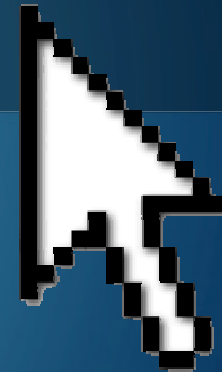


Politecnico Di Torino

# Implementation of a QHSE management system, Criteria and Methodologies



Feng Mengting

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# Introduction

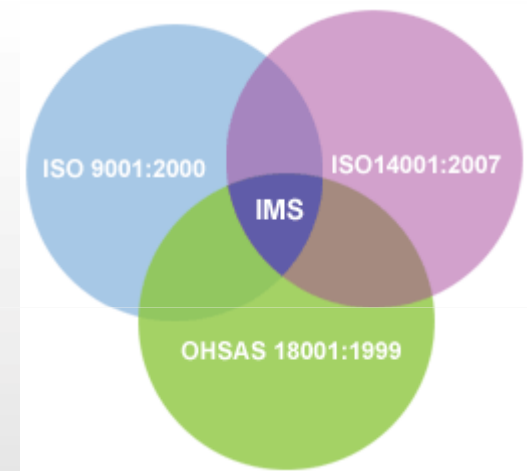
Nowadays there are many programs on product quality. As a matter of fact the product quality has to be considered not only related to the product or process itself but all the factors that contribute to the final integrating quality taking into account environment and workers health and safety.

Later on the 'Sistema Ambiente' will be introduced as a management integration program of risk prevention and environmental quality which will guarantee and furthermore enhance the quality of the product as well as process in a comprehensive way.



# 1. Management systems and their integration

- Quality management systems (ISO 9000 series)
- Occupational Health and Safety management systems (OHSAS 18001)
- Environmental management systems (ISO 14001 series)



*QHSE Management System: Quality, Health, Safety and Environment Management System*



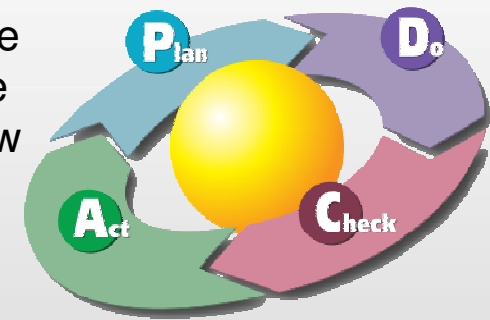
*IMS: Integrated management system*

# 1. Management systems and their integration

## ***Possibility of integration:***

Three management systems are in common following the Deming cycle (PDCA cycle) to achieve the continuous improvement of the management system in :

- Top management commitment
- Documentation and records control
- Definition of a policy
- Planning of objectives and targets
- Procedures for training of employees
- Communication procedures
- Audits
- Control of non-compliance
- Corrective and preventive actions
- Management review



## ***Core of integration:***

- Integrate in a functional and effective way to the objectives of enhancing business productivity, quality of work and the contribution of workers reducing the environmental impact of processes and products, leading technological and organizational innovation.
- Not a superposition of three management systems or simply to reduce the workload and reduce the cost of certification

## 2. Management system related to different organizational context

### ***Static Organization:***

- Overlap between ownership and management
- Strong verticalized management
- Workers with prevalent execution role
- Repetitive operations
- Stable technology and procedure



- Increasing autonomy of the manager
- De-centralized management
- Increasing role of the intellectual function and specialization
- Strong fragmentation of the executive work
- Greater availability of innovation
- Strong interaction with the market specialization of products

