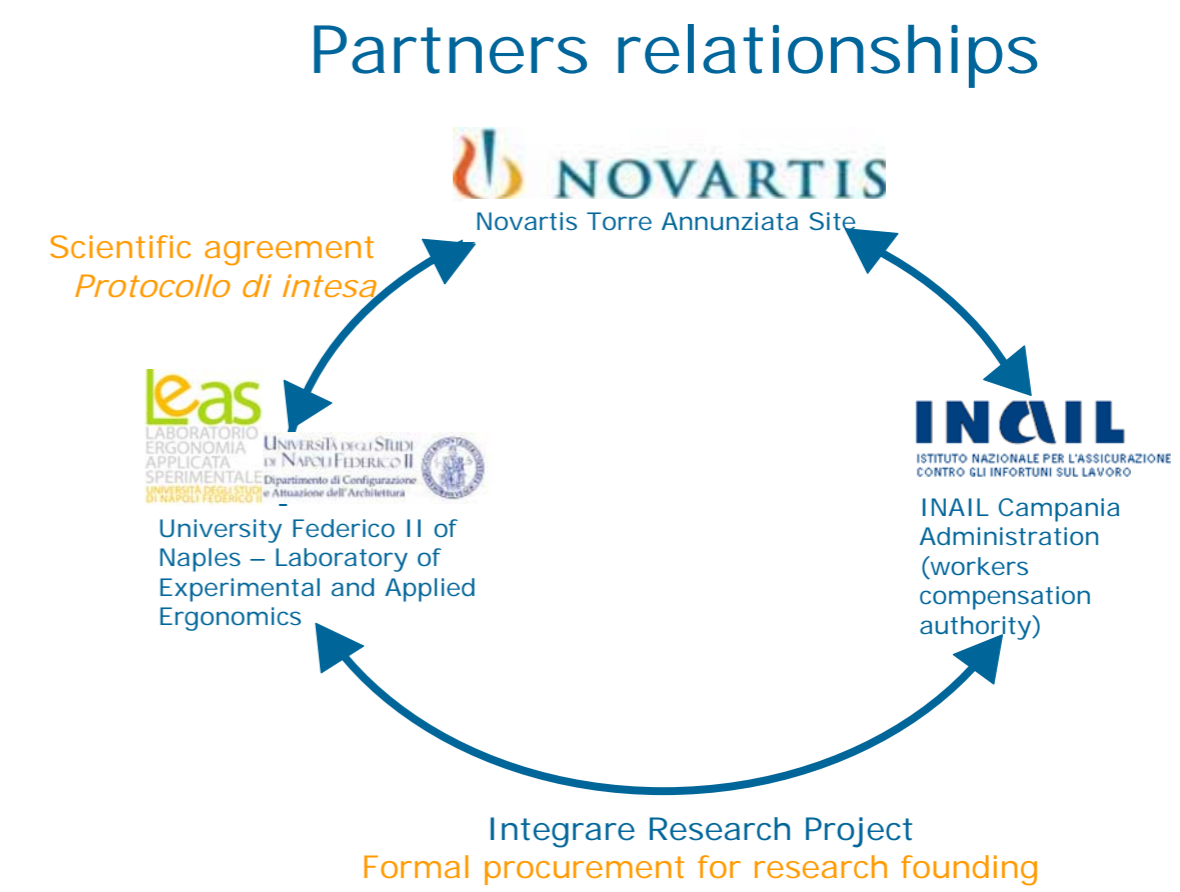
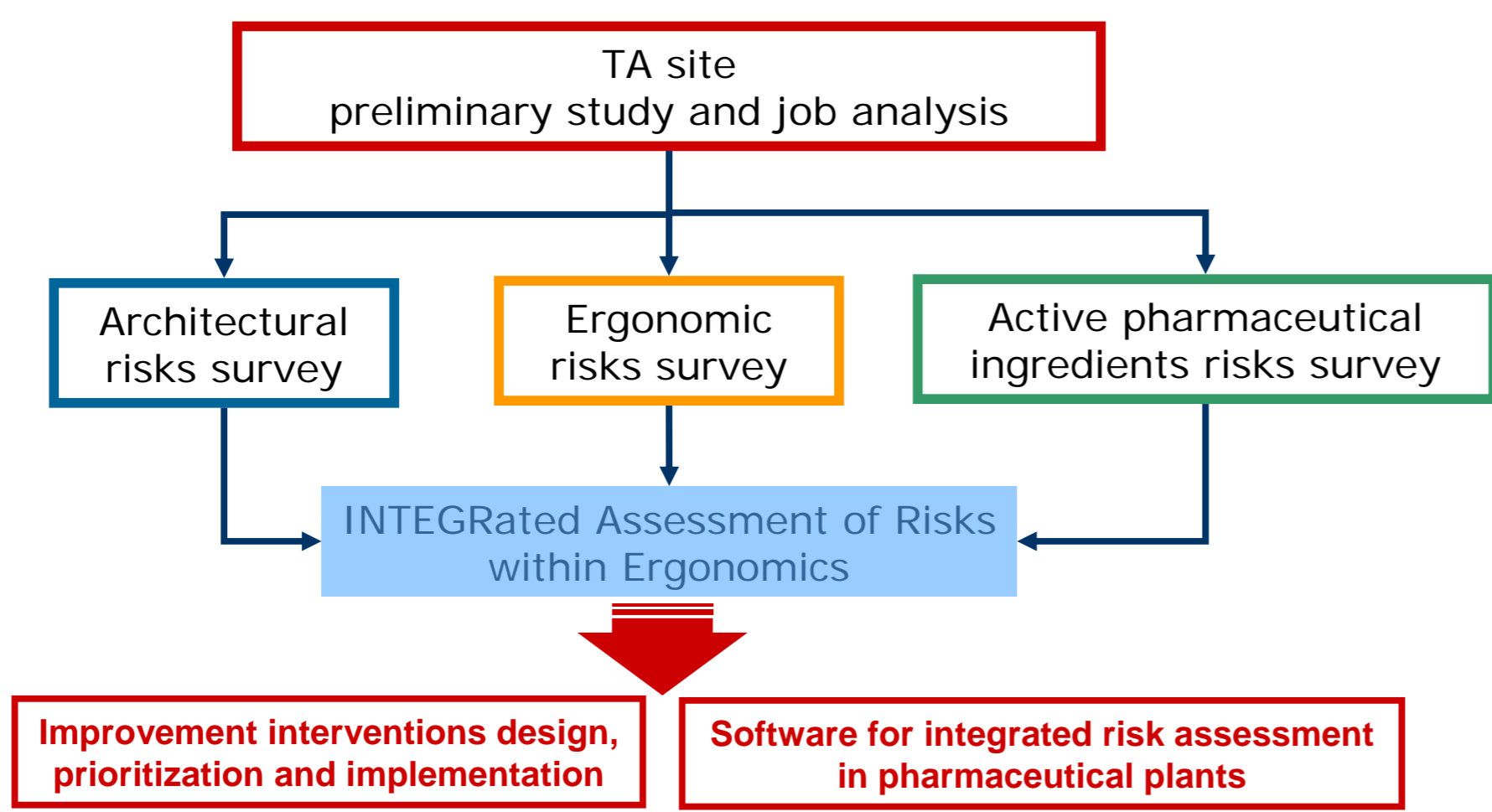




