INRS E-TOOLS PANORAMA & KEYS OF THE INDUSTRIALIZATION PROCESS

2016 E-TOOLS SEMINAR FOR OSH INSTITUTES

INRS

Our job: making yours safer

www.inrs.fr
Content

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2. INRS E-Tools Panorama: step by step
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INRS IN BRIEF: ACTIVITIES

- Information
- Studies & Research
- Training
- Assistance

Target: the working world

- 18.6 million employees (general social security scheme)
- 1.7 million companies (general social security scheme)

Breakdown of activities in 2015
by means of action (percentage of hours spent)

- 43% Studies and research
- 25% Assistance
- 11% Training
- 14% Information

International activities and communication 7%
INRS IN ACTION STUDIES & RESEARCH

AI MS

Conducting studies and research in order to propose applications

Acquisition of scientific and technical knowledge which is validated and published to further occupational risk prevention (chemical exposure, musculoskeletal disorders, psychosocial risks, nanoparticles, etc.)

89 studies and research projects performed by 21 specialised laboratories and nearly 250 researchers (chemists, ergonomists, etc.) and technicians...

- Chemical risks
- Physical stressors
- Mechanical hazards
- Risk assessment and management

136 articles published in scientific journals

130 communications presented at symposia and conferences

- Epidemiology
- Accidentology
- Occupational psychology and physiology
INRS IN ACTION **ASSISTANCE**

**AIMS**
- Technical, legal, medical and documentary assistance
- Elaboration of prevention guides and databases
- Participation in the drafting of standards and reference texts
- Carrying out tests, measurements and analyses particularly at the request of CARSATs/CRAMs, CGSS

**2015 Figures**

- **Answers** to 10,656 requests, from telephone assistance to long-term operations or operations requiring implementation of specific equipment
- **Documentation centre** with 77,300 references covering all fields of occupational risk prevention
- 52 experts active in 90 standardisation committees and 180 working groups
INRS IN ACTION Training

AIMS

Contribution to the training of company and institutional OSH specialists

Development of actions to integrate prevention training into initial education

Design of continuous training mechanisms and teaching tools

Range of activities

Training in initial education (partnership with Ministry for Education)

- 350,000 students initiated in prevention
- 172,000 apprentices trained in first-aid at work

12,411 people registered for distance training

185 continuous training sessions

897,431 trainees certified within the framework of the train the trainer programme

2015 Figures
INRS IN ACTION INFORMATION & COMMUNICATION

AIMS

Collection, development and dissemination of knowledge and know-how in prevention (brochures, posters, web, journals, events, trade shows, press relations, etc.)

Implementation of suitable actions to inform, raise awareness of and communicate to specific targets (company heads, employees, safety officers, occupational physicians, etc.)

2015 Figures

**Productions**

2 million brochures and posters disseminated

7,000 audiovisual and multimedia tools acquired by companies

3 journals Travail et Sécurité (80,000 copies), Hygiène et Sécurité du Travail, Références en Santé au Travail

Website: 6.2 million hits and 7.8 million documents downloaded

Electronic newsletter: 44,660 subscribers
IT & E-Tools developed through INRS activities

- Web sites
  - www.inrs.fr
  - http://www.hst.fr/
  - http://www.travail-et-securite.fr/
  - http://www.rst-sante-travail.fr/
- Online databases & E-Tools
- Product catalog
- Newsletter

- Catalog & Online registration
- E-Learning / MOOC
- Tutored or Free training (presential or remote)
- Virtual classrooms

- Scientific data management
- Databases
- Software distribution
- LIMS
- Measurement & Instrumentation
- Collaborative Tools
- ...