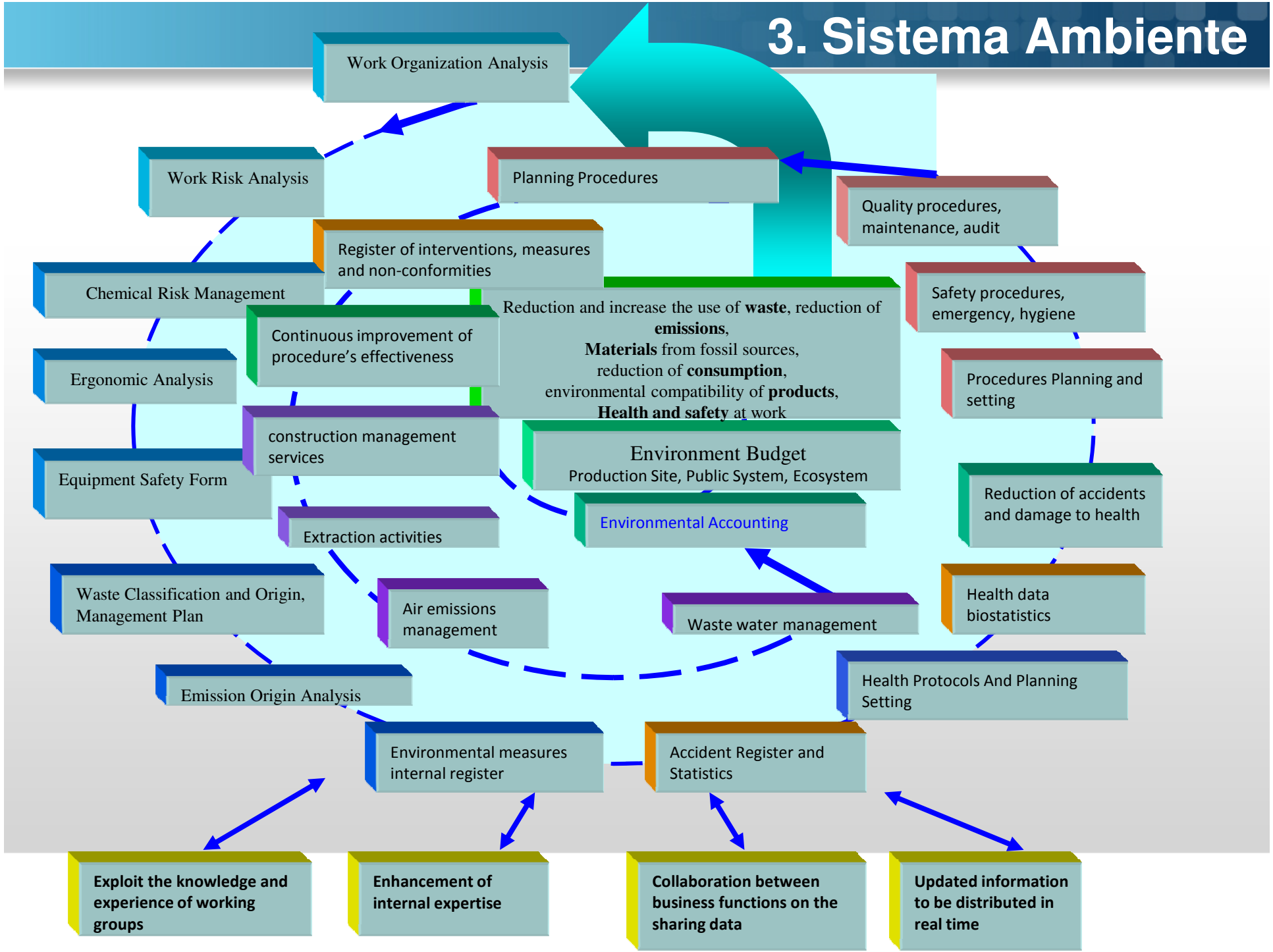
### ***Dynamic Organization:***

### **Dynamic Management System!**

A dynamic management system is needed so as to recognize the complexity involved in understanding human and organizational system



# 3. Sistema Ambiente



### 3. Sistema Ambiente

- **Risk analysis**

- Analysis and Assessment of places, work phases, machines and components
  - Chemical risks, explosive atmospheres
  - Fire risk prevention and classification
  - Food hygiene and Haccp

- **Safety Plan**

- Procedures Management (safety, quality, maintenance, HACCP, systems measure and intervention planning, reports)
  - Event Register
  - Authorization, inspection and check management
  - Instrument and measurement records and reports

- **Sanitary Management**

- Protocol setting and planning
  - Management of medical records, chemical analysis and vaccinations
  - Statistical processing of the effects on health

- **The control and worker's protection instruments**

- Register data of employees and contractors
  - Risk exposure historical files
  - Accident records and statistic
  - Calculation of equivalent level of exposure (noise, vibrations, chemical agents)
  - Training and Information management
  - Ergonomic and load risk analysis

- **Management of environmental factors**

- Emissions to the atmosphere
  - Waste water treatment
  - Waste treatment
  - Materials treatment
  - Energy consumption management
  - Automatic environmental accounting and environmental budget