The integration of environment, health and safety in evaluating ergonomic risks in solid forms pharmaceutical company

IntegrARE research project INTEGRated Assessment of Risks within Ergonomics



Pharmaceutical plants are usually characterized by workplaces which quality level results higher than in other manufactories sectors. In fact healthcare products need to be produced in special conditions, keeping under a strong control hygiene, chemical and biological contaminants, and giving a particular emphasis on equipment maintenance.

Low physical work load and high level of quality process control, contribute to consider work conditions as generally light and safe for pharmaceutical workers, with a low rate of injuries and work related pathologies.

In this kind of working contexts risk assessment cannot be based on factors individually considered, neither work load can be essentially measured on material handling and physical effort. Risk assessment and work environment improvements, on the contrary, have to be studied by an integrated view point. Observing other kind of components and factors, usually underestimated in workplaces analysis, new risks emerging for pharmaceutical workers.

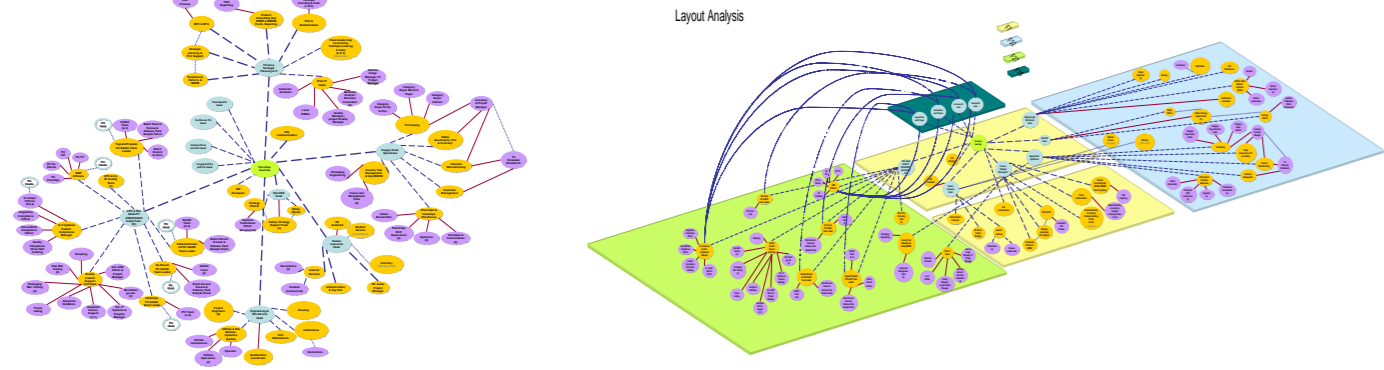
The aim of the IntegrARE research project (INTEGRated Assessment of Risks within Ergonomics) is to analyze, in a solid forms pharmaceutical workplace, three distinct risk categories - architectural, ergonomic and active pharmaceutical ingredients risks - in order to evidence possible interactions among their influence factors on workers health, safety and well-being.

