THE INNOVATION JOURNEY: FROM IDEA TO NOVELTIES

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In April 2012, CRP Gabriel Lippmann and CRP Henri Tudor announced their intention to merge.

On January 1st, 2015 a new RTO is born
**MAIN FIGURES**

- A budget of approximately: **EUR 64 million** *
- Contract research: **EUR 10.5 million** *
- Competitive research: **EUR 14.5 million** *
- **630 employees**, ¾ of whom are researchers
- About **70** Phd students
- Nearly **40** different nationalities represented
- **350** scientific publications referenced
- A portfolio of **50** patent families

The expertise of LIST’s researchers is deployed in close to 300 research projects, 30% of which are conducted within European programmes

*2015 Objectives of the Performance Contract signed with the Luxembourg govt for the period 2015-2017*
RTOs: linking academia and industry
(source: EARTO)

Pragmatic knowledge application
(problem-solving, teaching, training, consultancy…)

Fundamental knowledge production
(research, discovery)

Curiosity driven

Application inspired

Technology Transfer

Commercial technology and consulting services

Application oriented R&D

Fundamental research

Academic Research Organizations (CERN, ESA, Max Planck, Helmholtz, CNRS, RIKEN…)

Industrial Research Organizations

Technical services companies (engineering, consulting…)

Research and Technology Organisations (FhG, DFKI, VTT, TNO, VITO, Sintef, Carnot, Tudor …)
3 DEPARTMENTS WITH FOCUSED RDI DOMAINS

IT FOR INNOVATIVE SERVICES (ITIS)
- Decisional knowledge dynamics
- Trusted service systems
- Service engineering with impact

MATERIALS RESEARCH AND TECHNOLOGY (MRT)
- Nanomaterials & nanotechnologies
- Composite & advanced materials

ENVIRONMENTAL RESEARCH AND INNOVATION (ERIN)
- Water security & safety
- Plant for biomass, biopolymers & bioenergy
- Life cycle sustainability & risk assessment
- Environmental informatics
The value of an idea lies in the using of it

*Edison*
SOME SURVEY-BASED EVIDENCE

EUROPE IS PARTICULARLY WEAK IN THE TRANSFORMATION OF IDEAS IN NEW PRODUCTS AND SERVICES.
(European Cluster Memorandum)

PRODUCTIVITY OF R&D MUST BE INCREASED.
(Aho-Report)

ENTREPRENEURSHIP CULTURE IS CRUCIAL TO FOSTER ECONOMIC GROWTH.
(OECD)

INITIATIVES OFTEN FAIL TO ADDRESS THE TRANSNATIONAL DIMENSION OF KNOWLEDGE TRANSFER.
(European Commission)

There is a need for action: to improve the transfer process
FITT =
Fostering Interregional Exchange in ICT Technology Transfer

- Co-funded by EU
- June 2008 – May 2011
- 4.300.000 €
- 7 Partners – 5 Countries
WHAT DID WE DO ABOUT IT?

• Practitionners / Pragmatic approach
• A unique Professional framework
• A practical model for building up a successful business, supported by practical and academic evidence.
• How to create economic / social value from knowledge?

FIT Logic
The FITT Toolbox

More than 60 topics

... a collection of practical tools ready made for tech transfer

... full of (best-) practices, case studies, instruments, external sources and articles

... with a modular structure

... all to do with a practical focus for people with little time to study
And there is more to FITT

The FITT Toolbox
…is also about

- A vivid Community of Practice
- The recommended Bibliography
- A Transnational Training Program
- A Position Paper
TIPA® - TUDOR IT SERVICE MANAGEMENT (ITSM) PROCESS ASSESSMENT

www.tipa-itsm.com

• Problem/Idea
  • How to demonstrate the quality of IT service management in organizations?

