Creating Novel Approaches to Developing Tacit Knowledge and Skills in Innovation Management.

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Abstract

This paper describes the TACIT4 (Teaching and Coaching Innovation Innovatively) project, a 3-year European Union Knowledge Alliance (2016-2018) project under the Erasmus+ programme. The project combines the efforts of business and university educators to create new learner-centred teaching methods, opens up new learning opportunities, and develops the practical application of entrepreneurial skills. The outputs will be innovative teaching modules which could be embedded in the existing curricula of higher-education institutions and in corporate training programs. The project is designed to develop and test mechanisms than can be used to build tacit knowledge in individuals around innovation and entrepreneurship. The focus is not on developing a new core curriculum, but rather on taking the important elements of existing curricula and focusing on exploring more effective delivery mechanisms. As people's culture of learning is largely coined through the educational institutions, the project follows a threefold approach; research, teaching, and practice.

Relevance to innovation. Harnessing known knowledge about how to stimulate, teach and manage innovation requires innovation in itself. The TACIT programme (Teaching and Coaching Innovation innovaTively) will, following a research and development phase in six real organisations and three academic departments, create an innovative package of ways to teach & coach innovation; tools that others will be able to adopt. Co-production with public and private sector organizations creates a novel scenario. Incidental to the TACIT project, the UK government hospital involved works with Kenyan hospitals to try and leverage improvements in healthcare, creating another exciting opportunity to test the project's output.

Keywords. healthcare innovation, learning entrepreneurship, tacit knowledge, teaching innovation, university-industry cooperation

Introduction

To remain successful in a rapidly changing world, organizations must change their offerings (products/services) and their creation and delivery processes. Despite a considerable knowledge-base internationally about how to build innovation management capability, organizations and academics still struggle to make innovation happen. Ideas must be stimulated and nurtured but for these ideas to be useful, these general principles need to be adapted and configured for particular settings. Innovation needs "managing".

The TACIT programme is a 3-year European Union Knowledge Alliance (2016-2018) Erasmus+ project, in which six diverse organizations (private and public) and three academic institutions are exploring the pedagogies that develop the individual's ability to face and adapt to the innovation and entrepreneurship challenge. It seeks to understand the learning challenges which organizations and individuals face in developing understanding and skills for innovation management and is developing and prototyping a series of novel approaches to developing tacit knowledge and skills in innovation/entrepreneurship.

The participating organisations are exploring and prototyping eight complementary approaches to the challenge; storytelling, peripatetic learning, future-based learning, entrepreneurship laboratory, innovation theatre, innovation games, design making, and project-based learning. They will be packaged as tools that can be used by other organisations.

The inclusion of a public sector partner in healthcare creates an interesting opportunity to learn across sectors at a time when health and care systems across the globe face major challenges. Innovation strategies which will enable delivery of better value care are imperative.

Method

The TACIT project is designed to develop and test mechanisms than can be used to build tacit knowledge in individuals around innovation and entrepreneurship. The focus is not on developing a new core curriculum, but rather on taking the important elements of existing curricula and focusing on exploring more effective delivery mechanisms.

The project capitalizes on the shift in thinking towards new modes of delivery (for example, the 'flipped classroom' and the shift to massive open online courses (MOOCs)) and also explores pedagogies that develop the individual's ability to face and adapt to the innovation and entrepreneurship challenge.

The research focuses on the learning challenges that organizations and individuals face in developing understanding and skills for teaching, learning, and managing innovation. In particular it explores the range and efficacy of different delivery modes with a view to providing methodologies for better matching context with such delivery modes. The design of the project reflects some core principles in innovation management: co-creation with partners and users and learning through prototyping and iterative experimentation. The project is being delivered in four phases of work, each engaging all partners within the alliance and building on shared knowledge and experience. It is currently in Phase II. The project design, core teaching approaches for innovation and entrepreneurship

