ **pareto chart**

*Shows on a bar graph which factors are more significant*

- ☐ **scatter diagram**

*Graphs pairs of numerical data, one variable on each axis, to look for a relationship*

- ☐ **flow chart**

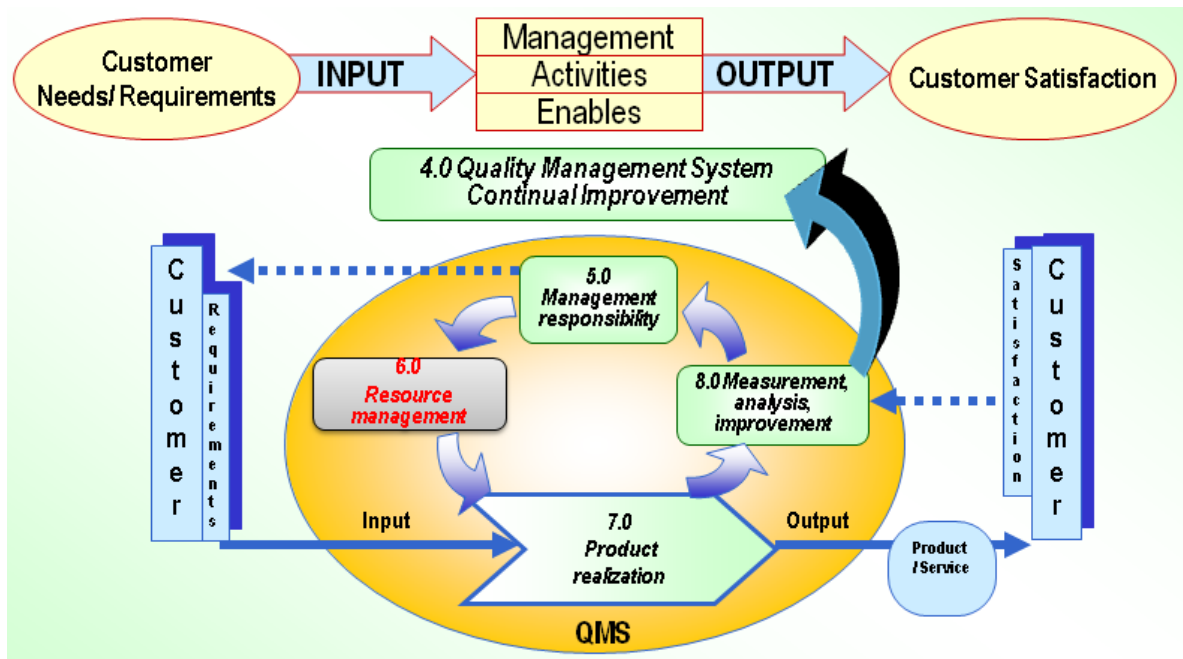
*A technique that separates data gathered from a variety of sources so that patterns can be seen*

- ☐ **other:**.....

- ☐ **other:**.....

**24. What does the flow of your Quality Management System look like? What are the main steps in your quality management process when it comes to your products?**

The Quality Management in FFE is included in all the processes, according to ISO requirements:



So there are procedures for all the processes that are developed:

- External and internal communication
- Management of the learning activities (design, implementation, evaluation, ..)
- Marketing and sales
- Suppliers
- ...

**25. In what phases do you pay attention to quality management:**

*(combinations are possible)*

- ☒ Design phase of a product
- ☒ Development phase of a product
- ☒ Delivery phase of a product
- ☒ Evaluation phase of a product
- ☐ Other: .....

**26. What (type of) software do you use for the management of your product portfolios in general? Try to describe:**

FFE do not use specific Management software.

FFE uses access databases for collecting all the information about the process. All the procedures and documents are in paper format and also in word or pdf format.

**27. Whether or not you make use of software, what would you expect from software supporting the management of you product portfolios and the quality management of your product?**

- Easy to understand and to use.
- Compatible with quality Systems used in the companies. The use of a new QPLM has to be in concordance with the procedures used until the moment.
- Possibility of connection with the database that are used (clients, trainee,...) until that moment.
- Compatible with window server.
- Possibility of obtaining information (diagrams, charts,..) from different point of views:
  - Indicators
  - Objectives
  - Responsible people
  - Processes
  - ...

## Organisation data

Name of organisation	POLITEKNICA TXORIERRI S.COOP.
Type of the organisation (Vocational training center, university, Chamber, ...)	VET Provider
Size of the organisation (staff)	35
City	Derio
Country	Spain

# Field analysis in PLM

## Report about software analysis

## Research on Quality Management

- 1. Does your organisation use a certified (EFQM, ISO, ...) or other quality management system? Does this system relate to your processes and/or products? Please describe.**

Politeknika Txorierri uses a Quality System based on the European Framework Quality Management Model. They had developed specific internet application to monitor all the management processes.

Every 4 years it is defined a Strategic Plan with objectives, processes, indicators,... Although the Strategic Plan is defined for 4 years, there is an annual planning. To fulfill the objectives it is established a owner for each one, a period to get it, the needed time to get it, ..

Politeknika Txorierri has get the higher recognition label related to Quality Management and recognized given by the Basque Government. That means that Politeknika Txorierri is able to reach a high level in their management processes.

The application of the EFQM model allows Politeknika Txorierri to establish improvement actions in the following areas:

- The assessment of the level of satisfaction of the customers (students, families, businesses).
- The assessment of the level of satisfaction of the staff.
- The management of the Centre through the implementation of a methodology for processes.

- The definition, implementation and monitoring of the Policy and Strategy.
- The use of indicators as tools for measuring objectives.
- Commitment to our immediate social and economic environment.
- Improving the effectiveness of the human resources and technology.

**2. If you evaluate your products, what are the most important Key Performance Indicators that are used?**

In all the processes Management are identified more than 150 indicators. These indicators cover all the process defined to get the strategic objectives established in the Strategic Plan. There are not indicators which are more important than others. The indicators are defined in relation with the process you want to monitor.

There are indicators to monitor the use of the resources (paper, water, electricity,...); to get the satisfaction level of the participant involved; to know is the number of women in technical activities are increased; ...

