UNIONE EUROPEA
Fondo Sociale Europeo
Fondo Europeo di Sviluppo Regionale

Ministero dell'Istruzione, dell'Università e della Ricerca

PON RICERCA E INNOVAZIONE 2014 - 2020

Evento annuale

Roma, 7 dicembre 2017

Innovazione in azione: progetti, competenze, risorse

Massimiliano De Martino
Dottorando Università degli Studi di Napoli Federico II

Nome: ***Massimiliano De Martino***
Dottorato di ricerca in ***Ingegneria Industriale***
Università degli Studi di Napoli Federico II

Laurea in ***Ingegneria Meccanica per la Progettazione e la Produzione***

Università degli Studi di Napoli Federico II ***[18 mesi]***
Warwick Manufacturing Group WMG – Warwick (Regno Unito) ***[12 mesi]***
Fiat Chrysler Automobiles (FCA) ***[6 mesi]***

UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II
DIPARTIMENTO DI INGEGNERIA INDUSTRIALE

Dottorato di Ricerca in Ingegneria Industriale XXXII Ciclo

PhD Thesis
‘Adaptive systems to improve the quality of multi-assembling sustainable processes for light structures’

Eng. Massimiliano De Martino
(Master Degree in Mechanical Engineering in Design and Production)

Supervisor
Prof Stanislao Patalano
Prof Francesco Timpone

COORDINATOR
Prof Michele Grassi

Evento Annuale 2017

CONTEXT & MOTIVATIONS

Industry 4,0

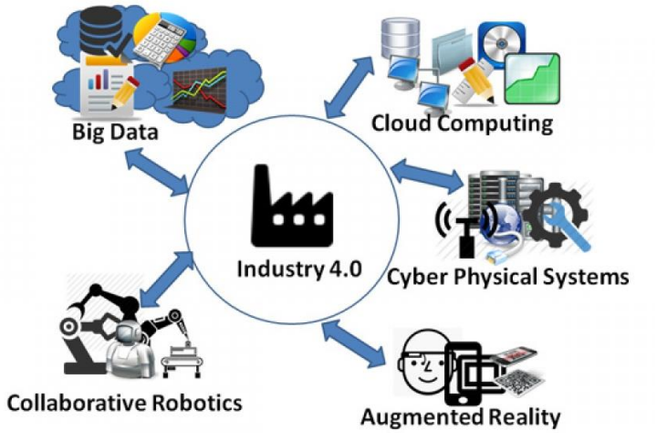
Digital Machines interconnected with Physical System

Centralization and Storage Data

Augmented Reality

Energy Saving (Sustainability)

Production Performance Optimization



Design for

‘ZERO DEFECT MANUFACTURING’

‘RIGHT FIRST TIME’

RESEARCH GOAL

Develop, implement and test a closed-loop in process quality improvement methodology for multi-stage assembly systems capable of:

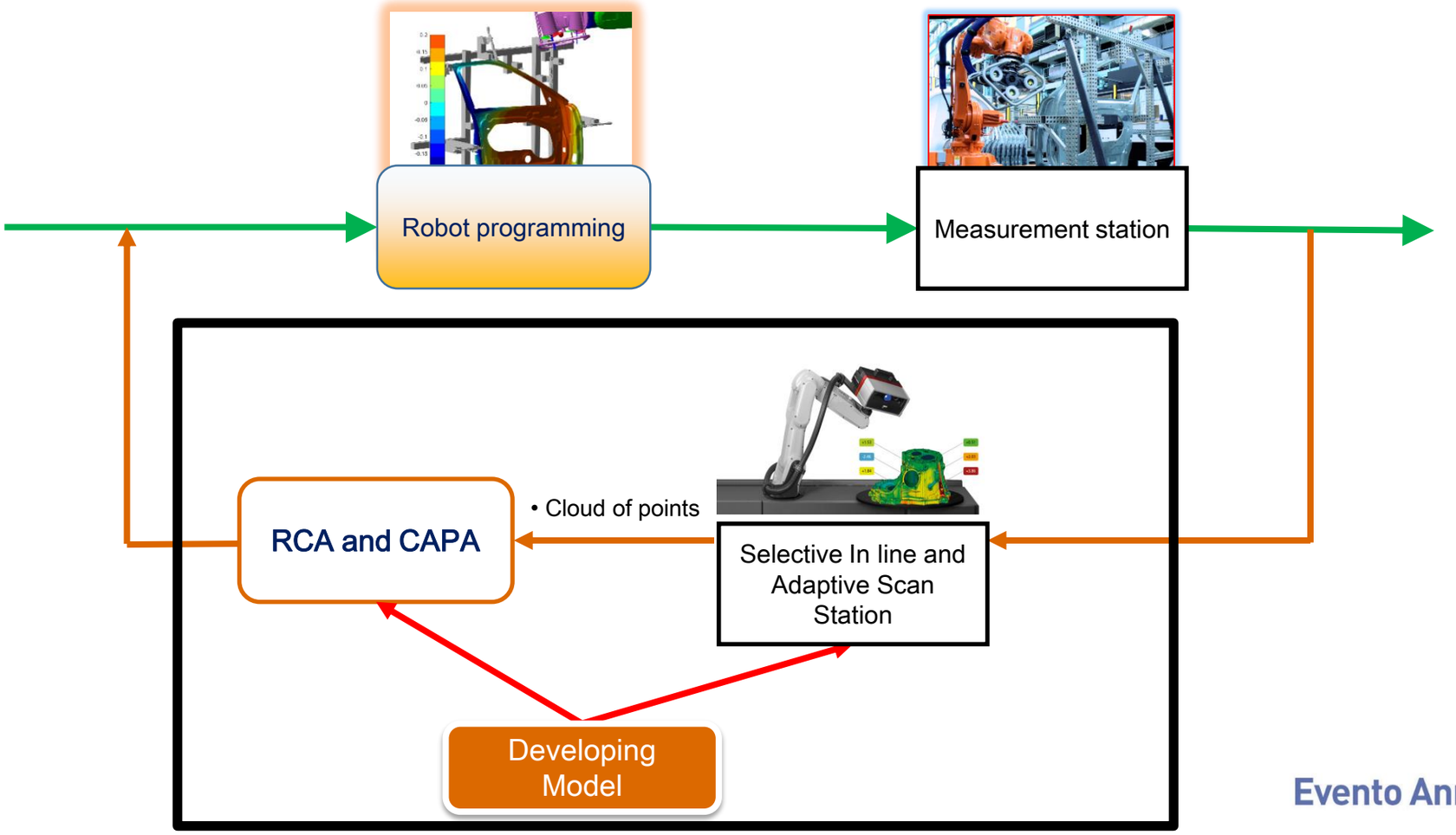
1) Defects detection

2) Root Cause Analysis (RCA)

3) Corrective Actions and Preventive Action (CAPA)

PROBLEM FORMULATION

Real-Time defect detectability with selectively gathering of in line data; accomplishing Root Cause Analysis (RCA) and Corrective Action and Predictive Action (CAPA)



Final Objective of the Research

Developed and Validated Models for Adaptive measurement system, RCA and CAPA

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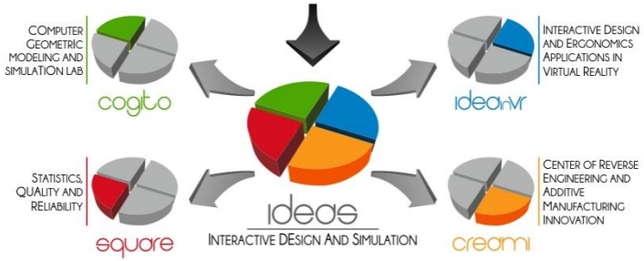

- Develop Selective In line and Adaptive Scan Station Simulation Models
- Deepen statistical approaches for RCA and CAPA
- Model integration for final validation

WMG
THE UNIVERSITY OF WARWICK

- Acquire experiences on production technologies (RLS, Scan Station)
- Addressing an experimental manufacturing/scanning system
- Develop RCA for uncontrolled error forms and related models for CAPA

FCA
FIAT CHRYSLER AUTOMOBILES

- Deepen constraints of specific manufacturing lines
- Collecting data from model application
- Tuning developed models to dedicated manufacturing lines

Motivation

Why…

Passion for research activities

Work with most important foreign companies

Collaborate with colleagues with different culture/ background.

Expectation…

Work in a real production environment like FCA, with plant all over the world.

Test the model that has been developed in these 2 years.

Interact with skilled people from a world wide company.

Sedi FCA

Sede FCA Pomigliano D'arco

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THANKS FOR YOUR ATTENTION