- CRM
- Helpdesk
- Legal and scientific information
- Expert advices
E-tools panorama
From Studies & Research

• MAVI MPLANT (Focus)
  ■ Assistance E-tool to the design of workplaces
  ■ MAVI mplant software helps SMEs/micro-enterprises …
  ■ … to organize their workplaces to integrate health and safety at conception.
  ■ 3D graphics rendering based on an object library

• COLCHIC / SCOLA
  ■ Contributive databases (Co-feeding by CARSAT and INRS)
  ■ Centralizing measures of exposure to dangerous products in the workplace
  ■ Exposures in companies
  ■ Exposures retrospective analysis
  ■ Currently under development: joint interrogation of COLCHIC / SCOLA data
E-tools panorama
From Studies & Research

• Responsive Web app: **Scol@miante**
  
  ■ Target = any user in working situation
  
  ■ Application allowing any user to perform assessment of exposure to asbestos when facing a work situation involving asbestos-containing materials.
  
  ■ Full Internal development
  
  ■ Experimentation to evaluate the real cost of development and maintenance of a dedicated mobile website
CRM & Help-Desk E-Tools
FROM ASSISTANCE

• Registration and management of requests for assistance and expertise

• Structured data entry forms on the Web

• Internal Tools
  ■ Monitor the replies
  ■ workflow
  ■ mail management
  ■ Knowledge bases

• Statistics / Satisfaction / Evaluations
E-Tools
FROM ASSISTANCE

- Web + Mobile App: **Electrical risks**
  - Target users = electricians
  - Desktop version: [http://inrs-elec.inrs.fr](http://inrs-elec.inrs.fr)
  - Mobile App: available soon on Google Play Store

- Experimentation to evaluate the real cost of development and maintenance of a mobile application
- realization with outsourcing services companies
Administrative management of Actors and Training

Design training devices and modules

Delivering training devices

Authoring / LCMS
Mind Mapping

LMS (eDocéo)
EAD Website

Animation courses

Classe Virtuelle
(Classilio)
Klaxoon

Digital & e-Learning Tools / Global overview

ABOUT TRAINING
E-Learning / Self training
E-TOOLS FROM TRAINING ACTIVITIES
• E-Tools to help small businesses make their risk assessment,

• Sectoral E-Tools developed with a platform called OiRA.
  ■ Truck transport
  ■ Restoration
  ■ Garages
  ■ Non-food retailing.

• Very simple online tools guide the user to use in its risk assessment process and offer him Prevention solutions for its business to build its action plan.
INRS Website: www.inrs.fr

E-TOOLS FROM INFORMATION & COMMUNICATION

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THOUSANDS OF EDITORIAL PAGES CONTRIBUTED

INRS WEBSITE

XML
XML
XML

BACK OFFICE

XML
XML
XML

THOUSANDS OF EDITORIAL PAGES CONTRIBUTED

INFORMATION & E-tools portal

A STRONG SEO FOR POPULAR SEARCH ENGINE

ADAPTABLE RENDERING TO TABLETS & SMARTPHONES FOR THE ENTIRE SITE

ADVANCED FEATURES: FULL TEXT SEARCHES STRUCTURED SELECTION CART SOCIAL WEB PDF PRODUCTION

MANY & COMPLEX INFORMATION PUBLISHED

BACKGROUND & LEGACY DATABASES PUBLISHED

+ 20 EMBEDDED DATABASES PUBLISHED

MANY E-TOOLS ARE HOSTED

TENS THOUSANDS OF STRUCTURED INFORMATION HOSTED NOTICES, SHEETS, MULTIMEDIA PRODUCTS...

XML
XML
XML
### Web & Databases E-Tools

**FROM INFORMATION & COMMUNICATION**

- **2000 online documents**, most in full text.
- **80,000 bibliographic references** about occupational safety and health.

**Catalogue INRS**

- **Debriefing and analysis** about working accidents since 1990, 18000 records.

**INRS Biblio**

- **Electronic Access Guide** to the tables of the general and the agricultural scheme of social security: by disease, nuisance or agent.