**3. Please indicate if your quality management system on product level makes use of:**  
(combinations are possible)

- ☐ **cause- and effect diagram**  
*Identifies many possible causes for an effect or problem and sorts ideas into useful categories*
- ☒ **check sheet**  
*A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes*
- ☒ **control chart**  
*Graphs used to study how a process changes over time*
- ☒ **histogram**  
*The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs*
- ☐ **pareto chart**  
*Shows on a bar graph which factors are more significant*
- ☐ **scatter diagram**  
*Graphs pairs of numerical data, one variable on each axis, to look for a relationship*
- ☐ **flow chart**  
*A technique that separates data gathered from a variety of sources so that patterns can be seen*
- ☐ **other:**.....
- ☐ **other:**.....

**4. What does the flow of your Quality Management System look like? What are the main steps in your quality management process when it comes to your products?**

As it is explained in a previous question, there is a Plan defined for 4 years, and then an annual plan is concreted.

Strategic objectives, development indicators (quantitative and qualitative) and processes are defined in order to fulfil the defined Plan.

Each year, the Steering Committee define objectives and indicators. Therefore different actions are also defined with responsible people and deadlines.

Each “owner” of the action has to write if something is done, on process, difficulties,...

The owner of the action or process receives a periodical email with a summary of the activities done, the activities to do and the deadlines.

**5. In what phases do you pay attention to quality management:**  
*(combinations are possible)*

- a. Design phase of a product
- X Development phase of a product
- X Delivery phase of a product
- X Evaluation phase of a product
- b. Other: .....

**6. What (type of) software do you use for the management of your product portfolios in general? Try to describe:**

It is not a software, it is an internet application designed ad hoc for Politeknica Txorierri according to the needs and demands.

It is compatible with Microsoft.

**7. Whether or not you make use of software, what would you expect from software supporting the management of your product portfolios and the quality management of your product?**

- The software has to answer to the necessities of the organisation. That is what we get from ours.
- It has to be easy to manage and very visual.
- Connection and relation between the processes in order to facilitate the work to the “owner” – responsible of the process.
- Compatible with the Operative System the organisation uses.

**8. Field analysis in PLM:**

**Please provide feedback about the use of PLM in your country. In which economical fields is it used (probably mainly in industrial environments)? Could you describe these companies? Do companies use the concept of PLM within the management of their product portfolios? What are the advantages? Why do companies use PLM software?**

The use of PLM software is quite common in different sectors, but much more extended in the following ones:

- Industrial production:
  - Metal sector
  - Auto motion
  - Aeronautic
  - ...
- Engineering
- Finances
- Insurances
- Health sector (hospitals, health centers,...)

The companies in which the use of PLM is more used are those that produce standardized products. That means that in general the products are made according to established criteria and using the same way. It doesn't mean that sometimes new products are included in the industrial process.



In general, the use of PLM Software is integrated in an Integral Management System, for the management of all the processes in the company. It is the way to manage all the companies' processes and activities, have the connection and relation among all.

The use of PLM software facilitates the monitoring of the product from the very beginning until the end and it allows having a global vision and identifying what happens in every moment.

- 9. We would like to get hold of where Quality Management through Product Lifecycle Management or PLM software is used – probably mainly in industrial environments. What brands of PLM software are used in your country (in any organisation, company, enterprise)? By whom are they used? Please try to list as many organisations as possible.**

PLM software supplier	Customers in your country
SAP	
Siemens - it is the leader in the market in all the processes industries	
Infor	
Arena	
Sopheon	
Kalypso	
Softech	
Aras	
Integware	

PTC	
Other PLM supplier: .....	

10. Interview: try to find at least one user of PLM software in your country. Interview this person about the advantages of the software and it's impact on the management of the product lifecycles. Why do they use PLM software? What are the components?

...if you don't get results and if completely impossible to find at least one user of PLM software, try to describe why.

Name of organisation	
Type of the organisation, economical field	
Name of person	
Size of the organisation (staff)	
City	
Country	
Webpage	

.....

.....

.....

.....

.....

**Many thanks for your cooperation!**

## **Q-PLM**

LdV/DOI

Project Nr° 538379-LLP-1-2013-AT-LEONARDO-LMP

<p><b>WP 5: Research and analysis-planning</b> <b>Research Report on partner level</b> <b>P5 Finland, WinNova</b></p>
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### Organisation data

Name of organisation	WinNova
Type of the organisation (Vocational training center, university, Chamber, ...)	Vocational training center
Size of the organisation (staff)	700
City	Rauma
Country	Finland

## Field analysis in PLM

### Report about software analysis

### Research on Quality Management

**28. Does your organisation use a certified (EFQM, ISO, ...) or other quality management system? Does this system relate to your processes and/or products? Please describe.**

WinNova has a integrated management system (IMS) software which is browser-based

platform for a quality management, operating or management system.

The use of operating and management system in WinNova is confirming the good quality of all processes as systematic management, planning, instruction, evaluation and developing.

The operating management system is based on holistic architecture of procedures in

WinNova, where all processes – services, profit units, staff, operational processes and data

management systems -are described and how they are linked to each others and are

functioning as entirety.

Operating and management system is constructed by integrating the quality standard ISO

9001, environment standard ISO 14001 and occupational health and security system

standard OHSAS 18001 to one operating system. When building up the system, it has

exploited and adapted the recommendations of the Finnish National Board of Educations

quality standard ISO 9004 and EFQM-model.

The operating and management system of winNova is described in Operating Handbook,

where is a summary of central principals of management, resource control, processes, indicators and developing processes.

Name of organisation	Vocational education center Sedu
Type of the organisation (Vocational training center, university, Chamber, ...)	Vocational training center
Size of the organisation (staff)	400
City	Seinajoki
Country	Finland

Since the year 2005 there has been the EFQM self evaluation model used in Sedu.

Once a year Sedu implements evaluation process of its own operations and results as

described in the EFQM –model. About 50-60 persons of staff are participating to the process.

Under the EFQM model evaluation area 5 covers processes, products and services which are the target of the yearly evaluation.

Name of organisation	Sataedu
Type of the organisation (Vocational training center, university, Chamber, ...)	Vocational training center
Size of the organisation (staff)	430
City	Kokemäki
Country	Finland

- Quality management system ISO 9001

- Environmental management system ISO 14001

Certified in April 2010

- Occupational health and safety management system OHSAS 18001

Certified in January 2012

Process approach in Sataedu, which means that the QMS goes through every process.

Name of organisation	Tampereen aikuiskoulutuskeskus (TAKK)
Type of the organisation (Vocational training center, university, Chamber, ...)	Adult education center
Size of the organisation (staff)	300
City	Tampere
Country	Finland

TAKK has been using 10 years time EFQM quality management system. There has been external audition every 3 years ja between these self evaluation. TAKK reached up to 515 points in the audition of the year 2013. Part of the EFQM there are the determinations and description of central prosesses. The prosess map and operating handbook are included in the system.

