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# How to think (and write) a great research centre proposal for the OP R&DI

## Lessons from the Pre-Call and from benchmarking and management of research and technology organisations (RTO)

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# Overview

- Part 1
  - *Some stylized facts and (wrong) beliefs about the role and the management of RTOs*
- Part 2
  - *Lessons from the pre-call*
- Part 3
  - *Accomplishing RTOs: An introduction into performance contracts*
- Part 4
  - *What counts? The criteria for selecting proposals*

# Part 1

## Some stylized facts and (wrong) beliefs about the role and the management of RTOs

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# 1. RTOs suffer from a mission overload: The Swiss army knife

- The X-Centre performs (1) research and (2) development and related (3) measurement and (4) testing in areas which are of particular (5) societal and (6) economic relevance to (7) the country
- In doing so, the X-Centre adopts an (8) inter- and (9) trans-disciplinary approach aiming at (10) international excellence and (11) visibility
- The X-Centre shall (12) collaborate with the (13) private sector, (14) public administration as well as (15) stakeholder organisations in order to (16) develop and (17) support the implementation of (18) innovative, (19) economically feasible and (20) environment-friendly (21) systems solutions
- In doing so, the X-Centre provides a (22) sustainable contribution to the (23) benefit and the (24) security of the country
- The 'It-does-everything-except-make-the-tea'-model
  - *Overloaded with expectations*
  - *Expectations are oriented at impacts rather than at outcomes*
  - *Impossible mission → dissolution of mission and relevance*

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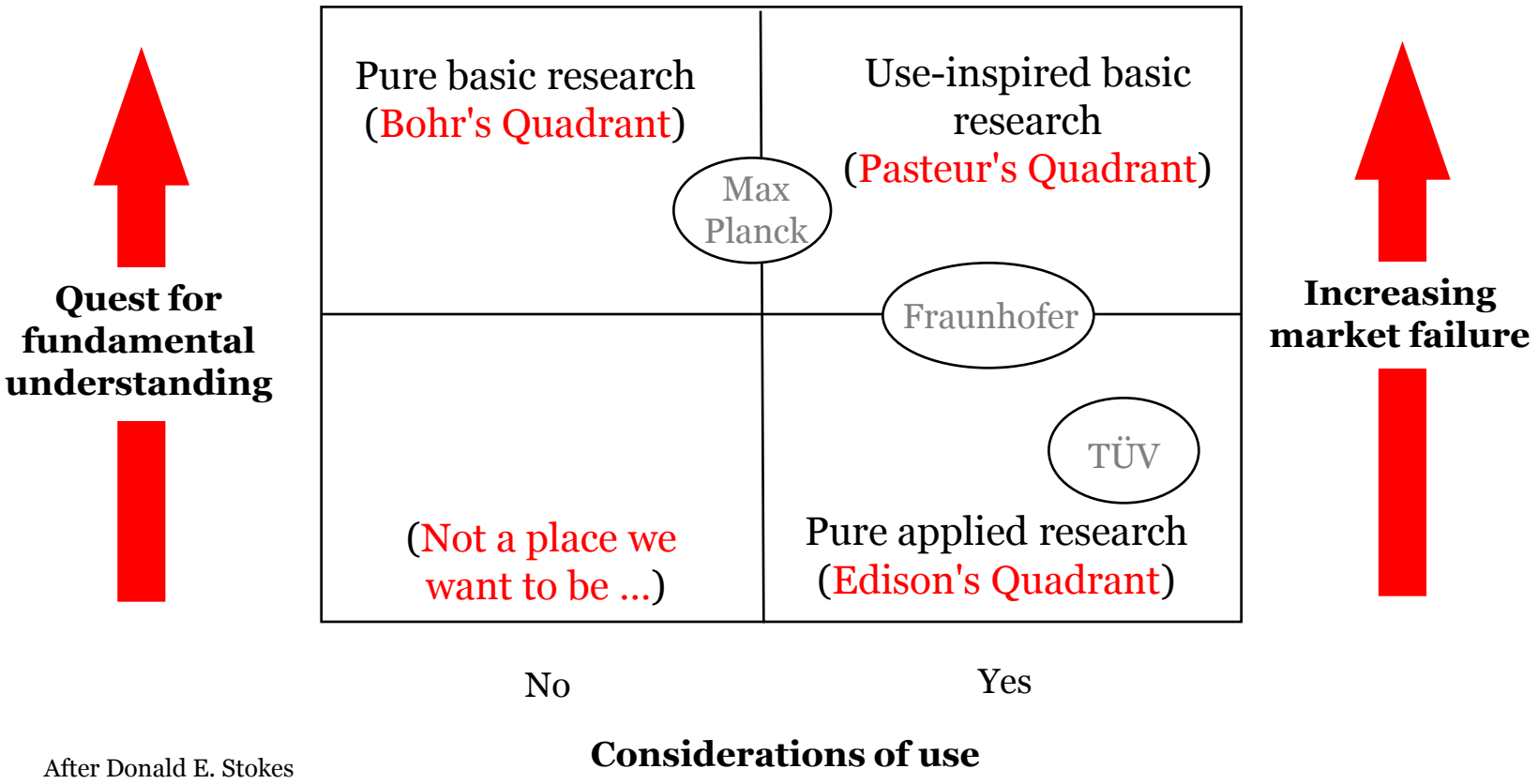
# 2. Missions, goals, strategies, indicators, and benchmarks must reflect what we want RTOs to do: an overall framework