**Épicéa**

- **Technical and legal summaries** of information on the risks related to a product or group of chemicals.
- **Top of PDF downloads**

**Biotox**

- **Collection of information** on more than 100 chemicals for which there is biometry. Inventory over 60 laboratories that can perform these measurements.

**Metropol**

- **Pollutants metrology**: Collection of sampling and analysis of air for the evaluation of occupational exposures.

**Inventaire CMR 2005**

- **Inventory of CMR** (carcinogenic, mutagenic and toxic for reproduction) used in France in 2005.

**Solvex**

- **Data from occupational exposure** to solvents in the workplace.

**Solvants**

- **Selection and use of the main solvents** present in the workplace.

**Fibrex**

- **Data from occupational exposure** to fibers used in the workplace.

**Demeter**

- **Help in evaluating reproduction risk** for men or women exposed to chemicals in the workplace.

**ProtecPo**

- **Help in choosing skin protection** best suited to the dangerous substances handled (specifically for the PPE constituent materials).

**Scol@miante**

- **Behavior advices** in case of Accidental exposure to infectious agents in the workplace: medical monitoring of employees exposed.

**Guide Efficatt**

- **Observation base of Biological Agents.** Multi-criteria search bacteria, viruses, parasites ... classified by regulations.

**Baobab**

- **Library of mechanical hazard prevention** and ergonomic solutions for the design or modification of work equipment.

**Mécaprev**

- **Flammability characteristics** and ATEX explosive gas, vapor, dust.

**CarAtex**

- **Calculation tool to estimate** the life of the cartridges used in respirators (APR) according to their terms of use.

**Prémédia**

- **Inventory of organizations** having obtained approval of the Ministry of Labour for lighting, electrical, ventilation...

**Organismes agréés**

- **Directory of Certified testers responsible** for issuing the Certificate in safe driving.

**CACES**
Technological evolution ...

- Local PC application
- Client/Server application
- Web site « 1.0 »
- Web 2.0
- Application from store
- Website Responsive & E-Tools Portal
  - Informations
  - Applications

Multiple plateform & devices

Multiple sources & content

- Responsive
- Both Mobile and Web
- Versatile connection
Strategy: Which kind of E-Tools? The choices of INRS

- Target = Responsive website aggregating various information sources
  - Editorial contents
  - Databases and information (E-Tools)
  - Targeted applications (E-Tools)

- The main challenges
  - Enhancing the information capital
  - Maintain in operating condition the IT of INRS
  - Keep E-Tools under control by offering a hosting foundation and distribution
  - Encourage the dissemination and use of content
  - Stay in harmony with the values of INRS
Strategy : Which kind of E-Tools ? THE CHOICES OF INRS

• To assume all of its e-Tools
  ■ When creating applications
  ■ For maintenance functioning

• It is necessary to industrialize developments
  ■ all new applications
  ■ and
  ■ development projects

• Are compliant with standards, example
  ■ mobile website rather than application from store
  ■ design and develop as an "extension" of the main website
  ■ use of an application generator for informational E-tools
    > this is one of the secrets of longevity of INRS products

• What about Mobile & Tablet Application?
MOBILE WEBSITE rather than APPLICATION from STORE

• Remember that the 1st website still works ...
  http://info.cern.ch/hypertext/WWW/TheProject.html

• App from store :
  ■ specific interfaces for each device
  ■ a single source of information

• Website :
  ■ a single software (a Web browser) is enough
  ■ to interact with multiple sources

• A movement of users who are against apps is growing
  ■ In commercial use, we can see aggressive developments of native applications that attempt to replace the Web
APPLICATION from STORE: what about HEALTH & REFERENCE?