During the year 2015 TAKK is going to implement self evaluation based on the criteria recommended by Finnish National Board of Education ( OPH) . After getting feed back from OPH, TAKK is getting quality classification and developing it's operations.

**29. If you evaluate your products, what are the most important Key Performance Indicators that are used?**

**Effectiveness**

The occupancy rate of student places

The number of applicants per student place

**Resouses and economy**

Number of students / group

Number of teachers/ students

**Proseses**

Drop out rate

Non-attendance of the students

**Added value for the customer**

Learning outcomes

The number of student completing their qualifications

Employment and further studies of students after qualification

**30. Please indicate if your quality management system on product level makes use of:**

*(combinations are possible)*

☐ **cause- and effect diagram**

*Identifies many possible causes for an effect or problem and sorts ideas into useful categories*

☒ **check sheet** ( e.g. indicators information)

*A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes*

☒ **control chart** ( staff research )

*Graphs used to study how a process changes over time*

☒ **histogram** ( feedback questionnaires for the students)

*The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs*

☐ **pareto chart**

*Shows on a bar graph which factors are more significant*

☐ **scatter diagram**

*Graphs pairs of numerical data, one variable on each axis, to look for a relationship*

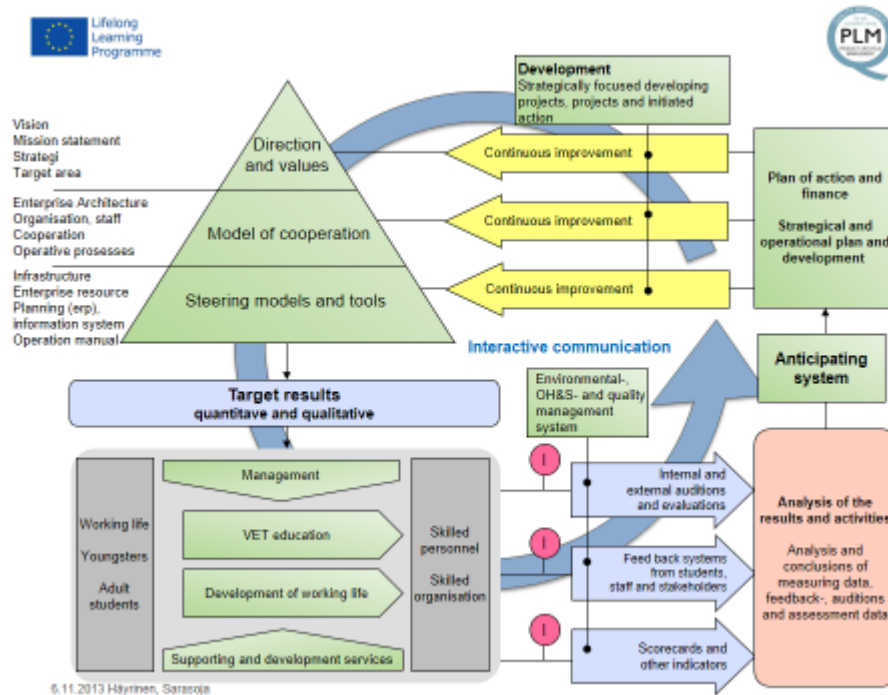
☐ **flow chart**

*A technique that separates data gathered from a variety of sources so that patterns can be seen*

☐ **other:**.....

☐ **other:**.....

**31. What does the flow of your Quality Management System look like? What are the main steps in your quality management process when it comes to your products?**



Quality management system:

Values –target results- planning - implementation- evaluation-development

The main and the most important steps are to find out the right information and enough indicators and feedback from the students and stakeholders so that the development activities can be focused effectively.

**32. In what phases do you pay attention to quality management:**  
*(combinations are possible)*

- X Design phase of a product
- X Development phase of a product
- Delivery phase of a product
- X Evaluation phase of a product



- Other: .....

In the future more and more significant is the evaluation phase and feed back which leads to right pointed design and development. ( WinNova).

Every one of these are important. Training products/ services are planned, carried out, and evaluated and developed based on the feed back collected from the target group ( students, companies)( TAKK).

All of these are important. The aim is to plan and offer as high quality education as possible in vocational field. Sedu is using systematic feed back from students by INKA-questionnaires concerning the quality of training, when developing it's training , students welfare and support services. (Sedu)

Development, delivery and evaluation phase ( Sataedu)

**33. What (type of) software do you use for the management of your product portfolios in general? Try to describe:**

Resource management: In WinNova there is software Edu-erp for resource management (student data, courses, etc.)

Feedback questionnaires: INKA, AIPAL, National board of education used software  
OPAL , Ministry of employemency used software  
Webropol

Risk analysis: ZEF

Staff questionnaires: Innolink, WEB

Custom management: CRM

**34. Whether or not you make use of software, what would you expect from software supporting the management of your product portfolios and the quality management of your product? ( WinNova, TAKK, Sedu)**

- Main and most important products in vocational centers are vocational qualifications in each educational field, training courses or modules, counselling service ...
- Product portfolios management systems should be easy to use and update  
and also flexible to develop based on user's experience
- Flexible to integrate and use with the present systems we have in e.g. student data management system software, feedback systems as INKA...
- Additional and optional places to input indicators and variables
- summaries should be:  
Clear, understandable, compatibility ( e.g PP ), graphics are important, alerts
- Reports are important to get benefits for quality management.
- Technical expectations ( WinNova ) :  
SQL-based system  
PC –based windows 7  
Browser Microsoft IE 10 or later version  
Open source based application

### 35. Field analysis in PLM:

**Please provide feedback about the use of PLM in your country. In which economical fields is it used (probably mainly in industrial environments)? Could you describe these companies? Do companies use the concept of PLM within the management of their product portfolios? What are the advantages? Why do companies use PLM software?**

The mainly use of PLM software is in bigger companies and mostly industrial fields.

Typical sectors are forestry-industry and metal and machinery industry and also commercial companies.

The firms are using more Product data management PDM as describing their solutions.