After a detailed survey of each risk situations, singularly analyzed by ad-hoc procedures, the study aims to identify and evaluate all possible integrated effects increasing or triggering risk level for workers, considering that these effects can also generate sometimes new hazards situations, not visible or neglected when risks conditions are separately analyzed.

Pictures at side show the research steps and findings of integrated risk assessment methodology applied to a pilot case study.

WP1 TA site preliminary study and job analysis

- Preliminary survey of Torre Annunziata Site
 - ✓ Production processes
 - ✓ Specific concerns of production processes with reference to architectural, ergonomic and pharmaceutical ingredients risks
- Job description
 - ✓ Line assignments
 - ✓ Specialized line assignments
 - ✓ Laboratory assignments
 - ✓ Logistic assignments
 - ✓ Office assignments
 - ✓ On site assignments
- Job layout
 - ✓ Link analysis
 - ✓ Layout analysis



WP2 Architectural risks analysis / 2

- Definition of architectural components/features causing risks for workers health and safety
- Architectural risk survey and risk localization for TA site main buildings

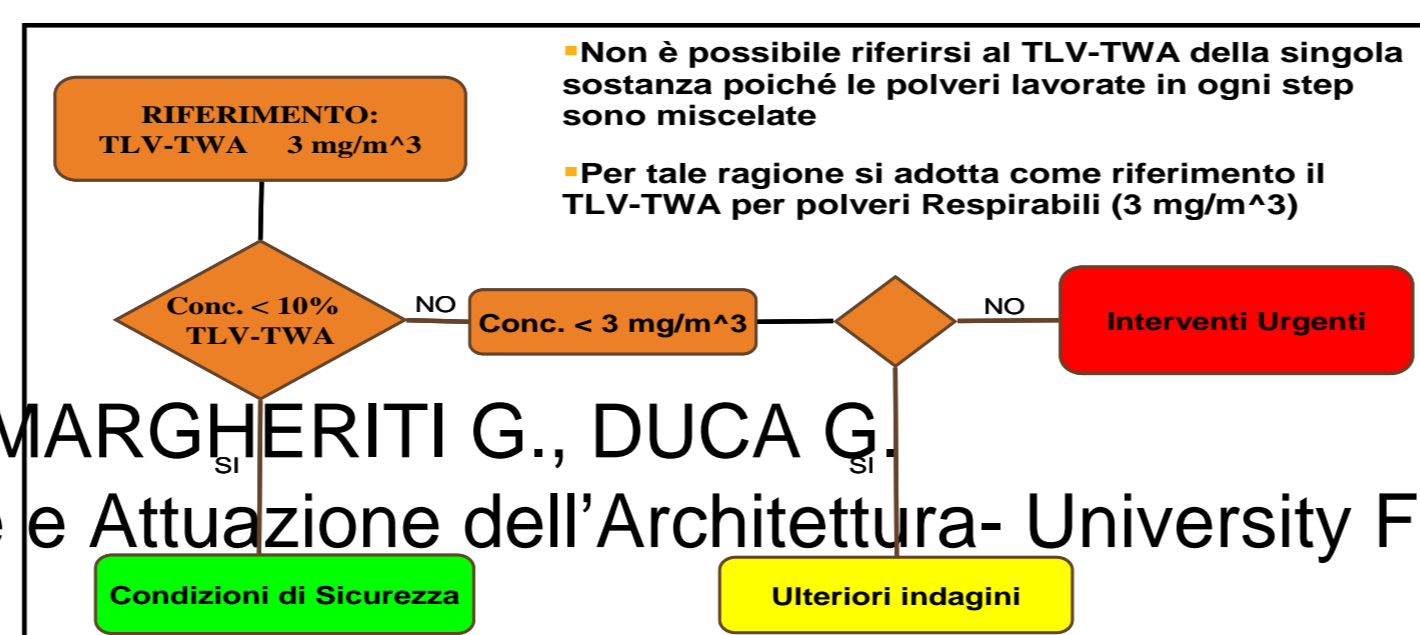
Protocol for architectural risk assessment at building scale

Protocol for architectural risk assessment at room scale

WP3 Ergonomic risk analysis

- Work task formalization
 - ✓ Form job analysis to production processes breakdown
- Task analysis
 - ✓ Layout analysis
 - ✓ Descriptive task analysis
 - ✓ Link analysis
- Protocol for ergonomic risk assessment setting
 - ✓ Categorization of ergonomic risk factors
 - ✓ Ergonomic risk markers for each risk category
 - ✓ Ergonomic risk assessment surveyed in TA site

WP4 Active pharmaceutical ingredients risks survey/1



ATTIANESE E., COPPOLA N., DE MARGHERITI G., DUCA G., LEAS Dipartimento di Configurazione e Attuazione dell'Architettura- University Federico II of Naples (Italy)
Novartis Pharma Torre Annunziata Site (Italy)
D'ANGELO R., RUSSO E.
Contarp-Inail, Direzione Regionale Campania (Workers compensation authority) Naples (Italy)