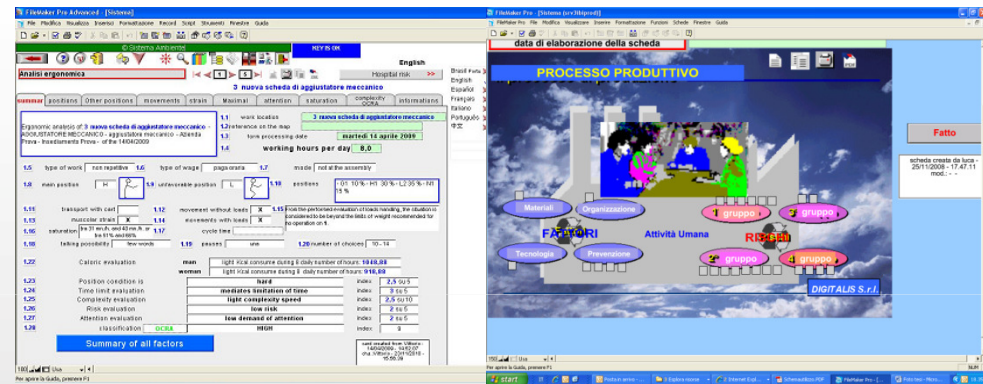


# 3. Sistema Ambiente

Uniqueness of SA:

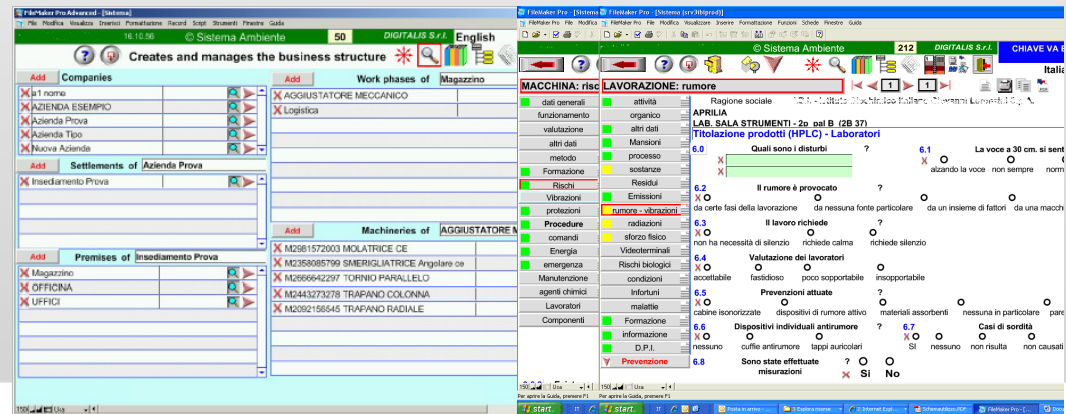
## Enhancement of the active role of human resources

- Ergonomic Studies
- Homogeneous group risk analysis



## Adaptation to the dynamic organization

- Risk individualization



# 4. Implementation of Sistema Ambiente

## Application in an aeronautic company ---- On Chemical Risk Evaluation

### Main page of chemicals

CONFIGURAZIONE agenti chimici

codice: [ ] [X] [X]  
nome: [ ] [X] [X]

Brasili Português  
English  
Español  
Euskera  
Français  
Italiano  
中文

denominazione chimica denominazione commerciale codice

X 1-ACETILE - 2- FENILIDRAZINA	1- ACETILE - 2- FENILIDRAZINA	comp. 00778
X 4- FENIL - 4- METIL - 3- PIRAZOLIDIONE	1- FENIL - 4- METIL - 3-	00473
X 1- FENIL - 3- PIRAZOLIDIONE	1- FENIL - 3- PIRAZOLIDIONE	comp. 00527
X 1- FENIL - 4- METIL PIRAZOLIDIONE	1- FENIL - 4- METIL PIRAZOLIDIONE	comp. 00375
X 1,1 DICLORO 1 DIFLUORETANO	1,1 DICLORO 1 DIFLUORETANO	comp. 00491
X 1,1,1 TRICLOROETANO (Metilcloroformio)	1,1,1 TRICLOROETANO	jac comp. 00281
X 1,1,1,2 TETRAFLUOROETANO	1,1,1,2 TETRAFLUOROETANO	comp. 00558
X 1,2- DIBROMO - 1,1,2,2 -	1,2- DIBROMO - 1,1,2,2 -	00102
X 1,2- DICROMO - 1,1,2,2 -	1,2- DICROMO - 1,1,2,2 -	comp. 00092
X 1,2 DICLOROETILENE	1,2 DICLOROETILENE	comp. 00399
X 1,2 DICLOROPROPANO (Dicloruro di	1,2 DICLOROPROPANO	comp. 00083
X 1,2,4 - TRIMETILBENZENE	1,2,4 - TRIMETILBENZENE	comp. 00784
X 1,3 BUTILENE GLICOLE DIMETACRILATO	1,3 BUTILENE GLICOLE DIMETACRILATO	comp. BRU178
X 1,4 BUTANDIOL DIGLICILETERE	1,4 BUTANDIOL DIGLICILETERE	jac comp. 00450
X 1,4 DIOXANO	1,4 DIOXANO	comp. 00304
X 1,6 ESADIOL DIMETACRILATO	1,6 ESADIOL DIMETACRILATO	comp. 00532
X 1,3 BUTANDIOL	1,3 BUTANDIOL	comp. 00469