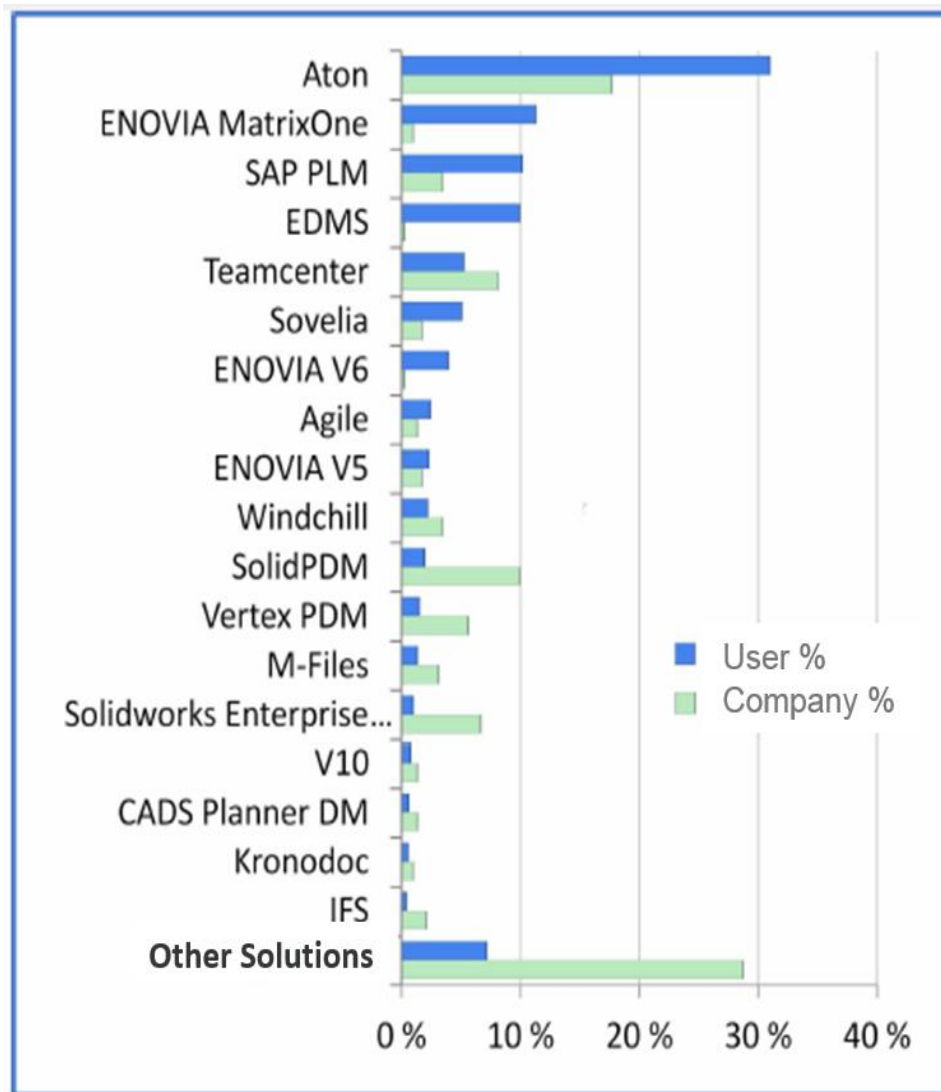
It is difficult to find a real user of PLM software in service -producer sector.

This market leader ATON is made by a Finnish firm Modultek Oy.

There solution s seem to be quite flexible and modular also customizing is possible.

The companies use PDM/PLM software –systems to manage their product portfolio.

Customer succes stories tell that the use of systematic product management has reduced the production cost, increased sales and made the cooperation between different departments more efficient. The simultaneous use of the system is nesessary when serving the customer In demanding timetables.



The usage of PLM-systems in Finnish companies 2013. Source Valokynä –magazine 2/2013

36. We would like to get hold of where Quality Management through Product Lifecycle Management or PLM software is used – probably mainly in industrial environments. What brands of PLM software are used in your country (in any organisation, company, enterprise)? By whom are they used? Please try to list as many organisations as possible.

PLM software supplier	Customers in your country
SAP	Stora Enso Oyj, Finnforest Oyj, Heinon tukku Oy, Honkarakenne Oy, Fazer Oy Mikkelin ammattikorkeakoulu

Siemens	<b>Purso tools Oy, Rolls Royce Oy, Halti Oy, Bronto Skylift Oy, ABB</b>
Infor	
Arena	
Sopheon	
Kalypso	
Softech	
Aras	
Integware	
PTC	
Other PLM supplier: .....	
Modultek/ Aton	<b>Metso Minerals Oy, Sampo Rosenlew Oy, Oras Oy, Konecranes Oy, Vaisala Oy, Lappset Oy, Abloy oy, Patria Oy, Neste Oil OyJ</b>
RAND Finland /Enovia	

- 37. Interview: try to find at least one user of PLM software in your country. Interview this person about the advantages of the software and its impact on the management of the product lifecycles. Why do they use PLM software? What are the components?**

**...if you don't get results and if completely impossible to find at least one user of PLM software, try to describe why.**

Name of organisation	Metso Minerals Oy
Type of the organisation, economical field	Global market leader of Rock crushers, mineral processing systems and metal recycling systems.
Name of person	Juhamatti Heikkilä
Size of the organisation (staff)	800
City	Tampere
Country	Finland
Webpage	<a href="http://www.metso.com">www.metso.com</a>

Interview 5.3.2014 of manager, product safety, Juhamatti Heikkilä. Metso Minerals Oy offering covers everything from individual machines to complete solutions and turnkey deliveries. In addition, Metso Minerals offers consumer services, wear and spare parts, and maintenance and expert services. Metso Minerals uses Modultek's Aton Global item Master, which handles, for example item data exchange system between ERP-solutions. The Product data managing system ATON has been important in Metso minerals also because it can be customized and updated according to clients needs. The number of service items are about 50. The flexibility of the system offers support for the firms competitiveness. Juhamatti Heikkilä finds the Modultek product and service structure good and flexible. The system has been built one part at a time.

The idea of the application is to manage every item under one code. Structure is significant, it is important that all the documents, feed back questionnaires, reclamations, service activities etc. are based on serial number-specific item structure.

You can manage and follow the product / project /service history by individual codes.

The development of the Metso's product management system, one focus area is the development of PLM need for after-marketing.

