



Analyzing Competences at Work: Practical Examples from Industry

Professional Training Facts 2009
Track 11: Competence Management
in Production Systems
Stuttgart, 18. November 2009
Alexander Schletz

Agenda

- Approaches for competence analysis in production systems
- Presentation of the project CM ProWork transfer and the tool CM ProWork
- Practical example: competence analysis at Kosche GmbH
- Prospects: How will it go on?

What is it about?



OBJECTIVES OF CM ProWork transfer

TARGET

The LEONARDO DA VINCI project "CM ProWork transfer" (Competence Management Production Work) aims at displaying competences used and developed by workers (with and without specific professional training) in their production activity with the aid of a software tool. At the same time, the tool is meant to support the operational competence management in the company. Systematic collecting and enhancing of individual and group oriented competences verifiably helps production companies to maintain their productivity, quality and flexibility in competition and measure up to innovation challenges of the markets. CM ProWork provides the chance to include the production divisions and especially the target group of workers into the competence development strategies of the whole company. The project can be allocated to the educational goal of the EU: making results of non-formal learning transparent and comparable.

- **Systematic collecting and enhancing of individual and group oriented competences.**
- **Making results of non-formal learning transparent and comparable.**

Objectives...

1

A systematic **collecting** and **enhancing of individual and group oriented competences** helps the production companies to maintain their productivity, quality and flexibility **in competition** and to satisfy the **innovation demands** of the markets.

2

CM ProWork offers the opportunity to include the different production divisions – and especially the **target group** of workers in the production – into **competence development strategies** of the whole company.





is interesting, **if...**

- ... shortages of competence on the side of the workers in production limit the process stability and the flexibility in assignment of workers,
- ... technological and organisational changes require the acquisition of new competences.

because...

Production processes become continually more integrated into transnational added value processes and the associated standards of **QUALITY**, **PRODUCTIVITY**, **FLEXIBILITY** and continuous **INNOVATIONS**

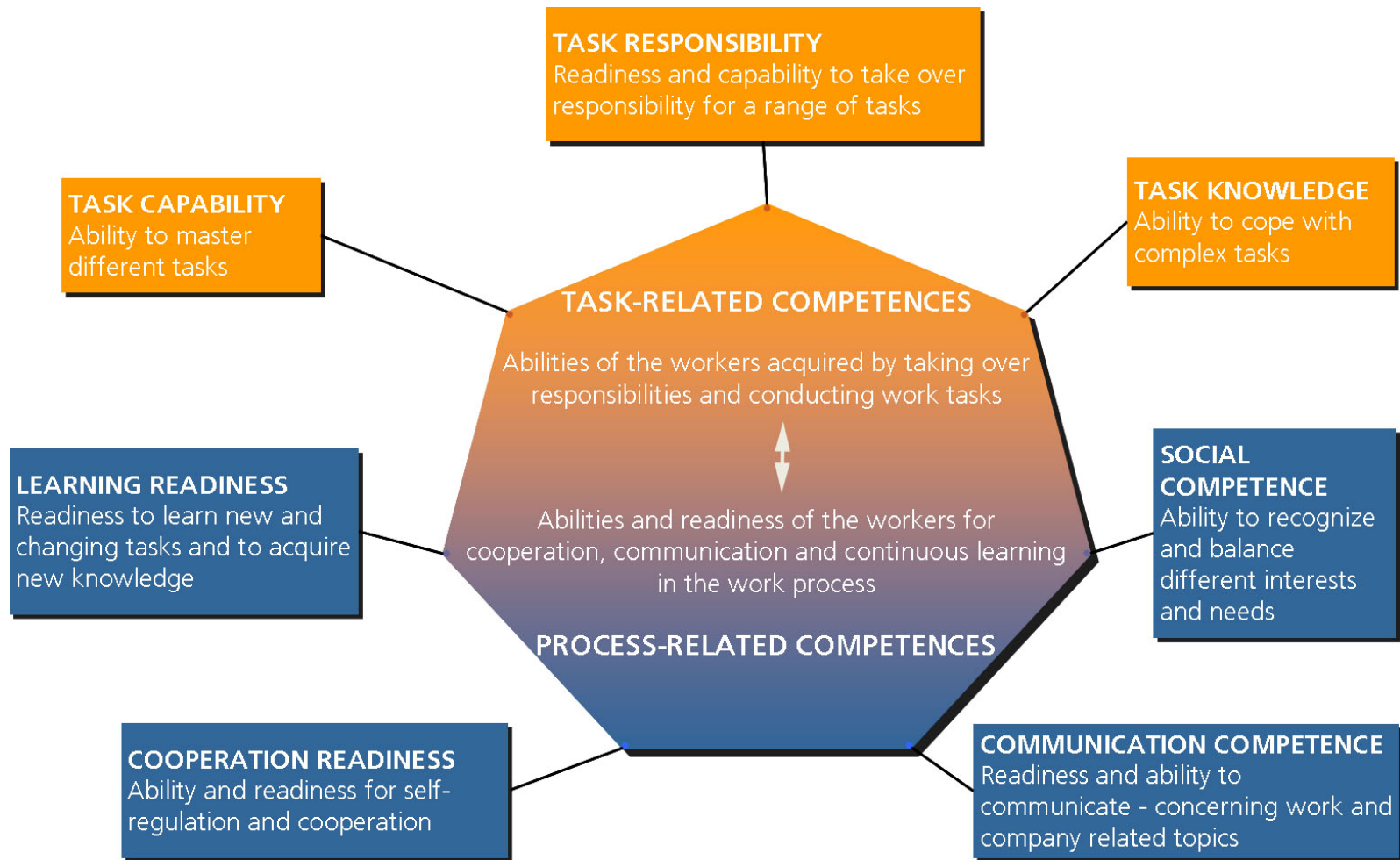
The software tool...



