Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Managing Risk & System Change: Bridging the Competence Gap for future Aviation Operations

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Presentation Overview

- Background to the Centre for Innovative Human Systems (CIHS).
- Challenges in effectively implementing change.
- Capability of a Resilience Organisation.
- Postgraduate Diploma/Masters Managing Risk & System Change.

Centre for Innovative Human Systems

- The products and services we take for granted in the 21st century are the outputs of complex human systems.

- Vast, complex, interdependent systems of individuals, organizations and technologies interact to innovate, design, develop, finance, regulate, certify, produce, test, localise, market, sell and deliver these to us.

- At the core are people, designing, operating, managing and improving the system to produce results.

- Over the past 25 years, the CIHS Systems (CIHS) has been focussed on bringing together a range of perspectives to improve performance and reduce risk in critical systems by

Putting people at the centre for innovative system design.

Sectors & partners

- Aviation
- Emergency Response
- Manufacturing
- Processing
- Power
- Surface transport
- Pharmaceuticals
- Security
- Healthcare

EUROCONTROL

Boston Scientific

Statoil

bp

DUBLIN PORT Co

intel

LUAS

ESB INTERNATIONAL

BOMBARDIER

Coombe Women & Infants University Hospital

SAS Scandinavian Airlines

AIRBUS

Alitalia

CATHAY PACIFIC

ROLLS ROYCE

FIAT

BOEING

THALYS

Pfizer

Heathrow

DUBLIN FIRE BRIGADE

Themes


Human-centred design
Automation
Process and system modelling
Risk & safety management
Coordination and communication
Change management
Leadership
Competence & training

Need for Change – Industry Challenges

- Continuous changes in leadership, direction, processes, and organisation structure.
- Relentless pressure to do more with less in meeting ever-increasing customer & regulatory demands.
- Accelerating cycles of new technologies, methods and approaches.
- A rapidly shifting workforce with a new generation of employees bringing different expectations.
- Unceasing pressure to continuously innovate and grow in response to global competition.
- Industry is faced with many unknowns.

Effectively implementing change is difficult?

70% of Change Management Initiatives Fail–REALLY?

Contributed by **Ron Leeman** on January 21, 2015 in **Organization, Change, & HR**

So now to tackle another much debated change subject–that so-called 70% failure rate.

How many times have we seen LinkedIn posts and discussions talking about this subject? As many as Change Management Methodologies , Project Management vs Change Management , and Change

Time for Change

How can aviation organizations avoid being part of these statistics, particularly in a world of increased complexity and uncertainty?

High Failure Rate

- Very few in-depth studies of change which seek to trace the complexities of the change process.
- Human factors issue' and involves complex, socio-technical solutions.
- Considerable organisational effort goes into dealing with anomalies – problems, incidents, events, breakdowns, failures, etc. – but little is achieved in changing the system to reduce the risk of these happening again.
- Cycles of stability in which much effort and resources goes into trying to promote a change, but ends up reinforcing the status quo.

EU projects (ADAMS, ADAMS2, AMPOS, HILAS, MASCA, PROSPERO) have analysed the difficulties that organisations have in implementing sustainable change.

Research Focus on Implementing Change

- Socio-Technical Systems (STS) approach to understanding complex safety systems.
- A STS is the synergetic interaction and integration of humans, processes, information and knowledge flows, technology, structures and the external environment in the workplace.
- Interactions are key in the STS approach and recognising the broad STS and the respective interactions between the different levels contribute to a more effective and integrated analysis of the current operational practice. (Robertson et al., 2015).
- Managing the inherent risks in the system and changing it to deliver better outcomes.

Capability of a Resilient Organisation

- To be able to mobilise its resources (especially its knowledge and the information that supports this) to anticipate future challenges, and to respond and adapt to such challenges (whether they are fully foreseen or not).

- In order to do this it has to understand itself, in two ways:
  - how the system functions (how the interaction of human, social and technical aspects makes it possible to deliver value in the short medium and long term); and
  - what it is doing (how data from this activity is converted to knowledge about how the system is performing).