• Solution & Partners
  • TIPA, a framework to assess and improve service management processes based on an international standard (ISO/IEC 15504) and ITIL® (set of best practices in IT Service Management)
  • Van Haren Publishing
  • itSMF, Dimension Data (LU), BCE (LU)

• Validation
  • 12 published articles in reviewed journals and conferences
  • Validation by national experts (itSMF) and early adopters (Dimension Data, BCE/RTL)

• Valorisation
  • Tudor is co-editor of the ISO 20000 series (Part 4)
  • Publication of a book by an international publisher
  • Partnership for the distribution of the associated materials at international level
Problem/Idea
- Use ITC technologies in order to replace paper/pencil based testing methods for the large scale evaluation of competences

Solution
- An Open Source Computer Based Assessment Platform that provides all actors of the entire assessment process a comprehensive set of functionalities enabling the creation, the management, and the delivery of electronic assessments and surveys

Validation
- Joint initiative with University of Luxembourg
- Numerous scientific publications and international partnerships (DIPF (DE), ETS (USA), ACER (AUS), University of Szeget (HU), University of Luxembourg)
- Utilisation by OECD in its well-known large-scale PISA (Programme for International Student Assessment) and PIAAC (Programme for International Assessment of Adult Competencies) studies in 2009 and 2012

Valorisation
- 2 trademarks, licence granting
- service for national and international surveys

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TAO® - TESTING ASSISTÉ PAR ORDINATEUR

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PRIVATE EQUITY FUNDING

Seed  
Start-up  
Later-stage venture  
Growth  
Restructuring/turnaround  
Replacement capital  
Buyout  
Company Maturity

Source: EVCA
The Business Plan Funnel

100 business plans come in

10 are a good fit and promising — they get a close look

Extensive due diligence

1 gets funded
A super short history of modern crowdfunding

1990s-2000s
Internet enables the first online crowdfunding campaign

The first platform arrives
2000 saw the birth of ArtistShare, the first reward-based crowdfunding website for music, then referred to as "fan funding" for musicians.

The mid-2000s saw the emergence of online microlending sites such as Kiva which enabled individuals to lend small amounts in support of projects in the developing world.

Early 2000s
A new market for giving
Internet-enabled giving goes mainstream with the emergence of sites such as JustGiving in 2000.

Enabled by the internet communities started to form online to exchange content via email, instant message and fan pages. British rock group Marillion are recognised by many as the first to prove how a loyal and engaged crowd can be used as a powerful source of finance online. In 1997 the band tapped fans through their website to fund a $60,000 US tour and subsequent albums.
GLOBAL CHALLENGES

What are the greatest challenges facing the world in 2015?

North America
Key challenges
1. Increasing inequality
2. Geopolitical shifts
3. Adapting to climate change

Europe
Key challenges
1. Fostering economic growth and innovation
2. Youth unemployment
3. EU-Russia relations

Middle East & North Africa
Key challenges
1. Persistent youth unemployment
2. Managing political transitions
3. Societal tensions

Asia
Key challenges
1. Geopolitical tensions
2. Structural economic reform
3. Managing urbanization

Latin America
Key challenges
1. Corruption
2. Education and skills development
3. Increasing inequality

Sub-Saharan Africa
Key challenges
1. Education and skills development
2. Building sustainable governance systems
3. Delivering hard infrastructure

Source: Survey on the Global Agenda 2014

Read the report #Outlook2015

LIST.lu
## CROWDFUNDING PLATFORMS

### Some facts & figures

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of crowdfunding platforms in the US</td>
<td>191</td>
</tr>
<tr>
<td>Percentage growth of CP worldwide</td>
<td>60%</td>
</tr>
<tr>
<td>Worldwide crowdfunding volume</td>
<td>2.8 bn$ (2012)</td>
</tr>
<tr>
<td>Social causes are most active categories</td>
<td>30%</td>
</tr>
<tr>
<td>Projects launched on Kickstarter</td>
<td>222,533</td>
</tr>
<tr>
<td>Total funds raised of Pebble: e-paper watch</td>
<td>10,266.85K$</td>
</tr>
<tr>
<td>Number of visitors to Crowdcube site in UK</td>
<td>130,184</td>
</tr>
</tbody>
</table>

Source: Statistica, accessed May 8th, 2015
CROWDFUNDING: FIGURES

Global Crowdfunding Volume Reaches $2.7 Billion in 2012
Total funds raised through crowdfunding during 2012 (in million U.S. dollars)

- North America: $1,606m
- Europe: $945m
- Asia: $33m
- Oceania: $76m
- South America: $0.8m
- Africa: $0.1m

Worldwide:
- 2010: $0.90 billion
- 2011: $1.48 billion
- 2012: $2.67 billion

Source: massolution
Key statistics: 2014

€2,957 million
Total transaction volume of the online European alternative finance market

144%
Growth of the online European alternative finance market compared with 2013

€620 million
Total transaction volume of the online European alternative finance market excluding the UK

€201 million
Early-stage, growth and working capital funding provided to European start-ups and SMEs through alternative finance platforms