... was developed for the **analysis** and **evaluation** of **operational competences** in the field of **industrial productive activities**.

... is a **multi-lingual** software tool for the competence management in production systems. With CM ProWork tool, the workers' competences acquired **in the process of work** can be analyzed according to **tasks** and **processes** as well as **compared** between companies and in different countries.

Dimensions of competence in CM ProWork



Practical example: competence analysis at Kosche GmbH

History

Founded in 1968, KOSCHE Profilmantelung GmbH today is one of the leading full service providers across Europe in the area of **profile-covered components** for indoors and outdoors.



Core Competences

The principle of the business idea is the **coating of precious softwood skirting boards** with veneer high quality types of wood and **décor films in their unlimited variety**. In this way, both the material costs as well as the production-related costs were **very efficient** and could additionally react **very flexibly** to the changing trends.



Pilot testing at Kosche GmbH: Why?

- Competences of the workers were **not systematically analyzed**
- Interest in improvement of **responsibility structures** in the production system
- **Job specifications** were not up to date
- Adequate internal and external **recruitment** is needed

Procedure in pilot testing at Kosche GmbH

- Selection of pilot testing division ✓
- Analysis of operations in pilot testing division ✓
- Determination of relevant tasks and positions ✓
- Modeling tasks and positions with the tool ✓
- Assessment of virtual workers as pretest ✓
- Validation and confirmation of fitness for purpose ✓
- Assessment of individual workers
- Identification of workers qualified for particular positions
- Identification of competence development needs

Defined positions in the pilot testing division

- **Einleger UMA**
Inserting components into a machine, material logistics (5 tasks)
- **Einleger Online**
Inserting components into several machine stacks parallel (4 tasks)
- **Maschinenführer UMA mit Hobelautomat**
Setting up and surveying a more complex machine, simple trouble shooting, tracing of orders (20 tasks)
- **Maschinenführer ohne Hobelautomat**
Setting up a simpler machine etc. (16 tasks)
- **Schichtführer**
Operational responsibility for the pilot testing division (18 tasks)

Next steps


Demands and expectations of Kosche GmbH

- **Transparency** of tasks and responsibilities in the production process
- Systematic **comparability** of competences in the company
- **Cooperative classification** of the staff by executive managers and workers themselves
- Communication of **responsibilities** at the workplace and **expected competences**
- Goal-oriented **recruiting**

Experiences in the project

- High interest for competence management in production systems
- Economic crisis: Companies hesitate in starting the project
- No comparability of competence configuration possible without a clearly defined task inventory

On the net...



CM pro work

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Home

Suche

LANGUAGES

Deutsch
Italiano
Norsk
Slovenčina

TARGET

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TESTING OF A SOFTWARE TOOL IN THE PROJECT

The multilingual software tool CM ProWork is currently further developed for the competence management in production systems. The focus of the tool development is the operation competence in the domain of industrial productive activities. The tool is able to display the competences acquired by learning in the process of work in a task-related and process-related way. The tool also facilitates comparisons between companies concerning the acquisition of competences.

