RTOs’ Spin-offs: Untapped Potential of Tech-Transfer

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EARTO Moto: **Impact Delivered!**
EARTO Vision: **Technology for a Better World**

![EARTO Network](image-url)
Understanding European RTOs

RTOs are key players in the innovation chain at local, national and European level

1. RTOs have high skilled staff conducting world class R&I offering professional skills to EU industry

2. RTOs secure innovation with strong IP

3. RTOs house various research infrastructures & demonstration facilities benefitting many stakeholders

⇒ RTOs are best positioned to transfer technology to Industry to develop their global competitiveness with concrete impact
RTOs’ core mission: adding value through technology maturation

- System operation
- System test and demo
- System prototype

Prototype
- Validation in relevant environment
- Validation in laboratory environment

Analytical/Experimental proof
- Technology concept
- Basic principle

Source: NASA Technology Readiness Levels, ISO 16290
RTOs’ core mission: transfer technology to the market with high impact for society

- RTOs develop new, sometimes game-changing technologies, with a market-oriented approach and the objective to develop strong IP and to transfer their technology to the market.

- RTOs’ undertake additional effort to have a commercial approach themselves or sustain a pool of entrepreneurs via spin-off creation.

- Public authorities could play a role to support this type of activity which helps make innovations investment-ready.
How do RTOs create Spin-offs?
RTOs’ Support System for Start-ups’ creation

**IDEA**
- RTO detects promising projects at early stages
- RTO gives advice and support project structuring

**PROJECT**
- RTO helps build business case & validation through pilot
- Minimum Viable Product & Spin-off of the business

**START-UP**
- RTO invests strategic seed capital
- RTO helps find new investors & customers/markets

**Within RTO’s Laboratories with access to RTO’s R&I Infrastructures**

**CREATION**
- Awareness/Detection
- Maturation
- Incubation
- Funding Rounds

**RTO’s operational support**
- RD&I & Access to RTO Infrastructures*
- Licences*

* Access to RTO’s RD&I & infrastructures and the licencing agreement with the RTO are essential in the process.
RTOs’ Support System for Start-ups’ creation: the example of CEA in France

 Création

Awareness, Detection, Maturation, Incubation

Founders Round
1st round
300-500 k€

CEA Institutes

2nd round
500-3M€

3rd round
1-5 M€

4th round
10-50 M€

R&D
Licences

Challenge 1st step
Incubation Committee

SATT Grenoble/Saclay – Incubateurs European funds (KIC, …)

CEA-I stratégique

Corporate Venture, Europe (EIF…)

Venture capital: EMEF, DEMETER, SOFINNOVA …

Business Angels

CEA-I ATI

CIR (research tax credit)

Other aid and tax measures to help young companies…

France: National competition
Emergence

France: National competition
Business creation

France: World-class competition

Funding tools - CEA

Structures/Public support

Structures/private support
4 Key Dimensions to Create Start-Ups

- **Minds**: technology experts with access to excellent technological infrastructure to provide a promising market-oriented RTO technology.

- **Management**: smart team around an entrepreneur with a market vision, willing convert disruptive technologies into ready-to-invest business opportunities.

- **Market**: strategy with interested and committed industrial partners/clients.

- **Money**: smart capital from investor to transform technology into business value and growth.
Inside-Out Approach

1. Starting point: RTOs’ promising technology at a close-to-market level of development, with potential applications in different markets

2. Leadership dilemma: RTOs need to find a motivated intrapreneur who will act as a driving force to find the right market

3. Market Development: smart team needs to develop the market and the technology hand in hand and to identify the industrial clients interested in the technology
Inside-Out Approach

Cheaper & More Efficient 3D LED Lamps

EARTO Innovation Award winner 2016

Innovative Medical Devices for Cranial & Spinal Neurosurgery

Making Waste Water Re-usable

Really Sustainable Packaging Solutions with Bioplastic Materials
Outside-In Approach

1. Entrepreneurs in low TRLs, with good market vision contact RTOs to develop a promising technology portfolio for the new business

2. RTOs collaborate with these entrepreneurs, helping them create the needed technology or apply an existing RTO technology to their needs

3. After project ends, RTOs can take the opportunity to invest in the start-up
Outside-In Approach

Collaborative Platform for Creative Television Teams

Technological Voucher Connecting RTOs & Early-Stage Start-Ups for Robot technology transfer
The joint power of 4 leading European RTOs to launch new businesses in robotics.