THE GEOGRAPHICAL DISTRIBUTION OF SURVEYED ALTERNATIVE FINANCE PLATFORMS IN EUROPE (BY COUNTRY)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer-to-Peer Consumer Lending</td>
<td>Debt-based transactions between individuals; most are unsecured personal loans.</td>
<td>274.62m</td>
</tr>
<tr>
<td>Reward-based Crowdfunding</td>
<td>Backers have an expectation that recipients will provide a tangible (but non-financial) reward or product in exchange for their contribution.</td>
<td>120.33m</td>
</tr>
<tr>
<td>Peer-to-Peer Business Lending</td>
<td>Debt-based transactions between individual/institutional investors and existing businesses who are mostly SMEs.</td>
<td>93.54m</td>
</tr>
<tr>
<td>Equity-based Crowdfunding</td>
<td>Sale of registered security by mostly early-stage firms to investors.</td>
<td>82.56m</td>
</tr>
<tr>
<td>Community Shares/ Microfinance</td>
<td>Microfinance refers to the lending of small sums to entrepreneurs who are often economically disadvantaged and financially marginalised. There is a debt obligation incurred, but the amounts lent are very small. Community shares refer to the sale of withdrawable share capital in cooperative and community benefit societies.</td>
<td>19.91m</td>
</tr>
<tr>
<td>Donation-based Crowdfunding</td>
<td>No legally binding financial obligation incurred by recipient to donor; no financial or material returns are expected by the donor.</td>
<td>16.34m</td>
</tr>
<tr>
<td>Invoice Trading</td>
<td>Firms sell their invoices or receivables to a pool of individual or institutional investors.</td>
<td>6.63m</td>
</tr>
<tr>
<td>Debt-based Securities</td>
<td>Lenders receive a non-collateralised debt obligation, typically paid back over an extended period of time. Similar in structure to purchasing a bond, but with different rights and obligations.</td>
<td>3.61m</td>
</tr>
<tr>
<td>Pension-led Funding</td>
<td>Mainly allows SME owners/directors to use their accumulated pension funds in order to invest in their own businesses. Intellectual properties are often used as collateral.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
UNDERLYING AIM: GREED OR RECOGNITION?

• **KITE Patch**

  This innovative and *nontoxic patch keeps mosquitoes at bay* for up to 48 hours, by affixing to clothing and deterring insects that track humans by smelling for carbon dioxide. The idea was the brainchild of a University of California team, and the initiative was jumpstarted by generous support from the Bill and Melinda Gates Foundation and National Institutes of Health. Since *exceeding their funding goal seven times* over, Kite - in partnership with Pilgrim Africa – is now working to distribute the magical patch to Uganda, which is heavily affected by mosquito-borne illnesses.

EXAMPLES IN HEALTH/TECH

• FORM1

• With **3D printable clothing** being a prediction for the future, the need for affordable home printer options needs attention now. Well, researchers from the **MIT Media Lab** have taken on the challenge creating the FORM1, a project to create an affordable, professional 3D printer for the public. The FORM1 blew through its **original $100,000 goal, getting over 2,000 backers and $3 million dollars in funding**.

EXAMPLES IN HEALTH/TECH

- Scientific crowdfunding

Using Nanoparticles to Activate Immune Cells to Fight Tumors

Gail A. Bishop | Brett Hanson
University of Iowa

$1,931
Pledged

128% $3,500 0
Funded Next Goal Days

Success!
This project was funded on: 19 December 2014

- Pilot experiment for developing a new cancer treatment which utilizes the patients own immune system to fight and kill their tumor. Early results are very promising but we want to continue improving our system. By using nanoparticles to stimulate immune cells against tumor targets, we can avoid the potential dangers of directly injecting nanoparticles into patients while harnessing their versatility in antigen and adjuvant delivery.

(Source: experiment.com, other platforms are www.petridisch.org and walacea.com)
HUMAN AGENDA
Financial Innovation

Source: Salampasis and Mention, 2013
OPEN QUESTIONS

For debate …

• Ethical issues of crowdfunding for science purposes
• Regulation needs
• Another form of the FinTech revolution
• Trust and the role of the customer in financial services
• Greediness, recognition or social commitment
• Complement or substitute to Venture Capital?
• Threat to the business model of incumbents?
• “Too big to fail”: again, a wrong assumption?
Thank you very much for your kind attention

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