**Many thanks for your cooperation!**

## **Q-PLM**

LdV/DOI

Project Nr° 538379-LLP-1-2013-AT-LEONARDO-LMP

<p><b>WP 5: Research and analysis-planning</b></p> <p><b>Research Report on partner level</b></p>
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#### Organisation data

Name of organisation	Cork Education and Training Board (St. Johns Central College)
Type of the organisation (Vocational training center, university, Chamber, ...)	College of Further Education and Training
Size of the organisation (staff)	75
City	Cork
Country	Ireland

## Field analysis in PLM

### Report about software analysis

### Research on Quality Management

**38. Does your organisation use a certified (EFQM, ISO, ...) or other quality management system? Does this system relate to your processes and/or products? Please describe.**

No, Although quality systems are governed to an extent by Quality and Qualifications Ireland (QQI). QQI is responsible for the external quality assurance of further and higher education and training (including English language provision) and validates programmes and makes awards for certain providers in these sectors. Its overall role includes:

- Advising the Minister in relation to national policy on quality assurance and enhancement in education and training
- Reviewing and monitoring the effectiveness of providers' quality assurance procedures.
- Validating programmes of education and training, and reviewing and monitoring the validated programmes.
- Making awards, delegating authority to make awards where it considers it appropriate and reviewing and monitoring the operation of the authority so delegated.
- Authorising the use of the international education mark by a provider that complies with the code of practice.



- Ensuring arrangements for the protection of learners are in place where learners have begun but not completed a programme of education and training where a provider ceases to provide the programme before completion.

**39. If you evaluate your products, what are the most important Key Performance Indicators that are used?**

Quality of VET product

Suitability of Infrastructure and Materials

Customer Satisfaction

Responding to Labour Demands

Evaluation Mechanisms

Appropriate Certification

**40. Please indicate if your quality management system on product level makes use of:**  
(combinations are possible)

- ☐ **cause- and effect diagram**  
*Identifies many possible causes for an effect or problem and sorts ideas into useful categories*
- ☒ **check sheet**  
*A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes*
- ☒ **control chart**  
*Graphs used to study how a process changes over time*
- ☒ **histogram**  
*The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs*
- ☐ **pareto chart**  
*Shows on a bar graph which factors are more significant*
- ☐ **scatter diagram**  
*Graphs pairs of numerical data, one variable on each axis, to look for a relationship*
- ☒ **flow chart**  
*A technique that separates data gathered from a variety of sources so that patterns can be seen*
- ☐ **other:**.....
- ☐ **other:**.....

**41. What does the flow of your Quality Management System look like? What are the main steps in your quality management process when it comes to your products?**

Annual Course Review Meetings – Regular course meetings with feedback to Deputy Principal –  
Formal Bi-Annual Student feedback sessions – Policy Review group meetings, including quality  
control policies – Senior Management Meetings - Ongoing pastoral care based system – College  
Planning (new course proposals) – Examinations, Internal Verification and External Authentication  
– Exam Boards

**42. In what phases do you pay attention to quality management:**  
*(combinations are possible)*

- X Design phase of a product
- x Development phase of a product
- x Delivery phase of a product
- x Evaluation phase of a product
- Other: .....

**43. What (type of) software do you use for the management of your product portfolios in general? Try to describe:**

We use a suite of programs mainly aimed at student admissions, registration, course timetabling, assessment results storage and to provide the required statistical information to the Department of Education and Science.

**Facility Admin** for Irish Schools is an innovative management information system where all information is stored securely in a single database and reused multiple times. The benefit of all school data stored in a single database means that schools can more accurately monitor, track and improve their performance. The system is easy to use and offers the necessary tools for school stakeholders such as school management, administration, teaching and non-teaching staff

to assess, track and improve the standards of teaching and learning. The innovative features within Facility Admin deliver flexible school information management.

#### Features

- Secure Single Data Entry
- Student Information
- Simple Reports
- Mail Merge
- Absence Records
- Document Storage
- Behaviour Record
- Create Lists

**ePortal** is the powerful, online gateway to information stored in Facility Admin. It provides everyone with access to relevant, real-time information quickly and easily online.

#### Features

- Remote Access
- Simple Reports
- Analysis Tools
- Single Data Entry
- Attendance Records
- Event Logs
- Comment Banks
- Effective Cover Planning

**Facility Scheduler.** It can save Timetablers vast amounts of time and help to create the timetable as all the data required does not need to be entered and can be easily exported from Facility Admin.

The range of features within Facility Scheduler makes it easier to view the timetable, experiment with it and find the best fit. The biggest challenges can be swiftly identified and prioritised, with the Scheduler solution doing much of the work and significantly decreasing the hard work, time, and effort previously required to create the timetable.

#### Features

- Pre-scheduling
- Post-scheduling
- Multiple views
- Drag & drop resources
- Constraint & analysis restrictions
- Standalone files

Data easily exported

Reports

ePortal Online Timetables

**eNROL** is an Online Enrolment & Admissions Management System provides all of the tools and automated processes that a school requires to streamline your processes and deliver an excellent customer experience. eNROL provides for online applications, interview scheduling, registration, online payments, & database synchronisation

eNROL provides the following functionality for your school or college:

- Online Enrolment
- Admissions Management
- Interview Scheduling
- Offer Management
- Registration
- Online Payment

**44. Whether or not you make use of software, what would you expect from software supporting the management of your product portfolios and the quality management of your product?**

Software should be easy to use and be as integrated into existing systems as possible so as not to cause duplication of work. Software should allow for the viewing of data and results in a structured format both on screen and in report format. There should be a flexibility in the types of reports that can be produced. Ideally software should be password protected and allow varying levels of access.

**45. Field analysis in PLM:**

**Please provide feedback about the use of PLM in your country. In which economical fields is it used (probably mainly in industrial environments)? Could you describe these companies? Do companies use the concept of PLM within the management of their product portfolios? What are the advantages? Why do companies use PLM software?**

Siemens PLM software is the most used in Ireland. The company state that PLM software allows companies to manage the entire lifecycle of a product efficiently and cost-effectively, from ideation, design and manufacture, through service and disposal. PLM is unique from other enterprise software solutions because it drives top-line revenue from repeatable processes. By providing the application depth and breadth needed to digitally author, validate and manage the detailed product and process data, PLM supports continuous innovation. PLM empowers a business to make unified, information-driven decisions at every stage in the product lifecycle.

PLM solutions establish a cohesive platform to:

- Optimize relationships along the lifecycle and across organizations.
- Maximize the lifetime value of your business' product portfolio.
- Set up a single system of record to support diverse data needs.

In Ireland Siemens offer a range of PLM and PLM related products. The most widely used of the Siemens PLM software products is Teamcenter. **Teamcenter** powers innovation and improves

productivity by connecting people across global product development and manufacturing organizations with the product and process knowledge they need to succeed.