After Donald E. Stokes

# 3. RTOs are a separate species, different from firms and universities

- RTOs use much more structured / **industrial approaches** (PM, QM)
- RTOs tend to have experience of manufacturing and understand how to **scale / operate pilot equipment**
- Often equipped with specialised **test / measurement equipment**, sometimes **pilot plant** not readily available elsewhere
- Providing research / technical **services** to industry tends to be **core business** for an RTO, whereas for universities these are peripheral activities (in relation to training and 'academic' research)
- RTOs are useful to industry when it needs externally generated knowledge that is **timely**, can **directly be exploited** in industrial practice or useful to support decisions
- Often, it is important that the RTO can undertake **work at short notice**
- RTOs have routines for the confidential **treatment of proprietary knowledge**

# 4. The importance of management of RTOs

- In RTOs, specifically, managers have to fight a war on several fronts
  - *battle in the **research market**: beating competitors + satisfying customers*
  - *battle within the organisation and **reward people** that they allow the organisation to achieve its objectives (income + opportunities for doing research and participate in research communities)*
  - *battle on the **time-scale**: fulfilling a stand-by mission, developing technological platforms **and** reacting on short-term needs*
  - *battle on the **mission front**: producing public goods **and** value-for-money*
  - *battle on conflicting **concepts of innovation** (mode-2, open innovation)*
- The concept of **non-for-profit** does not dispense from acting economically, as zero-profit has to be managed likewise, sometimes it is more difficult
- RTOs thus have to have a '**business model**' / a strategy which addresses the complicated trade-offs between internal and external orientation

# Part 2
# Lessons from the pre-call

# 1. Lesson: Writing proposals - an underestimated professional skill

- Poor quality of the proposals as a written document
  - *Poorly developed skills in general?*
  - *Poorly developed culture of writing proposals in general?*
  - *Write the proposals 'with your own blood': Consultants can play a doubtful role*
- However
  - *For each poor element in one proposal there is another proposal which solved the same issue brilliantly*
  - *>50% of all proposers have convinced the panel to go ahead*

# 2. Lesson: "Let's put all eggs into one basket!"

- Many proposers / consortia have simply put most of their eggs into one basket, due to
  - *Misperception of overall goals / expectations of the OP R&D?*
  - *The wish to overcome the poor status of overall research infrastructure?*
  - *The 'participative' approach in drafting the proposal ('Noah's Arch')?*
  - *Poor awareness and practice to manage research institutions on the basis of research programmes?*

# 3. Lesson: "Let's do everything, and nothing else!"

- Over-expectations is a wide-spread phenomenon
  - *The "put all eggs into one basket" behaviour*
  - *Avoiding internal priority setting*
  - *Poor familiarity in working and collaborating in larger programmes / with third parties particularly*
  - *The 'ingenuity-naivety-(and sometimes: arrogance)-triangle' mind-set*
  - *Echo from the 'Policy speak' (excellence + innovativeness + competitiveness + sustainability + environment + gender + ...)*
  - *Don't forget: Comprehensiveness drives out the best!*

# 4. Lesson: Poor attention to governance

- Governance: A lot of doubts, whether the undertakings will succeed
  - *When it comes to implement a >50 MEUR project with a lead time of >5 years without an **entrepreneurial figure** (= scientific director)*
  - *When it comes to the definition of the research agenda and the selection of key researchers (group leaders) without a **visionary figure** (= scientific director)*
  - *When it comes to the fencing (vis-à-vis the established institutions) without a **separate legal entity** and a **powerful figure** (= managing director)*
  - *When it comes to collaboration and every-day practice without an **integrative figure**, who 'is there' (**with open doors**) (= scientific director)*

# Part 3

# Accomplishing RTOs: An introduction into performance contracts

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# 1. It's easier to herd cats: Performance contracts as an envelope

- **Herding cats seems easier than managing RTOs**
  - *Mission-overload, role overlaps, diverse time-frames, multiple sources of funding, multiple and diverse clients and partners*
  - *Difficulties in managing RTOs leads to risk aversion / shorter time horizons*
  - *And there is always history and path-dependency: Differences in history tend to persist as differences in behaviour over time*
- **Performance contracts** (PC): An instrument to explicitly
  - *Re-view the **mission** (and to focus it)*
  - *Re-think the intended **target-groups** (and approach them)*
  - *Re-think the **relevance** (and substitute **non-manageable impacts** by **manageable outcomes**)*
  - *Re-think the underlying **business model** according to recent 'beliefs' in innovation (and re-design it)*
  - *Re-think the required **time-frames** (and set milestones, achievements)*
  - *Re-think and re-design the relationship between management & **government***