- To have sufficient consensus to participate in and support the effective leadership of change.

(Mc Donald, 2015)

The Critical Role of Aircraft Maintenance

- An aircraft maintenance facility can no longer be thought of as just providing a covered working space, but is part of a bigger picture.
- Part of an overall process aimed at an increased utilization of assets. The ultimate goal to be part of a better business model, while providing an improved passenger experience (Inside MRO, Feb 2016).
- The management of change is one of the biggest challenges in trying to achieve a more competitive operation.
- Aviation personnel are reporting that they don't have the necessary competence to deal with the sheer pace of constant change and the demands that involves in everyday operations.
- Therefore bridging this competence gap is crucial.

Online M.Sc/PG Dip in Managing Risk & System Change

- Provides a rigorous but practical focus on managing risk and change.
- Robust curriculum that has been developed and tested in safety critical collaborative research and practice.
- An innovative, practice-based and interactive online learning environment ensures a flexible delivery structure deploying cutting edge knowledge to foster advanced standards of professional practice.

Who is the programme for?

Program Structure

- Interactive Online Learning Environment (asynchronous & synchronous elements) using BlackBoard & BlackBoard Collaborate.
- 2 year. Part-Time
  - Year 1 – Taught Programme (7 core modules September-June)
  - Year 2 – Research Dissertation (research based on key strategic and operational issues; to create a research-practitioner capability in managing risk & system change).
- Assessment Overview - organisational dossiers, group work/reports, reflective reports, applied statistical & research exercises.
- Multi-Disciplinary Lecturing Staff – Occupational Psychologists, Human Factors, Engineers, Industrial Management, Statisticians, HMI, Business Coaches/Mentors, Communications & PR, Cross Industry Practitioners.

Programme Overview Year 1

Module Title	Module Overview
M1 The Role of People & Processes in Organisations (10 ECTS)	How people work together with technologies using knowledge and information in functional social systems?
M2 Stability & Change (10 ECTS)	What makes organisations stable, why change is difficult and how to improve the effectiveness of change?
M3 Managing Performance & Risk (10 ECTS)	Factors that affect human performance and the application of concepts of hazard and risk to complex operational systems
M4 Socio-Technical System Design (10 ECTS)	The role of human factors in the design cycle in ensuring usable and operationally effective technologies
M5 Leading Change (5 ECTS)	Building a practical understanding of one's own professional role and the competencies of effective leadership
M6 Strategic Human Resource Development (5 ECTS)	Developing the role of people in supporting effective operations and capability to change
M7 Statistics & Action Research Methods (10 ECTS)	Design principles and methodologies for research and evaluation in practical operational situations

Programme Overview Year 2

- Research dissertation which will qualify students for the Masters Award.
- Submitted at the end of August in 2nd year.
- Scheduled classes continue throughout year 2 to ensure students remain focussed, are continually supported and meet dissertation milestones.

Year Two		
Semester 1 – Michaelmas Term	**Semester 2 – Hilary Term**	**Semester 3 – Trinity Term**
Submit Research Proposal	Research Methods	Research Methods
Ethics Application Process	Progress Workshops	Progress Workshops
Complete Literature Review	Progress Reports	Submission of Dissertation
Continuous Guidance/Support From Dedicated Supervisor(s)		