**Outside-In Approach**

- **Identify Opportunity**: +1500 agents → +120 voucher applications
- **Develop business case**: → 64 business case
- **Validate through pilot**: → 8 pilots → + 4 products
- **Launch product**
What are the specificities of RTOs Spin-offs?
Some figures on RTOs’ support to Deep-Tech Start-Ups

Spin-offs still active in 2014 from 7 large European RTOs: 550+

Spin-offs created each year by 7 large European RTOs: 70+

Success rate of RTOs’ spin-offs after 5 years: +80%

13,000+ Jobs Created

€1.8 bn Turnover

Providing access to RTOs’ untapped technology potential would deliver high value for society
Why are RTOs Spin-offs doing so well?
Making Innovations Investment-Ready: RTOs’ Operational Support for Deep-Tech Start-Ups

RTOs’ multifaceted support provided to their deep-tech start-ups at every step of the way is crucial to their success:

- Detection of promising projects at early stages
- Support to build the business case & implement the business plan
- Support for the validation phase through pilots and prototypes
- Access to in-house technological research infrastructures
- Transfer of strong Intellectual Property Rights
- Support to build smart teams with high-level entrepreneurs
- Staff detachment
- Financial support & advice: RTOs’ label as due diligence process
- Connecting to industry and finding customers
- Legal support, IP issues assessment
- Advice on internationalisation
- Coaching to reinforce the technological basis of the venture
Bringing Science into Finance: RTOs’ Financial Support for Deep-Tech Start-Ups

• RTOs sometimes also manage investment funds to leverage the risk and produce investable opportunities for “smart capital”

• With their deep technological knowledge and expertise, RTOs bring science into finance and act as due diligence for investors, helping them assess the technology value
Why are RTOs not doing more?
Downsides for RTOs to Create Deep-Tech Start-Ups

- High commitment & resources required to ensure success in high risk environment: what return?
- Transfer of heads to the spin-offs: loss of high-level researchers with expertise & network
- Transfer of customers’ connections

Supporting RTOs’ to make their untapped technology potential investment-ready would deliver high value for society
What type of support needed by RTOs?
Support Technology Maturation to Make Innovation Investment-Ready

- RTOs’ tech transfer via the creation of deep-tech start-ups requires continuity and high operational and financial investments, at a time when equity is too risky and private investors don’t invest at that stage.

Support needed:

- EU grant funding scheme with a bottom-up approach focussing on the maturation and incubation phase

  - In Finland: Tekes has a limited but well working pre-seed grant funding instrument supporting this commercialisation/maturation/incubation phase at national level with €20M/year pre-seed funding grant.
  
  - In Germany: the EXIST Transfer of Research Program is another good example of technology transfer grant-funding to develop a Minimum Viable Product (phase 1), to build business case (phase 2), and to attract capital (phase 3).
At EU level: Support Technology Maturation Phase to Make Innovations Investment-Ready in EIC?
Connect Technological Experts to Entrepreneurs to Build Smart Teams

- A smart team is crucial to attract industrial clients and investors: essential success factor in deep-tech start-up creation.
- Need to better connect technological experts to entrepreneurs with strong market insights

Support needed:

- Creating a pool of entrepreneurs/intrapreneurs with market insights looking for high potential business opportunities, and connecting it to a pool of untapped RTOs’ technological potential.
- Using a pool of seasoned “entrepreneurs” as mentors to support less experiences ones.
Provide Access to Liquidity after the Start-Up Foundation to Keep Start-Ups in Europe

• After creation, many EU deep-tech start-ups tend to move out of Europe to find funding and less regulatory constraints

• RTOs do not have the means on their own to provide the liquidity that these companies require to stay in Europe

Support needed:

• Increase public & private support to provide liquidity to start-ups at a later stage after their creation, to make the high investment they require worthwhile and create jobs & growth in Europe

  ➢ Stimulate seed and early round investors to work on a more European scale

  ➢ Improve the regulatory framework in Europe to attract foreign investors from overseas (ex. Show-casing the top European investment opportunities with proven potential)
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