APPLICATION OF THE TOOL

This software tool enables production management and human resources development in industry to register and describe staff competences in production, to identify learning requirements related to tasks and individuals, to adapt competence development strategies accordingly and to optimise task allocation and the corresponding work organisation.

www.cmprowork.eu/en

Contact...



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Competence management in Italian industry: the cases of Coster Tecnologie Speciali S.p.A., Ducati Energia S.p.A. and Sapa Profili s.r.l.

Bernd Beck

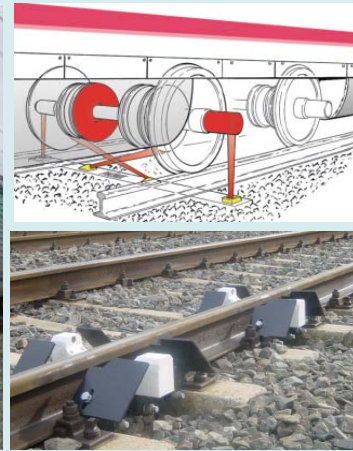
„Professional Training Facts“
Stuttgart, 17th-18th November 2009

Ducati Energia – Bologna Plant

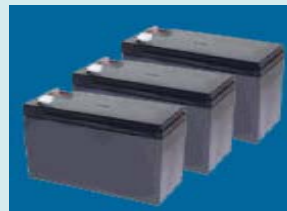
From a “pure” production plant
to a plant for
product development – industrialisation - outsourcing.

From a plant with few standard products, realized in series
production,
to a plant with a great variety of specialized products of
higher value,
realized either in “workshop” production or in production
systems with high automation.

Ducati Energia: Products



Ducati Energia: Products



Ducati Energia: Products



Ducati Energia: Products



Ducati Energia – 1985

- about 12 million Euro turnover
- R&D with 5 engineers and 20 technicians
- 3 main products:
 - motor lighting capacitors
 - power electronic capacitors
 - generators, ignition systems

Ducati Energia – Applied strategy

- to complete product spectrum
- to diversify markets/clients
- from production of components to production of systems/final products
- maintaining also the production of components
- addition of systems and final products (to product spectrum)
- addition/integration of new services:
 - after sales services
 - creation of new integrated services (product + services as an integrated offer)

Ducati Energia – Company Policy

- “vocation components”:
 - transfer of production to low cost areas (especially components of low added value, production with low automation)
- “from components to systems”:
 - capacitors: systems of low and medium voltage
 - generators: systems or final products: e.g. electric vehicle