Table 1. TACIT Project Design

Year 1			Year 2		Year 3
INPUT & MILESTONES					
Phase I: 6 month	**Phase II: 12 month**		**Phase III: 12 month**		**Phase IV: 6 month**
Needs Analyses	**Initial Prototyping**		**Final Stage Prototyping**		**Finalising outcomes**
3 Concept workshops: Statement of Need & Identification of State of the Art	4 month of initial design	8 month initial prototyping & field testing via laboratory & prototyping workshops towards one I&E module	4 month of analyses of feedback & refined design	8 month final stage prototyping & training workshops & 1 launch event of I&E module	Finalising Curricula of TACIT as a training course for higher education and education of practitioners
Qualitative interviews in companies to confirm industrial need	4 universities with 6 companies designing 8 methods	Method 1 — Storytelling	4 universities with 6 companies refining 8 methods	Method 1 — Storytelling	Placement of TACIT teaching materials on companies' & ISPIM websites
		Method 2 — Peripatetic learning		Method 2 — Peripatetic learning	
		Method 3 — Futures-based learning		Method 3 — Futures-based learning	Open Educational Resources (OER): Pedagogical materials & Teaching Guideline available at the Innovation Portal
		Method 4 — Entrepreneur laboratory		Method 4 — Entrepreneur laboratory	
Quantitative surveys of university students to confirm teaching need		Method 5 — Innovation theatre		Method 5 — Innovation theatre	Showcasing the I&E module
		Method 6 — Innovation games		Method 6 — Innovation games	
		Method 7 — Design making		Method 7 — Design making	
		Method 8 — Project-based learning		Method 8 — Project-based learning	Submission for Certification with ASIIN
Quality and financial control plan	Quality assurance, evaluation, sustainability & preparation for certification				
OUTPUT & RESULTS					
1 Report on Needs & State of the Art 1 Conference Paper	Creation of I&E SIG ISPIM 2 Conference Papers 4 laboratory workshops & 8 prototyping workshops Dissemination on companies' & ISPIM websites		2 Academic Journal Papers 2 Conference Papers 8 training workshops & 1 launch I&E module Dissemination on companies' & ISPIM websites		Certified 6 ECTS Module Pedagogical materials OER: Innovation Portal Final Report
Phase I: 6 month	**Phase II: 12 month**		**Phase III: 12 month**		**Phase IV: 6 month**

that we are examining and developing inside the research project and work packages are described below.

Project design

The project follows a threefold approach; research, teaching, and practice. Project design, or how and what TACIT is going to achieve is presented in the table below.

The Eight Core Approaches

The work centres on eight core approaches from which teaching packages will be developed: storytelling, peripatetic learning, future-based learning, entrepreneurship laboratory, innovation theatre, innovation games, design making, and project based learning.

Storytelling

All innovation projects, whether new concepts at the start-up stage of a new business or development projects within established organizations, require 'pitching' the idea to others to secure resources, commitment and support. This places emphasis on the need to develop a compelling narrative which can unfold as the innovation develops; recent years have seen an upsurge of interest in this approach and in the tools and techniques which can support it. How could we use the skills of storytelling to improve aspects of

innovation management? Making more persuasive pitches? Developing a storyboard for entrepreneurial ideas? Carrying forward useful innovation management lessons from past experience within the organization?

Walking the talk - peripatetic learning

The great Greek philosopher Socrates had the idea which neuroscientists are now supporting we are receptive to ideas when we are moving. Couple that with a truism, that changing our context makes us see things differently and there is the basis for a new approach to learning about managing innovation. The core approach here is to use guided walks through landscapes which are full of examples of innovation and explore them whilst in the open air, walking and discussing them away from the classroom context.

Future-based learning

Innovation is about creating alternative futures and a powerful set of tools exist around scenarios and other projective techniques; some of these have been embedded in powerful methodologies such as Shell's Game changer programme or the Future Agenda consortium. This strand of work will set up an IF-Lab (Imagining the Future-Laboratory) a place where participants imagine alternative futures and explore within them opportunities and challenges which can form the basis of novel product or service concepts. From these rich pictures tools for 'back-casting' and road-mapping can be used to develop clear pathways to take innovation opportunities forward.

Entrepreneur laboratory

There's been an explosion of interest in start-ups and how to engage and enable new ventures. They involve developing novel value propositions and expanding them into robust business models which can realize the potential value for end users. Coupled with powerful new approaches around rapid prototyping of minimum viable products, getting early feedback to refine ideas and pivoting towards a solution they provide a fast track to developing and implementing innovation. But such 'boot camp' models aren't just relevant to start-ups and high tech enterprises. They can help existing organizations rethink how they come up with and carry forward business cases. Building on experience in companies like BMW, Nokia and Lego this strand of work will explore in a practical way how to bring the entrepreneurial lab into the mainstream.

Innovation theatre

"All the world's a stage" as Shakespeare pointed out and one part of that stage is where the drama of innovation is being played out. So there is considerable scope for using not only the metaphor but also some of the tools and techniques from the world of theatre to explore the characters, scripts and scenery of innovation in different contexts and to develop new tools and approaches to working with innovation. In particular we will draw on experience at the University of Southern Denmark which has worked for years

on using theatre-based approaches to improve understanding and performance in real organizations.

Innovation games

Play and playfulness are increasingly being recognised as powerful aids to creativity and innovation. The concept of serious play reflects this growing interest and this strand of work will explore the different ways in which games and structured play can provide new learning opportunities to develop innovation capabilities. These might range from simple live exercises through to more structured interactions and even online and virtual world gaming.

Design making

Design thinking has become on of the hot topics in the innovation field in recent years, reflecting both an approach to solving problems and a wide-ranging toolkit which people can use to embrace design methods. Organizations like IDEO have demonstrated the potential of this model in a variety of public and private sector innovation contexts and it brings important new perspectives especially around user understanding and prototyping. This strand of work not only seeks to explore the ways in which design thinking can be used in learning how to manage innovation more effectively but also looks at design making the range of approaches which enable user engagement in prototyping and concept testing of various kinds.