The Teamcenter solution for corrective and preventive actions (CAPA) provides an enterprise-wide product quality management solution for capturing various forms of complaints, defects and non-conformances. Using Teamcenter for quality management, you can:

- Follow a formal process to systematically investigate, analyze and resolve quality issues
- Streamline the definition of measures to prevent future re-occurrences
- Report the results in a simple, intuitive manner

Teamcenter provides closed-loop issue resolution for identifying, analyzing and sharing critical product quality data, built on an enterprise-scalable foundation. By providing visibility into critical product quality characteristics, failures/non-conformances, and resolutions to these issues, the Teamcenter quality management solution allows you to make smarter decisions across the global, extended enterprise. This streamlines CAPA efficiency and is said to reduce the overall cost of quality.

Other Siemens PLM products available in Ireland include:

**NX** which has a broad suite of integrated, fully associative CAD/CAM/CAE applications. NX touches the full range of development processes in product design, manufacturing and simulation, allowing companies to encourage the use of best practices by capturing and re-using product and process knowledge.

**Fibersim** is a suite of software that supports all of the unique and complex design and manufacturing methodologies necessary for you to engineer innovative, durable and lightweight products and parts made of advanced composite materials.

**Syncrofit** is a family of specialized engineering products for designing and manufacturing complex assemblies and large aerostructures. It allows you to author and manage the assembly interfaces and hundreds of thousands of fasteners that are typical in an airframe.

**Seat Design Environment (SDE)** is software that's fully integrated into commercial 3D CAD systems, for designing and manufacturing innovative transportation seat systems and interior components.

**LMS** provides a portfolio of mechatronic simulation software, testing systems and engineering services. With multi-domain and mechatronic simulation solutions, LMS addresses complex engineering challenges associated with intelligent system design and model-based systems engineering.

**Tecnomatix** is a comprehensive portfolio of digital manufacturing solutions that deliver innovation by linking all manufacturing disciplines together with product engineering – from process layout and design, process simulation and validation, to manufacturing execution.

**Velocity Series** is a comprehensive family of modular, yet integrated solutions addressing PLM in the mid-market

**46. We would like to get hold of where Quality Management through Product Lifecycle Management or PLM software is used – probably mainly in industrial environments. What brands of PLM software are used in your country (in any organisation, company, enterprise)? By whom are they used? Please try to list as many organisations as possible.**

PLM software supplier	Customers in your country
SAP	Maxim Integrated Products International, Dublin. BW Technical Lead Kildare.
Siemens	IBM, Dell, Hewlett-Packard
Infor	Kerry Group Ireland
Arena	
Sopheon	Whitehorsepoint Kerry
Kalypso	
Softech	
Aras	
Integware	
PTC	
Other PLM supplier: .....	
Agile PLM	PE Global Waterford

**47. Interview: try to find at least one user of PLM software in your country. Interview this person about the advantages of the software and it's impact on the management of the product lifecycles. Why do they use PLM software? What are the components?**



**...if you don't get results and if completely impossible to find at least one user of PLM software, try to describe why.**

Name of organisation	
Type of the organisation, economical field	
Name of person	
Size of the organisation (staff)	
City	
Country	
Webpage	

We did talk to a member of the management staff in a large agrifood company about their use of PLM software but he asked that the company name not be included in any documentation. The company was Irish owned and based but in recent years has been purchased by a large multinational. Their PLM software is heavily integrated into the manufacturing process and they have a specific IT department with responsibility to manage the software aspect of PLM use. This includes the production of custom written software to provide a bridge between the PLM software and Computer controlled manufacturing and quality control processes. Their system is so large and technical that it is difficult to imagine any relationship between what they do with PLM and what would be required within the VET sector. They see the advantages of PLM use as:

- Reduced time to market
- Increase full price sales
- Reduced waste
- Improved product quality and reliability
- Ability to quickly identify potential sales opportunities and revenue contributions
- Savings through the re-use of original data
- A framework for product optimization
- Savings through the complete integration of engineering workflows

- Seasonal fluctuation management
- Maximize supply chain collaboration

Within the agrifood industry quality controls are very strict and all production activity is monitored and documented in a detailed manner. PLM software is used by them to assist in this process but is a small part of their overall production and quality assurance system.

**Many thanks for your cooperation!**

**Q-PLM**

LdV/DOI

Project Nr° 538379-LLP-1-2013-AT-LEONARDO-LMP

**WP 5: Research and analysis-planning**  
**Research Report on partner level**

## Organisation data

Name of organisation	University Stefan cel Mare Suceava
Type of the organisation (Vocational training center, university, Chamber, ...)	Public University
Size of the organisation (staff)	800 Employees (aprox. 50% teaching staff, aprox. 50% administrative staff)
City	Suceava
Country	Romania

## Field analysis in PLM Report about software analysis Research on Quality Management

**48. Does your organisation use a certified (EFQM, ISO, ...) or other quality management system? Does this system relate to your processes and/or products? Please describe.**

No. ....

**49. If you evaluate your products, what are the most important Key Performance Indicators that are used?**

.....

The performance of the professors is evaluated at the end of each academic year by the students; The Center of Counselling in Employment for students is evaluating the social services delivered by the university on questionnaire based assessment. ....

.....

The Faculty of Engineering is using as teaching solution PLM for the students.

.....

**50. Please indicate if your quality management system on product level makes use of:**  
(combinations are possible)

**x cause- and effect diagram**

*Identifies many possible causes for an effect or problem and sorts ideas into useful categories*

**X check sheet**

*A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes*

- **control chart**

*Graphs used to study how a process changes over time*

#### **X histogram**

*The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs*

#### **X pareto chart**

*Shows on a bar graph which factors are more significant*

- **scatter diagram**

*Graphs pairs of numerical data, one variable on each axis, to look for a relationship*

#### **X flow chart**

*A technique that separates data gathered from a variety of sources so that patterns can be seen*

- **other:**.....
- **other:**.....

### **51. What does the flow of your Quality Management System look like? What are the main steps in your quality management process when it comes to your products?**

The Quality of study programs and of academic services is controlled by the Department for Quality of the university. The Department is supervising the curricula, the resources needed for delivering the quality training to the students.

The quality is assured by several evaluations:

- evaluation of academic quality (online questionnaires, filled in by students for all courses and teachers, at the end of each academic year);
- evaluation of trainers by the departement manager;
- evaluations by teachers by the colleagues;
- self evaluation about 4 different criteria (research, teaching, involvement in visibility of the university a.o).