Ducati Energia – Company Policy

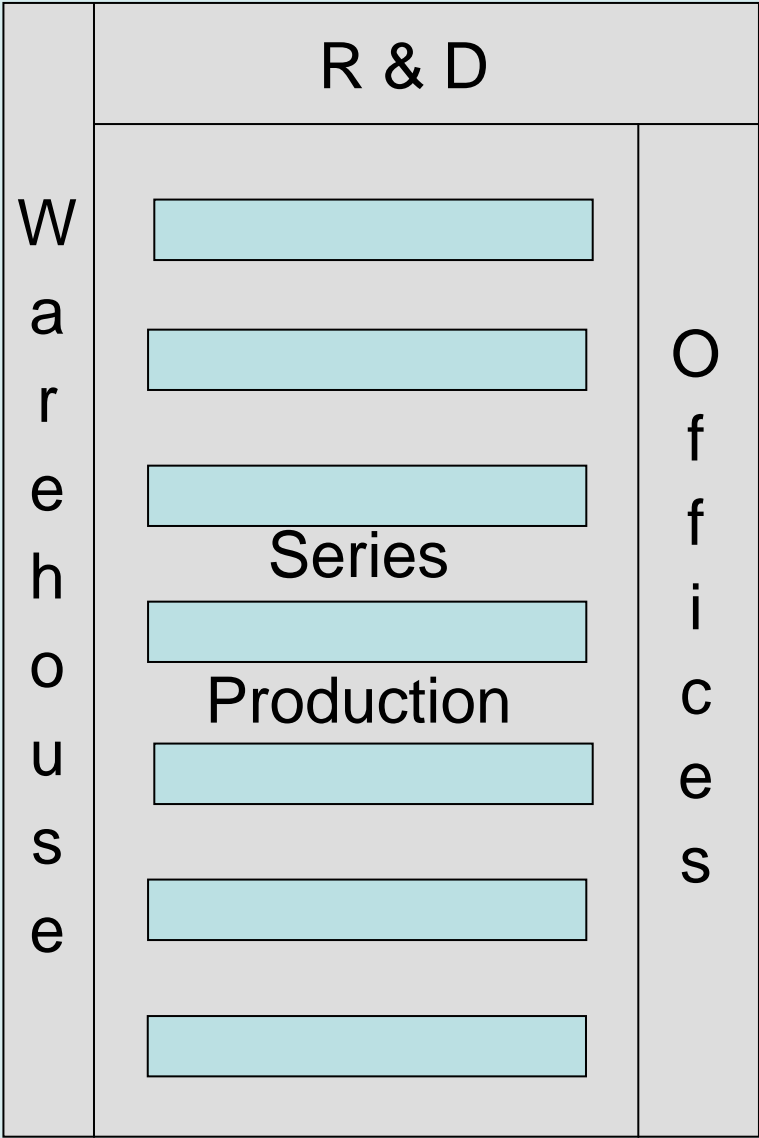
- acquisition of companies which allow a diversification of products (“green economy”, “energy”):
 - **road traffic** (toll equipment, emergency call systems, access control systems, parking systems)
 - **public transport** (toll in wave, on board bus ticketing, advanced ticketing)
 - **railway** (automatic block equipment: axle counter, hot-box thermal detection system, chronological events recorder, relay interlocking equipment)
 - **energy** (energy analyzers and data management systems: monitoring equipment and distance control - supervision for HV/MV substations, directional fault and power failure detector)
 - **public lighting systems** (fault detection and monitoring system for public lightings)
 - **information systems** (information points, interactive display: virtual museums/archaeological sites, navigator)

Ducati Energia – 2009

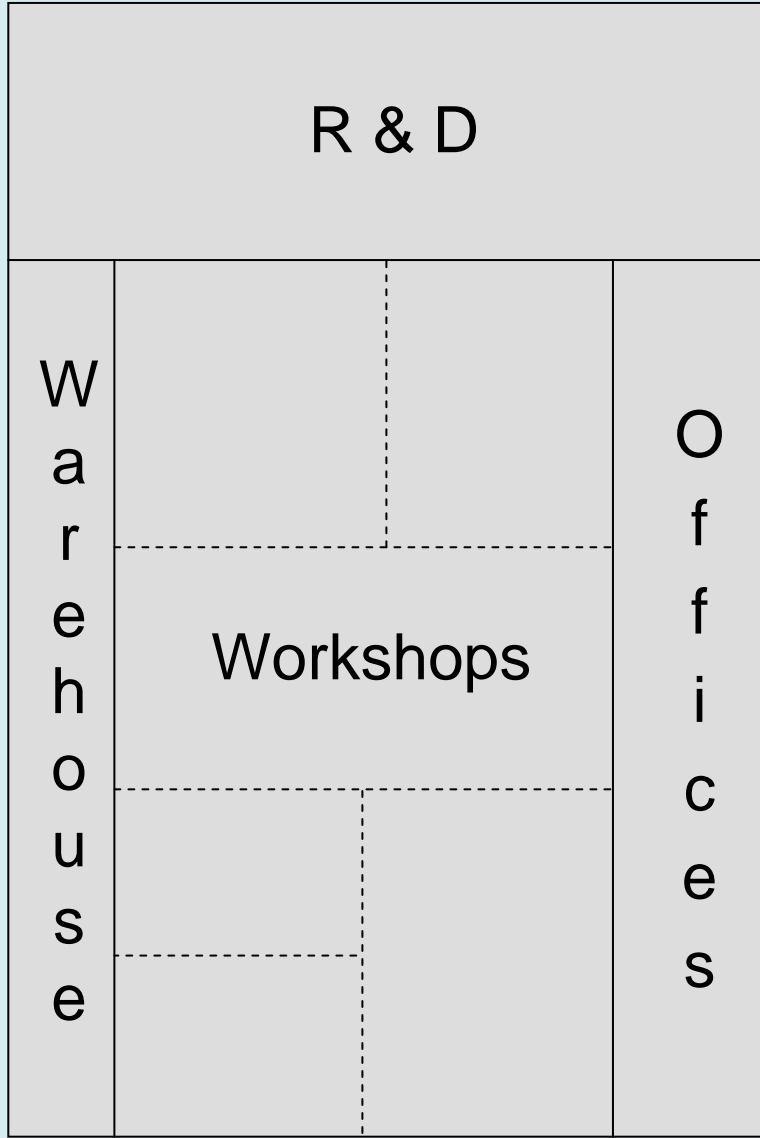
- about 85-90 million Euro turnover
- R&D with 70 engineers
- new products, e.g. “free duck” (electric vehicle) and small “wind power systems”
- international presence: Italy, Croatia, Romania, India, Argentina, ...