- Amazon provides the 500 most visited sites. (http://www.alexa.com/topsites)

- Breakdowns by type of sites that offer a mobile application:

  - Overall: 36%
  - Regional: 34%
  - Sports: 33%
  - News: 32%
  - Arts: 29%
  - Business: 29%
  - Recreation: 26%
  - Computers: 22%
  - Shopping: 18%
  - Kids: 16%
  - Society: 16%
  - Games: 13%
  - Reference: 13%
  - Health: 12%
  - Science: 11%
  - Adult: 3%
APPLICATION from STORE: a REASONABLE USE for INRS

• Obstacles for INRS:
  ■ Technical cost of development and maintenance
  ■ Regulatory: legal aspect, personal data, confidentiality)
  ■ Ethics: more adapted for a commercial model
  ■ Structural: Board / Joint Management ...
  ■ Philosophical: Depletion of content and services / confinement of users

• But INRS stays aware
  ■ On technical improvement
  ■ On conceptual evolution
  ■ By experimenting project of mobile application from stores
1st key to keep control on E-Tools: INFORMATION ARCHITECTURE

• Do not proceed by "Big Bang" but
  ■ by scalable operations
  ■ opportunistic strategy

• Anticipating the management of change (preparing data)
  ■ Initiate a concrete ECM approach …

• Consider the use cases:
  ■ Who uses the data ? and how to ?
  ■ In order to do what ? …

• Adopt a mono-dimensional approach:
  ■ Massively splited data in Back office (model side)
  ■ Flattened perspective for Front Office (website)
    > / relative to use cases (view side)
2nd key to keep control on E-Tools: APPLICATION MODELIZATION

- **Having a model**
  - a model for data
  - a model for application behavior

- **Mainly in order to**
  - reference for implementation
  - go back when necessary

- **Goal**: Developments & maintenance through the model
  - the model is not a simple retrospective documentation, it must be used to build the application

- **Success Key**: the model is directly used to **generate** the application implementation and in "incremental way"
  - it allows to perform development & projects in a agile way and to perform rapid prototyping tasks
3thd key to keep control on E-Tools:

**INDUSTRIALIZATION OF DEVELOPMENT**

- **1st step**: generic application used to replicate others
  - restrictive application behavior
  - data decomposition salvaged to website rendering

- **2nd step**: replacement by application *generator* with *modeling studio*.
  - really split data modelization and website behavior
  - incremental building and capitalization of new features

- **Other points are prerequisites for industrialization**
  - IT master plan
  - choose right technologies and keep the technological mastery
  - define rules of technical consistency / SDSI
  - diversify IT service providers (to force internal capability)
Scope of INDUSTRIALIZATION for INRS: "INFORMATIONAL ORIENTED" E-TOOLS ENVIRONMENT

http://www.inrs.fr/publications/bdd.html

Online new E-Tools available (generated)
- Solvants
- Biotox
- Fiches toxicologiques
- Metropol
- Tableaux des maladies prof.
- CACES (2016)
- Eficatt (2017)
- Thermo dégradation (2017)
- MiXie 2 (2018) ...

- Old E-Tools cohabit with generated E-Tools
- New E-Tools functions are added to generator
- Regular re-generation to ensure consistency
Scope of Industrialization
I N R S P U B L I S H I N G C H A I N

- Today production capabilities:
  - about 2 new E-Tools / Year
  - the old E-Tools are evolving
- E-Tools rely on each other
  - coupling by both the data
  - and also by the operating process
- New features benefit older modeled applications
- The projects are managed in "agile way" with minimal risk
- Data contribution & previous data transfer is optimized
Benefits of INDUSTRIALIZATION for INRS: "INFORMATIONAL ORIENTED" E-TOOLS ENVIRONMENT

• The INRS main Website becomes a real portal for informations and E-Tools
  - completeness and accuracy of information (due to shared and connected data)
  - usability for mobile browsing

• Optimize human resources
  - by transforming the information producers into "live content" providers
  - by delegating some maintenance and implementation tasks to the generator

• A concrete transformation of information structuration and management
  - initiate a kind of ECM project

• Improvement of capability
  - to develop new such kind of E-Tools through secured projects
  - to maintain and upgrade the overall system and our E-Tools library
Our job: making yours safer
Thanks for your attention