The Department of Quality is developing procedures for all processes within organisation. In the future will be introduced as well an Oracle Application for improvement of management for administrative operations. ....

**52. In what phases do you pay attention to quality management:**

(combinations are possible)

☒ Design phase of a product

☒ Development phase of a product

☒ Delivery phase of a product

☒ Evaluation phase of a product

☐ Other: .....

**53. What (type of) software do you use for the management of your product portfolios in general? Try to describe:**

*Oracle EBS, Oracle People Soft, Oracle BI (in phase of implementation), Saga, Winmentor.*

**54. Whether or not you make use of software, what would you expect from software supporting the management of you product portfolios and the quality management of your product?**

Easy to use interface;

Reliable results;

Able to assure the quality from planning phase and then in implementation phase;

**55. Field analysis in PLM:**

**Please provide feedback about the use of PLM in your country. In which economical fields is it used (probably mainly in industrial invironments)? Could you describe these „companies? Do companies use the concept of PLM within the management of their product portfolios? What are the advantages? Why do companies use PLM software?**

Economical fields : engineering field, in auto and IT Sectors

Economical fields	Name of company and description	Use of PLM (management or product portfolios), advantages & why do
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		companies do use PLM software
Automobile industry	SC Automobile Dacia Renault	Production, product and management solutions
Resaler	<a href="http://adacomputers.ro/en">http://adacomputers.ro/en</a> Resaler of application on Romanian market ; Cooperates with HP	Management or product portfolios
Consulting	Capgemini Romania <u>Consulting services to other companies:</u> Consulting: vision, architecture and roadmap Implementation: solution architecture, deployment, upgrade, migration, testing and ERP/CAD integration Application management: transition planning and execution, business support and on-demand services Emerging technology services: mobility, analytics, cloud and social capabilities	Management or product portfolios
Consulting	CENIT provides solutions from SAP. CENIT supports the clients to provide relevant information in the correct quality to the process	The product development lifecycle for continued competitiveness.
Equipment manufacturer	HELLA Group, <a href="http://www.hella.ro">www.hella.ro</a> Hella Romania SRL is producing electronic components.	Management or product portfolios
Production of sub-assemblies for aviation	Aerostar, Bacău <a href="http://www.aerostar.ro">http://www.aerostar.ro</a> Integration of manufacturing, upgrade and maintenance for aviation and ground defence systems; Supplier of aerostructures, sub-assemblies and equipment for civil aviation; House for maintenance and conversion for civil aviation.	Management and production management
Road construction (provider of equipments)	TAR Industries <a href="http://www.tariasi.ro/en/">http://www.tariasi.ro/en/</a> TAR M.V. ltd Romania is the manufacturer, provider and partner to companies specialized in road construction, road maintenance and snow-removal, bitumen processing, environmental remediation, concrete and metal building construction.	Management and production management.
Producer of	Hydramold	Management and production

Hydraulic Equipments	<a href="http://www.hydramold.com/index.php">http://www.hydramold.com/index.php</a> SC HYDRAMOLD SRL was incorporated in 1991 by a team of experts in the hydraulic action technique, having as main activity force hydraulic equipment research, design, execution and trade for the maintenance and repair sectors of the process industries (automobiles, petrochemistry, energetic, metallurgy, civil and industrial constructions), at a small and medium series scale, and starting 2006 there was added the cement industry. The company's products include and apply own invention licenses and registered innovations, that constitute a portfolio of over 120 equipments with implementation in the national oil and gas industry, transportations, mining industry, chemical industry, naval and construction sector, which work at pressures of up to 3000 bars	management.
Production of construction materials	<a href="http://www.symmetrica.ro">http://www.symmetrica.ro</a> Simetrica SRL SRL	Product management
Machine tools	REM <a href="http://www.rem-machinetools.com/en/Heavy-machine-tools/Vertical-lathes/vertical_lathes.htm">http://www.rem-machinetools.com/en/Heavy-machine-tools/Vertical-lathes/vertical_lathes.htm</a> The company is a top provider of machine tools and performance solutions for the metal working industry worldwide. The production of Heavy Duty Machine Tools, especially VTL's (Vertical Turning Lathes) has a key role in the company, being considered one of the most important fields.	Product management

**56. We would like to get hold of where Quality Management through Product Lifecycle Management or PLM software is used – probably mainly in industrial environments. What brands of PLM software are used in your country (in any organisation, company, enterprise)? By whom are they used? Please try to list as many organisations as possible.**



PLM software supplier	Customers in your country
SAP	Cenit, <a href="http://www.cenit.ro">www.cenit.ro</a>
Siemens	<a href="http://adacomputers.ro/en/ce-este-plm">http://adacomputers.ro/en/ce-este-plm</a> <a href="http://www.dacia.ro">www.dacia.ro</a>
Other PLM supplier:	
IBM	
UGS in alliance with HP	UGS, ADA, Q Iași, PROMEX Brăila, UZINSIDER Galati, ICEPRONAV Galati, TURBOMECANICA
Oracle	
Matrix ( <a href="http://www.matrix.ro">www.matrix.ro</a> )	Aerostar Bacău Tar Iași Hydramold Iași Symmetrica Suceava REM Machine Tools Bacău.

57. Interview: try to find at least one user of PLM software in your country. Interview this person about the advantages of the software and its impact on the management of the product lifecycles. Why do they use PLM software? What are the components?

...if you don't get results and if completely impossible to find at least one user of PLM software, try to describe why.

Name of organisation	SC Automobile Dacia Renault
Type of the organisation, economical field	Auto production
Name of person	Pending
Size of the organisation (staff)	13652
City	Mioveni
Country	Romania
Webpage	<a href="http://www.dacia.ro">www.dacia.ro</a>

We have found that Dacia (member of Renault Group in Romania), producer of Dacia cars is using PLM. Despite the fact that we contacted different representatives there, we have not received any answer until now. We will further contact them and ask them for supplying information.

#### General presentation of Dacia:

Dacia is the main car manufacturer in Romania, and the company was founded in 1966, when the car assembly plant from Mioveni was set up. 2 years later, the first Dacia 1100 under Renault 8 license was manufactured.

In 1999, Renault bought 51% of the stocks in the privatization process. Currently, the group holds 99.43% of the Dacia capital. The company underwent a broad modernization process: change of the industrial equipment, reorganization of the supplier network, rebuilding of the commercial network, restructuring of activity and employee training. 3 quality management certificates (out of which one for environmental protection) validate the improvements.

Following investments amounting to € 1.6 billion, Dacia has become one of the most important companies in the Romanian economy, having an important share in the GDP and in the country exports.

