



The Four Pillars of Plumbing

How Switzerland reassesses the profession's training requirements

Case study: apprenticeship

suissetec

- **Industry and employers' association**

- Includes organisations from these areas
 - Metal roofing/building shell
 - Heating
 - Air conditioning
 - Ventilation
 - Cooling/chilling
 - **Plumbing/water/gas**

- Represents all the steps in the value-added chain, i.e. manufacturers, suppliers, planners and builders



Burj Khalifa



Burj al Arab

Piping in these buildings by Georg Fischer Piping Systems (Member of suissetec)

Key figures for Switzerland

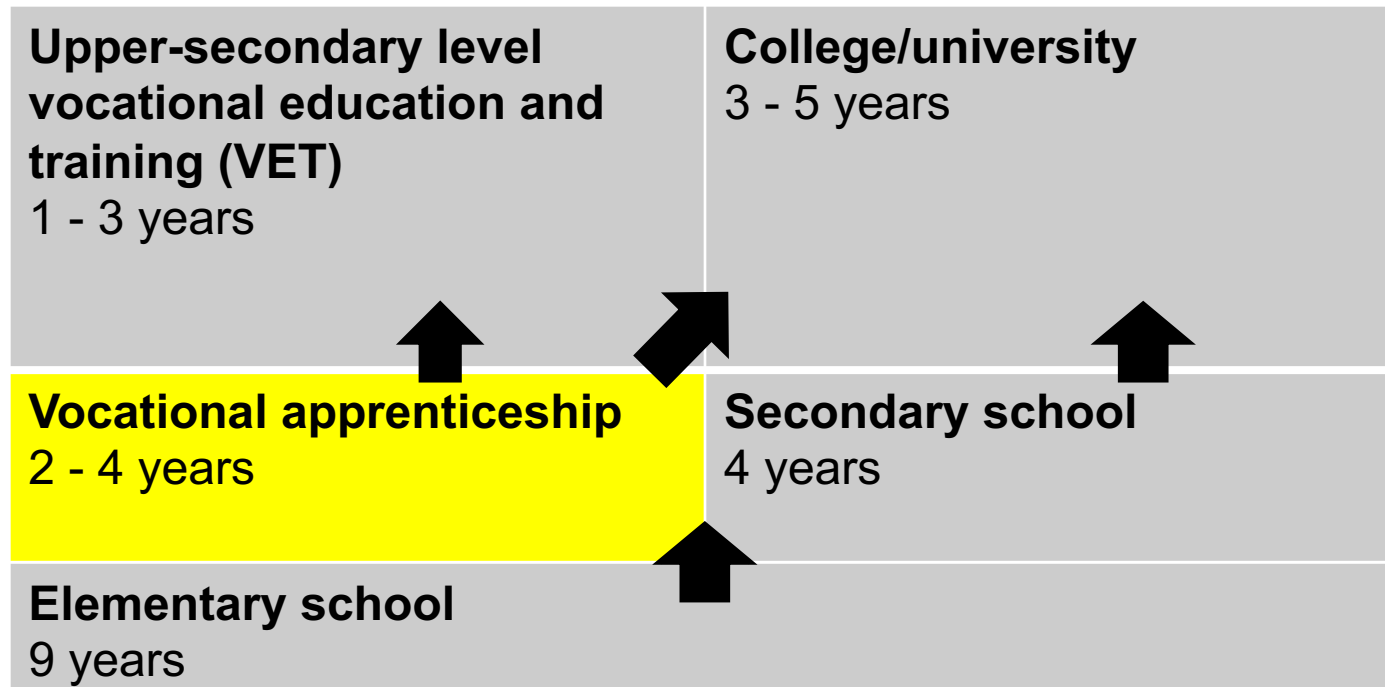
	suissetec members	Non-members	Total
Number of companies	3,300	3,000	6,300
Number of salaried employees / subj. to collective agreements	32,500	6,500	39,000
Annual turnover builders/planners	CHF 6.2 billion	CHF 2.7 billion*	CHF 8.9 billion*
Number of employees per company	9 - 10	2 - 3	
Number of apprentices	5,600	1,000	6,600