Ducati Energia

1985



2009



Ducati Energia – Changes in Human Resources (HR)

Production:

- multiskilling
- multitasking
- flexibility
- technicians as workers in production
- less production – highly “qualified” production

Ducati Energia – Changes

Changes in company functions:

- Technical Services / R&D
- Purchase
- IT-systems
- Logistics
- Quality
- HR
- Finance/Controlling

Ducati Energia – Changes

From “mono-plant” to:

- development of processes
- implementation in different plants (in different countries) with different mentalities, cultures, etc.

Group supervision:

- e.g. quality control of production lines
- the technical documentation has to be very precise.

Ducati Energia – Changes

Problems:

- transfer of know how
- to guarantee common standards
- to define common indices for the measuring of company processes.

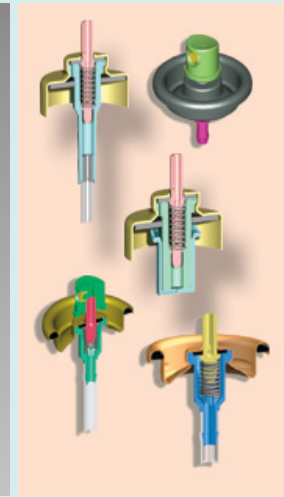
HR:

- high technical competencies, but also:
- methodological competencies
- organisational competencies
- socio-relational-/communication competencies.

Coster Tecnologie Speciali – Plant “Coster 3” at Caldonazzo

“Thinking for improvement”

Coster 3



Coster 3



Coster 3



HR in a highly automated plant

The “Coster 3” is an automated plant.

Production workers in the past:

- **execution** of precisely described tasks

Production workers today in this plant:

- **autonomy and responsibility**

Actually the workers are:

- **actors of improvement**
- objective: augmentation of production efficiency (continuous production)

HR in a highly automated plant

Objective for the future is:

- **responsible for improvement**

Improvement of production processes:

- tools, handling equipment, machines
- methods, procedures

Technical Training, but also:

- teambuilding
- problem solving, creativity
- quality assurance and improvement (especially methods)

HR in a highly automated plant

High attention to health and safety

At disposition of workers:

- “**ideas in relax**”: coffee-room with tables and chairs, but also a small “table soccer”
- an area with **ping pong** and a bigger “**table soccer**” for team-building within the production area
- **psychologist** for some hours at disposition of workers (for problems with hierarchy, colleagues or family members)
- **internet point**
- **fitness studio** and **sauna** (can be used also by the family of workers).

Coster 3



HR in a highly automated plant

Meeting area for shift change and problem solving
within production:

- with triangular **visualization** pillars
- visualization: how to resolve customer problems.

External changes (since the creation of the “Coster 3” plant):

- just-in-time production
- reduction of material costs
- demand for diversification of products
- reduction of delivery times
- “retail selling”/“pharmacy”: nobody is buying anymore big quantities

HR in a highly automated plant

Reactions:

- firstly: reduction of human resources
- now: reduction of time:
 - no time anymore for planning
 - improvisation is often needed
- no guaranties anymore:
 - change in the work
 - change in competencies
- kaizen: fast improvement – in case of error: start again
- change of shifts every 6 months (objective: change has to be lived as normal)
- multiskilling and multitasking
- change of “work places” within the plant (objective: higher flexibility)

HR in a highly automated plant

Questions:

- which work to give to people with 70 years?
- how to give value to experience?