Project-based learning

Innovation isn't an academic or theoretical matter it's the practice of turning ideas into value. And much of what we've learned has come from reflecting on projects successful or otherwise and pulling out relevant lessons. This strand of work will look at the ways in which structured reflection can be used to capture learning from live innovation projects, and also how we can design reflection projects to help assess and enhance innovation management capability.

The Work Packages

The project is being delivered through a series of work packages with the following objectives:

- A review of existing experience across the project consortium in Innovation & Entrepreneurship (IE) education/training provision.
- To explore, develop and test complementary methods for this.
- Specifically explore with project partners eight key areas:
  - Storytelling developing a coherent innovation narrative linked to suitable boundary objects such as the Business Model Canvas, Lego Serious Play and other platforms
  - Project-based learning, using live innovation challenges as a device to integrate key tools and concepts around IE

- Innovation theatre, using formal approaches including role play and simulation to explore perspectives and challenges in innovation
- Entrepreneur laboratory, using tools and techniques from lean start-up and developing/testing innovation concepts through agile processes such as minimum viable product
- Futures-based learning through simulation, scenario development and Game changer techniques
- Peripatetic learning, using a Socratic approach to exploring landscapes and artefacts which can be used to illustrate core concepts in managing innovation
- Design thinking drawing on the growing resource and practice base around user-centred high engagement processes for innovation to articulate and prototype in context
- Innovation games working with the concept of serious play and enabling learning through a variety of settings from simple workshop experiences through to extended structured games.

- Development of a robust methodology and a toolbox of options to support its implementation.
- The building of a community of practice around IE education and training involving practitioners, policy-makers, researchers, consultants and academics.
- To create and certify a 6 points European Credit Transfer System (ECTS) module which can be used in award-bearing programmes across Europe.
- Creation and maintenance of an open-source version of the toolbox of novel learning approaches

Discussion

The needs and requirements for education are permanently evolving, and the project is exploring needs, resources, and experience on both the supply and demand side to build up a clear understanding of where and how delivery could be improved around innovation and entrepreneurship.

The novel modes of teaching outlined above all have a respected pedagogical foundation and have already been tested in pilot form as part of TACIT knowledge alliance. Participating partners are already gaining understanding by working individually on the individual approaches. Results will be reported during the course of the 3-year project.

The experience base of the project partners has already provided a rich perspective on the strengths and weaknesses of current education and training provision in the field of innovation and entrepreneurship. The need for project and practice-centred modes of working and for novel approaches to delivery, which challenge individuals and develop capacity for action at that level has been highlighted. Our project builds on this, developing and prototyping a series of novel approaches to delivery, targeted at developing tacit knowledge and skills in innovation and entrepreneurship, recognizing the limits of conventional approaches to education and training around innovation and entrepreneurship. In particular, more needs to be done to develop individual capacity for action through acquiring tacit knowledge. We argue this can be delivered through mechanisms which meet needs for:

- project-based learning, linked to the real challenges participants face in trying to make innovation happen
- recognition that different modes of learning; for many practitioners classroom style theory-based approaches do not work effectively
- experiential learning, offering different ways of closing the learning cycle between theory and practice
- skills-based learning, placing emphasis on what individuals working in organizations can actually do, rather than focusing only on structures and processes to enable innovation
- practice-based learning, allowing experimentation and gradual capability development through prototyping
- building understanding of core principles around which individuals can configure solutions to the innovation challenge which work in their particular context

The project will capitalize on the shift in thinking towards new modes of delivery (e.g., the flipped classroom and the shift to massive open online courses (MOOCs)).

In terms of the wider benefit to enterprises, we recognize that innovation lies at the heart of what they do, from the initial stages of start-up through to the difficulties of building on their original ideas and developing new offerings, improving their processes, opening up new markets or creating more value. The challenge of establishing a healthy business able to repeat the innovation trick and deliver a steady stream of change depends not on luck but on the ability to understand and enact innovation. Meeting this challenge requires learning and capacity building around entrepreneurship skills, and requires us to further develop our understanding of how to teach innovation and entrepreneurship effectively such that our teaching enables learners to put the lessons into practice.

The opportunity for public and private sectors to work together is of great potential benefit, and and the inclusion of a UK NHS partner, South Devon Healthcare Trust, in the TACIT project is interesting at a time when delivery of value healthcare is a global challenge. This organisation created a partnership with Nanyuki & Nyahururu government hospitals in Laikipia County, Kenya in 2009 and this partnership offers a unique opportunity to test the learning from the TACIT project in very different settings. Both the UK and Kenya governments have written strategies to address innovation and improvement but implementation remains a challenge.

While Continuous Quality Improvement (CQI) strategies are well known and can be taught, practical tools & techniques to stimulate more radical innovative thinking and to develop the ability of a workforce to really create value from their good ideas, have not previously been described, despite a plethora of educational material on the subject.

Outputs from the TACIT project will provide tools that will help to engage individuals in developing their personal skills to support change in any organization and improve their ability to act for the ultimate benefit of their organizations and their clients.

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