Online Delivery Format

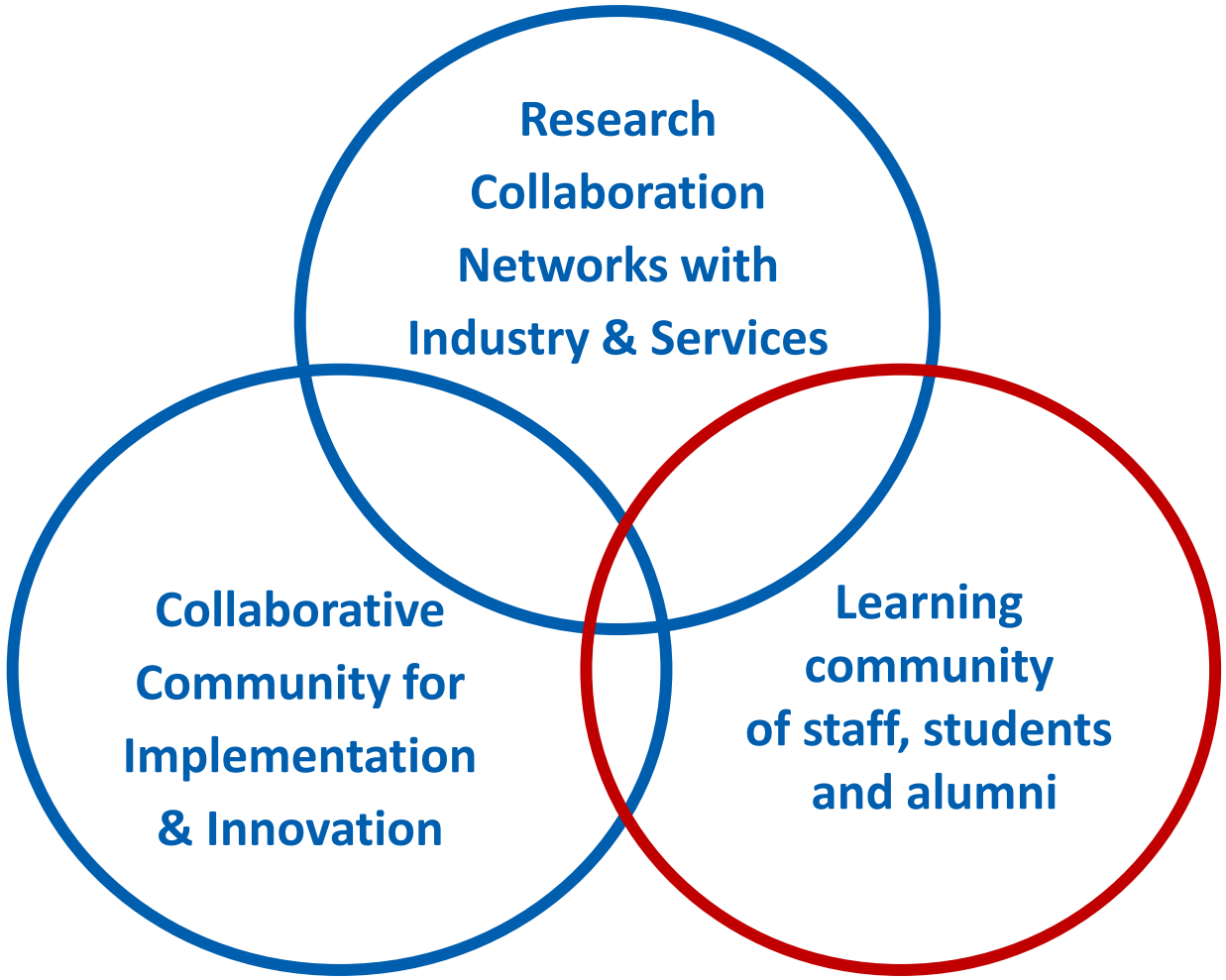
- Asynchronous content

Content that the student can complete at their own pace at a time chosen by them within the session week. A range of asynchronous content presentation mechanisms are available - pre-recorded lectures/PowerPoint presentations, activities based around library readings, the use of web resources such as videos/animations/quizzes and tools such as Blackboard Learn's discussion forums, blogs and wikis.

- Synchronous content

Real-time interactions between online lecturer and student. The student will have the week to complete the activities presented in the asynchronous content, before attending the synchronous element, where any queries can be raised, clarified and discussed in much more depth.

Innovation Community



This online course brings the next generation of safety, risk and change management directly to aviation, in your work, embedded in your everyday practice with a systemic, proactive and performance focus

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Questions?

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