Strong point:

- emergency always well managed

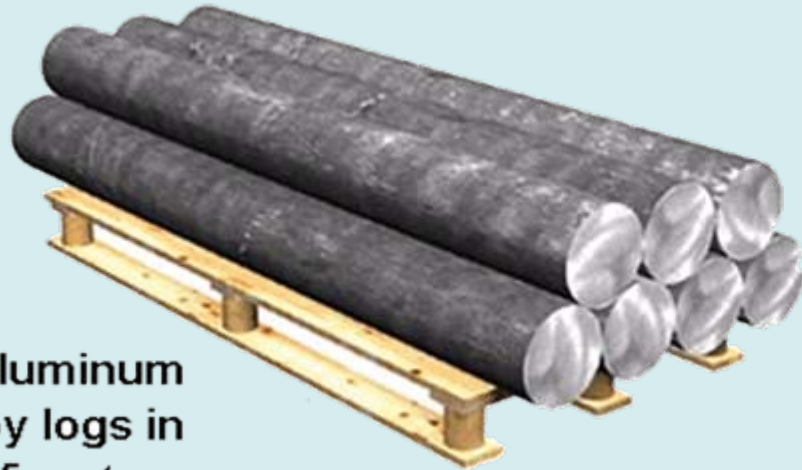
Weak points:

- to look ahead, to foresee problems
- to find and define well problems
- to accept “status quo”: it shouldn’t be accepted, but improved
- the problems have to be identified: innovation is result of “problem search”

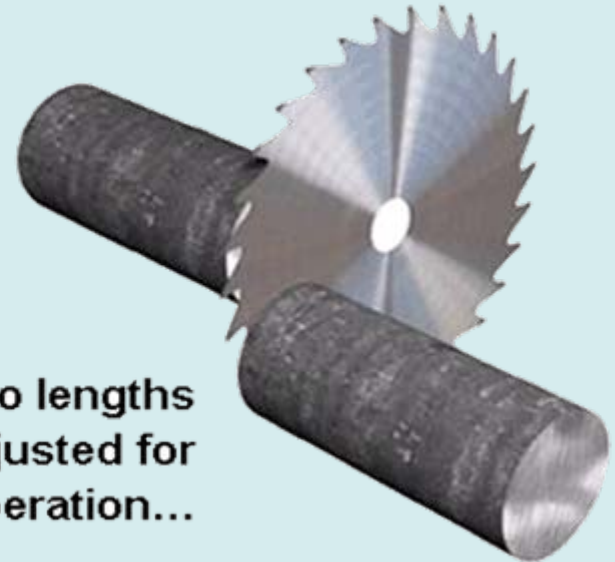
SAPA – Bolzano Plant

“Preparing the future”

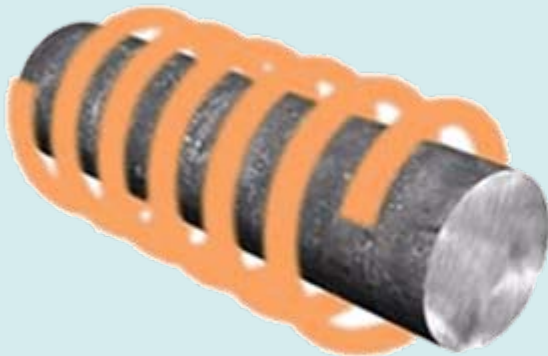
sapa: extrusion process



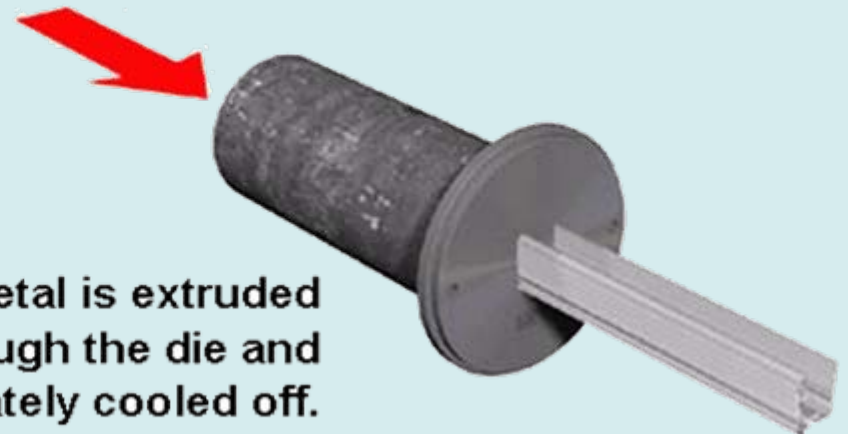
Aluminum
alloy logs in
4-8.5 meters
lengths...