classificazione

### Risk evaluation of chemicals

### Risk Matrix



Agente chimico: Scheda di sicurezza

1.1 IDENTIFICAZIONE DI SOSTANZA  
1.2 codice aziendale: 042476

1.3 DENOMINAZIONE CHIMICA: LOCTITE 640

1.4 denominazione commerciale: LOCTITE 640

1.5 formula: 1.6 CAS: 1.7 EINECS:

2 Informazioni relative ai componenti chimici

codice	componenti principali	%	CAS	Num. CE	EINECS
00025	ACIDO ACRILICO	10	79-10-7		
00039	DIMETACRILATO METANICO	90			
00197	POLITETILENGLICOLIDIMETACRILATO	7			
00285	PEROSSIDI ORGANICI	5			
00415	IDROSSIPROLIMETACRILATO	10			
99999	MATERIALE IN UTILIZZO				

simboli di pericolo  
 C Corrosivo  
 E Esplosivo  
 F Facilmente infiammabile  
 F+ Altamente infiammabile  
 N Pericoloso per l'ambiente  
 O Comburente  
 T Tossico  
 T+ Molto tossico  
 Xi Irritante  
 Xn Nocivo

Altre informazioni  
 LA SCHEDA E' A 16 PUNTI.  
 Xi Irritante

data di elaborazione della scheda: 12/10/1999  
 data dell'ultima revisione: [ ]  
 data di stampa: [ ]

stima del rischio 2.2.1 Ci sono controlli sanitari ?  Si  No 2.3 Ci sono incompatibilità all'uso di queste ?  Si  No

eseguire ?  Si  No 2.3.1 rischio modesto

2.4 Quali sono i principali disturbi lamentati ?

2.5 classificazione classe 5 gravità molto alta: effetti potenzialmente letali (indice)

2.6 percentuale esposizione/ore di lavoro per lavoratore  
 < 1% < 10%  11-25%  26-50%  51-100%

2.7.1 Kg. o litri ogni settimana/addetto  
 ≤ 0,1  > 0,1 ≤ 1  > 1 ≤ 10  > 10 ≤ 100  > 100 ≤ 1000  > 1000

2.7.2 stato fisico  
 gas  liquido  solido  non valutabile

2.7.3 Punto / Intervallo di ebollizione  
 > 150°C  50-150°C  < 50°C

2.7.4 respirabile ?  
 respirabile  non respirabile (scaglie o granuli)

2.7.5 Tipo di impianto  
 a ciclo chiuso e sigillato  
 a ciclo chiuso con carico e scarico manuale  
 a ciclo chiuso con periodici e limitati interventi manuali  
 a ciclo chiuso con carico e scarico manuale e con periodici e limitati interventi con operatori efficacemente remotizzati  
 manuale  
 manuale in condizioni di esercizio non adeguate

2.7.6 tipo di processo  
 in pressione  
 con apporto di energia termica  
 con apporto di energia meccanica

2.7.7 Dispositivi di Protezione Tecnica  
 presenti con piani di manutenzione programmata  
 strutturalmente idonei senza piani di manutenzione programmata

valutazione  
 Effettuata valutazione dei rischi chimici per la sicurezza e la salute dei lavoratori in ottemperanza al disposto dell'art. 72 Quarter D. Lgs 25/2002. Si ritiene che nel complesso i soggetti che operano in tale reparto possano rientrare in una classe di rischio medio.

Note integrative

Programma degli interventi da realizzare  
 La non realizzazione dell'intervento può essere causa di effetti gravi, medi, lievi o alta, media, minima probabilità.

Anomalie riscontrate Interventi già realizzati note Responsabile del Servizio Prevenzione e Protezione dal note Datore di Lavoro note Preposti note Medico competente note Ris

### Composition and characteristics of chemicals

# Conclusion

- The concept of the product quality is not only related to the product or process itself but all the factors that bring an non-ignorable effect on the final integrating quality taking into account environment and workers health and safety.
- The ideology, according to which the Sistema Ambiente is developed, is that the prevention of risks and health and safety protection is the result of analytical work and a concrete methodology instead of trying to simplify things or do some superficial work.
- Collaborating with other systems like ERP and quality management systems in the company, Sistema Ambiente will help the company to realize progressive reorganization and continuous improvement.

*Thank you !*