* = estimate/sources: survey of suissetec member services / Swiss Federal Statistical Office



Swiss vocational education and professional training system (VPET)

The Swiss education and training system



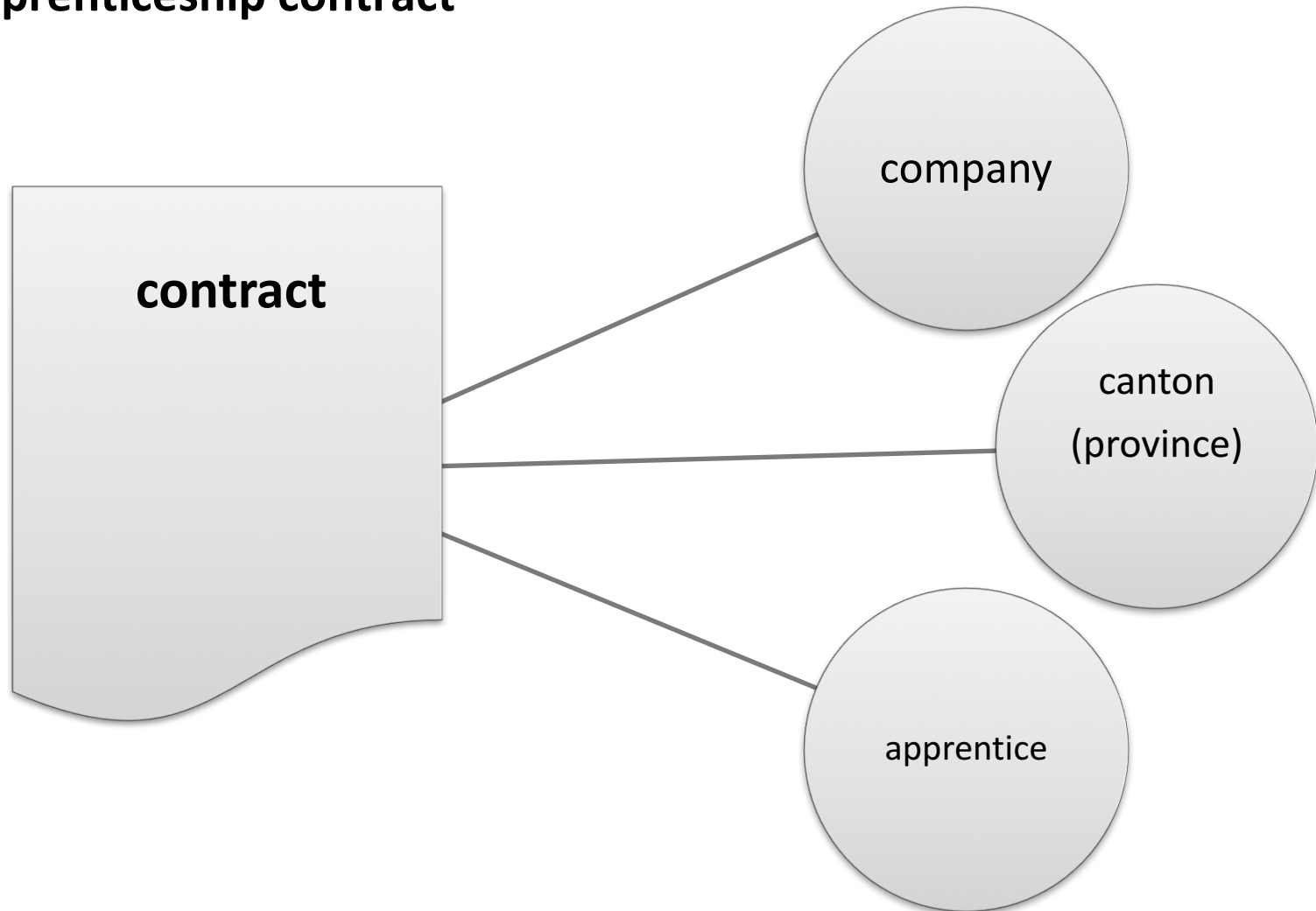
Trial apprenticeship



Ability Test



Apprenticeship contract



On the job training at the workplace



Vocational school



Industry courses



Apprenticeship in Switzerland:



At work
4 days a week



Vocational education and training (VET) school
1 day a week



Industry courses
e.g. 36 days in 3 years

Assessing future training requirements



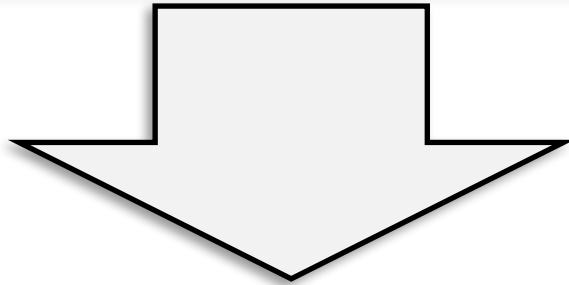
Why redesign training in plumbing?



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

State Secretariat for Education,
Research and Innovation SERI

Federal Vocational Education Act:
→ **mandatory examination
of requirements and
reassessment every five years**

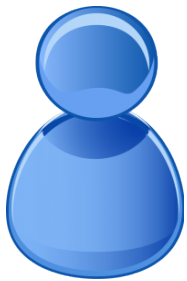
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**Decision:
redesign**

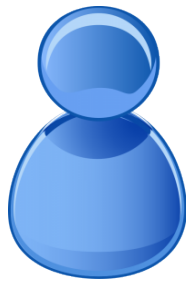
The key questions:

- What is the best approach to plumbing today?
- What should the training requirements be in the plumbing sector?
- What should the standards be?

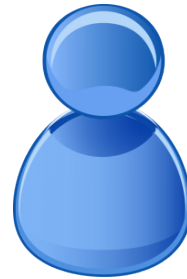
Redesign: composition of the working group



Schools



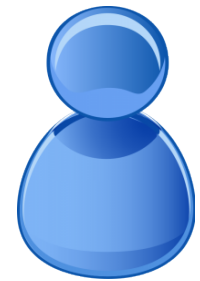
Industrial training
providers



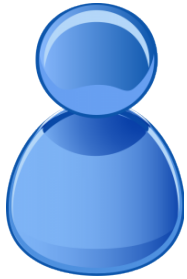
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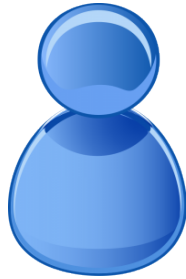
Cantons
(Provinces)



State Secretariat
(Confederation)



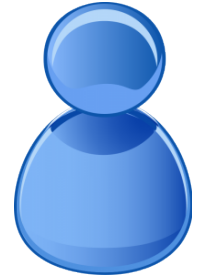
Entrepreneurs



Practitioners



Education
specialists



Examination
experts

Redesign: the process

Phase 1: Defining the basics

Develop an Activity Profile

Validate the Profile among companies

Phase 2: Developing a training plan

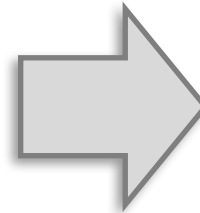
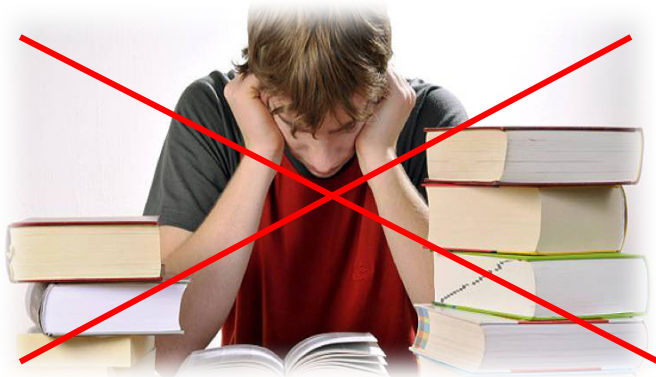
Develop a Training and Education Plan

Develop a detailed Training and Education Plan plus teaching aids for schools, industrial courses and companies

Phase 3: Adopting the Plan in schools, industrial courses and companies

Redesign:

From:
Theoretical training




To:
Practical training



Redesign: The results

- The Activity Profile
- The Training and Education Plan

Bildungsplan zur Verordnung über die berufliche Grundbildung für Sanitärinstallateurin EFZ / Sanitärinstallateur EFZ



Training and Education Plan


zur Verordnung des SBF1 über die berufliche Grundbildung für

Sanitärinstallateurin / Sanitärinstallateur mit eidgenössischem Fähigkeitszeugnis (EFZ)

vom

[Genehmigungsdatum] ggf. Stand am [Datum Inkraftsetzung]


Berufsnummer ~~xxxxx~~



The Activity Profile: an overview

Area of Activity		Activities							
		1	2	3	4	5	6	7	8
1 (a)	Planen der Arbeiten	Einfache Installationspläne erstellen	Arbeitsablauf bestimmen und Arbeiten auf der Baustelle absprechen	Werkstattplan erstellen	Detailplan erstellen	Vorwand planen	Arbeitsplatz einrichten und sichern	Maschinen und Werkzeuge unterhalten	
2 (b)	Installieren von Versorgungsleitungen Wasser	Wasserleitungen demontieren	Wasserleitungen vorfabrizieren	Wasserleitungen verbauen	Druckprüfung bei Versorgungsleitungen durchführen	Wasserleitungen, Formstücke und Armaturen dämmen	Wasserleitungen in Betrieb nehmen		
3 (c)	Installieren von Versorgungsleitungen Gas	Gasleitungen demontieren	Gasleitungen vorfabrizieren	Gasleitungen verbauen	Druckprüfung bei Gasleitungen durchführen	Gasleitungen, Formstücke und Armaturen dämmen	Gasleitungen in Betrieb nehmen		
4 (d)	Installieren von Entsorgungsleitungen	Entsorgungsleitungen demontieren	Entsorgungsleitungen vorfabrizieren	Entsorgungsleitungen verbauen	Druckprüfung bei Entsorgungsleitungen durchführen	Entsorgungsleitungen, Formstücke und Armaturen dämmen	Entsorgungsleitungen in Betrieb nehmen		
5 (e)	Installieren von Vorwandsystemen	Vorwände rückbauen	Vorwände vorfabrizieren	Vorwände verbauen	Vorwände dämmen				
6 (f)	Montieren von sanitären Anlagen und Apparaten	Apparate, Armaturen und Garnituren rückbauen	Apparate, Armaturen und Garnituren montieren	Ver- und Entsorgungsanlagen montieren	Solaranlagen montieren	Spezielle Sanitär-Apparate montieren	Kleinlüftungsanlagen montieren	Wartungsarbeiten ausführen	Servicearbeiten ausführen
7 (g)	Durchführen von Abschlussarbeiten	Abfälle trennen und entsorgen	Rapporte erstellen	Dem Kunden das Werk übergeben (inkl. Protokoll)	Montageunterlagen aktualisieren				

The Activity Profile: an extract

 Area of Activity		Activities		
		1	2	3
1 (a)	Task Planning	devise simple Installation plans	decide on process and coordinate activities on construction site	plan workshop activities
2 (b)	Installation of Water Supply	removal of water pipes	prefabricate water pipes	mount water pipes

The structure of the new Training and Education Plan for Plumbing

Skills Area 1: Planning work tasks

Skill 1.1: Devise simple installation plans

The trainee shall be able to devise simple installation plans giving an overview of the plumbing installations planned for part of a building or for a small building (e.g. of two apartments).

To do so, the trainee shall first obtain the requisite architects' plans and documentation, and shall then work with the architect or another industry specialist to determine the extent of the work required and the client's needs.

Company performance goal(s)	School performance goal(s)	Industrial course performance goal(s)
1.1.1 To procure the planning documents and further information (e.g. equipment lists) required to devise an installation plan	1.1.1 To interpret simple architects' plans 1.1.2 To interpret simple installation plans and schematic views	1.1.1 To interpret simple installation plans and schematic views

**WIR, DIE
GEBÄUDETECHNIKER.**

**NOI, I TECNICI
DELLA COSTRUZIONE.**

**NOUS, LES
TECHNICIENS DU BÂTIMENT.**

Any questions?