Dacia's objective is to manufacture a range of robust, reliable and affordable cars, meeting the Renault quality standards and selling on the world markets. Dacia's product quality is acknowledged internationally. Within the surveys carried out by specialized bodies and publications, Dacia clients declare themselves satisfied with Dacia car quality.

Dacia is the 2nd brand of the Renault group, contributing significantly to the improvement of Romania's brand image worldwide. Dacia's success stems from the unbeatable price/quality/performance/reliability ratio. More than 90% of the cars manufactured at the Mioveni plant are sent to 37 countries on 4 continents. The audit for the certification renewal of the Quality Management System at Automobile Dacia took place during March 12-19, 2007.

Dacia has obtained from the Romanian Auto Register (R.A.R.) the renewal of the certification confirming that the Quality Management System implemented by the company complies with the demands of the ISO 9001 international standard, the 2000 version.

(Source: [www.dacia.ro](http://www.dacia.ro))

**Many thanks for your cooperation!**

## **Q-PLM**

LdV/DOI

Project Nr° 538379-LLP-1-2013-AT-LEONARDO-LMP

<p><b>WP 5: Research and analysis-planning</b></p> <p><b>Research Report on partner level</b></p>
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### Organisation data

Name of organisation	Chamber of Commerce and Industry of Slovenia
Type of the organisation (Vocational training center, university, Chamber, ...)	CHAMBER
Size of the organisation (staff)	120
City	LJUBLJANA
Country	SLOVENIA

## Field analysis in PLM

### Report about software analysis

### Research on Quality Management

**58. Does your organisation use a certified (EFQM, ISO, ...) or other quality management system? Does this system relate to your processes and/or products? Please describe.**

NO.....

Before we have ISO 9001 .....

Most frequently used quality system in Slovenia are ISO 9001 and ISO 14000 .....

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**59. If you evaluate your products, what are the most important Key Performance Indicators that are used?**

Revenue, costs, time spent, number of persons engaged, .....  
 number of business contacts, achieving the plan, number of participants in the events,  
 number of events, assessment of participants, praise / critics of participants,  
 how many participants finish education, the number of certificates awarded .....  
 .....

**60. Please indicate if your quality management system on product level makes use of:**  
*(combinations are possible)*

☐ **cause- and effect diagram**

*Identifies many possible causes for an effect or problem and sorts ideas into useful categories*

**X check sheet** – the most

*A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes*

**X control chart**

*Graphs used to study how a process changes over time*

**X histogram**

*The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs*

**X pareto chart**

*Shows on a bar graph which factors are more significant*

**X scatter diagram**

*Graphs pairs of numerical data, one variable on each axis, to look for a relationship*

**X flow chart** –the most

*A technique that separates data gathered from a variety of sources so that patterns can be seen*

**X other: bubble chart**.....

☐ **other:**.....

**61. What does the flow of your Quality Management System look like? What are the main steps in your quality management process when it comes to your products?**

Market research

Product development

Delivery of the product on the market

Evaluation

Monitoring: price (costs, revenue, profit), user satisfaction

Adaptation: improvements .....

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**62. In what phases do you pay attention to quality management:**

*(combinations are possible)*

☒ Design phase of a product – **the most**

☒ Development phase of a product

☒ Delivery phase of a product

☒ Evaluation phase of a product – **the most**

☐ Other: .....

**63. What (type of) software do you use for the management of your product portfolios in general? Try to describe:**

None .....

**64. Whether or not you make use of software, what would you expect from software supporting the management of you product portfolios and the quality management of your product?**

Easy to use: easy data entry, easy to obtain results

Fast

Multiusers

Compatible with other programs, databases, telephone...

Visual display of results

The program itself appears where it is needed your attention, what needs to be improved

Suitable price - as low as possible

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**65. Field analysis in PLM:**

**Please provide feedback about the use of PLM in your country. In which economical fields is it used (probably mainly in industrial environments)? Could you describe these companies? Do companies use the concept of PLM within the management of their product portfolios? What are the advantages? Why do companies use PLM software?**

The PLM concept is used in industrial companies: electro, wood, metal,

Advantages: for faster and easier decisions,

Centrally managed development documentation in one place access to a wider range of users,

development processes are standardized and electronically manageable,

easy co-operation with the remote development and production units,

Better quality of information and data,

Management and review of projects and project teams,

Co-development environment,

Visualization of 2D and 3D CAD documents across the enterprise

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**66. We would like to get hold of where Quality Management through Product Lifecycle Management or PLM software is used – probably mainly in industrial environments. What brands of PLM software are used in your country (in any organisation, company, enterprise)? By whom are they used? Please try to list as many organisations as possible.**

PLM software supplier	Customers in your country
SAP	
Siemens	
Infor	
Arena	
Sopheon	
Kalypso	
Softech	
Aras	
Integware	
PTC: Windchill (Oracle) Audax d.o.o.	Kolektor group d.o.o., Hidria d.d, Iskra Avtoelektrika ASING d.o.o., Domel d.o.o., LTH Castings d.o.o., ETI d.d., Niko d.d., SITOR stiskalnice d.o.o.
Other PLM supplier: .....	

67. Interview: try to find at least one user of PLM software in your country. Interview this person about the advantages of the software and its impact on the management of the product lifecycles. Why do they use PLM software? What are the components?

...if you don't get results and if completely impossible to find at least one user of PLM software, try to describe why.

Name of organisation	Niko d.o.o.
Type of the organisation, economical field	Metal industry: manufacture of products for use in office operations, for construction, for upholstery and wood industry, toolbox
Name of person	Boris Kavčič
Size of the organisation (staff)	250 employees
City	Železniki
Country	Slovenia (SI)
Webpage	www.niko.si

They use PLM software to track documents through life cycle of the product.

Benefits: to support the CAD system, traceability, archiving, technical documentation.

For monitoring /tracking of all documents in all format (word, excel, pdf, jpg).

It is very complex software. They are using only 30% of what the software allows.

They are very satisfied with the software. It serves its purpose.

It inform users, that are predetermined about the changes by e-mail.

.....

I found two companies that use PLM method but not PLM software: Danfos Trata d.o.o. and Alples d.d. They use PLM in context of innovation. They have workshops, brainstorming, they use bubble charts, excel, indicators. They meet every few months. They use PLM in content. They think PLM software would be too complicated. Even more in services. I talked to a lot of companies that PLM method even don't know.

**Many thanks for your cooperation!**