...cut to lengths
(billets) adjusted for
the press operation...



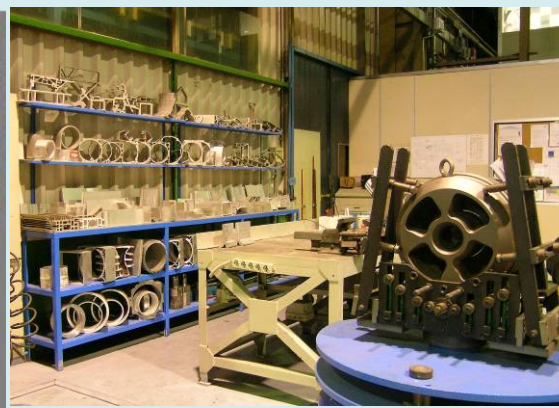
...heated to about
500 degrees C...



...the metal is extruded
through the die and
immediately cooled off.

sapa

STIAMO LAVORANDO PER FAR DIVENTARE GRANDE LO STABILIMENTO DI BOLZANO
WE ARE WORKING TO ENHANCE BOLZANO'S PLANT



sapa: applications



SAPA – Bolzano Plant

2009: a difficult year (for business), but also a year of investment in HR, technology, new products, new markets, new clients.

The Bolzano Plant for aluminium profiles pays a particular attention (also documented by international certifications) to:

- **quality**
- **health and safety**
- **environment**
- **ethics**

SAPA – Bolzano Plant

The Bolzano Plant is:

- **investing in production technologies** (e.g. new press, new electro-inductive oven for temperature treatments)
- **developing new products** (e.g. Application Centre of Bolzano with about 60 innovation projects: anti-noise barriers, etc.)
- **changing from supplier** of quantity to other companies **to a producer of high quality final products** (together with other Sapa plants)
- **developing new services** (e.g. training in health and safety for externals, supply of aluminium alloys to other companies in the Bolzano region)

SAPA – Bolzano Plant

Characteristics:

- flat hierarchy / lean management
- strong involvement of workers
- continuous improvement
- intercultural integration

Problems/chances:

- foundry and press environment is not very attractive, therefore work a lot of foreigners from many different countries in the plant
- there are some language problems
- intercultural cohabitation and understanding is a source of learning and a competence for the future”

The company needs in future new/more competencies

In foundry:

- more metallurgical competencies
- more technical competencies in foundry processes
- more automation and ICT competencies

In extrusion:

- respect of very high security standards for final products
- more competencies and strict application of process control
- augmentation of production efficiency, therefore more competence in trouble shooting, basic maintenance, etc.
- more automation and ICT competencies

The company needs in future new/more competencies

In maintenance:

- change of specific competencies: electromagnetic induction, PLC
- changes in the production planning has consequences for maintenance (planning of maintenance is getting more difficult
- change of competencies from mechanical competencies to electronic competencies and the use of ICT for diagnostics and regulation of processes.

Sapa is partner enterprise in the EU Leonardo-da-Vinci Project “CM ProWork Transfer” in the Lifelong-Learning Programm:

- in this project on competence management in industrial production the company is collaborating at the improvement and the testing of the software “CM ProWork”.

Preparing the future

Sapa is preparing the future by:

- a strong investment in HR (including the creation of a better competence management system)
- improvements of organization and processes
- development of new products/applications of know how and
- search of new (final) clients.

Ducati Energia

is changing from a one-site supply company to a “pocket-size” multinational company with strong R&D activities, with new own final products (for the “green economy” and the energetic sector) and with new related and integrated services. New competencies are needed regarding the development of standards and common control criteria, transfer of know how, intercultural communication and understanding.



“Coster 3”

a plant where the workers don't produce but have to guarantee production and to think for improvements. They are responsible for production, they do trouble shooting and problem solving and they implement improvements. In this context a high technical qualification and teamwork are needed. Multiskilling and multitasking can guarantee a higher flexibility and availability.



The Sapa Bolzano Plant

is a plant which is preparing the future by investments in production technologies, improvement of processes and organization, development of new applications, new final products and services and cultural integration. The plant pays a particular attention to health and safety and environment. Being the Sapa Bolzano Plant part of multinational company, world leader of aluminium manufacturing, a lot of know how is already existing: know how transfer and competence management are the challenges.



Thanks for Your attention!

- www.ducatienergia.it
- www.coster.com
- www.sapagroup.com