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# 2. The ingredients of a performance contract

- **PCs are concluded between the RTO management and the funder** (ministry, agency; association, foundation)
- **PCs make binding statements** about
  - *The RTO's mission*
  - *Related target groups*
  - *Related goals*
  - *Related performance (indicators)*
  - *Side effect 1: Provides a framework for managers to develop and implement strategy (which is, however, not a part of the PC)*
  - *Side effect 2: Provides a unique role for supervisory / advisory bodies*
- **Mission, goals and performance indicators need to be negotiated** and contested in a dialogue between the government and the RTOs
  - *The overall mission and goals*
  - *Levels of goal achievement*
  - *Core funding: level and conditions*
  - *Systematic and standardised data-collection and monitoring, periodic evaluation*

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# 3. Some principles of good practice to implement PCs

1. **Government should have a clear will** to implement PCs and a clear mind, that the implementation of PC requires a high level of self-limitation
2. PCs as a **document** should be **very short** (a few pages)
3. PCs should cover a **period** which goes beyond extrapolation **(3-7 years)**
4. PCs should direct the attention at **outcomes, which can be managed** rather than at impacts, which are beyond the scope of the managers of RTOs
5. Thus outcome orientation correlates with a high degree of **management autonomy** and **planning reliability** as well as **internal reward systems**
6. PCs delegate the issue of **organisational structure**, management systems and processes, and HR policies to the **managers**
7. It should however be possible to **negotiate some internal regulations** as part of the PC, such as the implementation of a full-cost model, career policy
8. **Verifying the accomplishment of the PC** should be possible without additional / specialised effort (e.g. peers, evaluators, studies)

# 4. Steps towards the accomplishment of a reliable PC? (1/2)

1. Government requests the RTO's top management, to prepare a **self-assessment report**, which covers
   - ***Past performance**, the context, in which the RTO has operated in the past, respective changes*
   - ***Organisational matters**: structures and processes, respective changes*
   - *Thinking about the **future** of the organisation (mission, goals, indicators)*
   - *Statements should be **as specific as possible**, underpinned with **facts and figures***
   - ***Past, present, and future shall be linked**, but described in separate chapters*

# 5. Steps towards the accomplishment of a reliable PC? (2/2)

3. Government **negotiates a contract**
   - *External assistance is helpful*
     - To assess the content and consistency of the 'script' (past & future)
     - To cope with information asymmetry (cognitive & social)
4. Proper **contract period**
   - *3-5 years, in mature cases even 7 years*
5. The PC should mainly include **mutual promises**
   - *Government*
     - The promise to secure core funding
     - The promise to contribute to stabilise the RTO's environment
   - *RTO*
     - The promise to achieve the agreed goals
     - The promise to regularly report about progress

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# 6. The case at hand: New RTOs, based on past experiences and future expectations and promises

- The **self assessment report is replaced by the proposal**
- The **proposal includes some more detailed information** about
  - *The research agenda*
  - *Investment in hardware (buildings, scientific equipment, support infrastructure)*
  - *Recruitment of new staff & staff development*
  - *The management model*
  - *More detailed financial considerations*
- **All other things remain unchanged**
  - *Mission: specific, adoptable (by management, staff, target groups, government)*
  - *Target groups: few, specific, attainable*
  - *Goals: few, specific, achievable, measurable; milestones*
  - *Time: 3-7 years time scale*

# Part 4
# What counts?
# The criteria for selecting proposals

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# There are six main criteria for selecting proposals

1. The entry condition: An attractive **research agenda**
2. Human Resources are capital **and** labour: The quality of the **team**
3. **Users, peers, and partners**: What are these guys doing anyway?
4. **The** bottleneck, at all places: **Human resources**
5. **Management matters**: It's the difference, which makes the difference
6. The bill, please! Thus: **Financial issues**

Note: All specific questions are to be considered as 'fruit for thoughts' for the proposers and the panel!

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# 1. The entry condition: An attractive research agenda

1. Is the proposed research agenda of high **relevance** and **quality** in terms of content and methods?
   - *What is its relationship to the state-of-the-art and the potential to bring innovative solutions to concrete economic and social issues?*
   - *Is there a potential to produce relevant scientific results?*
2. Are the **objectives** clearly stated and verifiable? Are the proposed plans, procedures, methodological approaches appropriate?
3. Will the research agenda stimulate **collaboration with users**?
4. Does the proposal contain a **long-term plan** (a time table with milestones!) for development of the centre?
5. Is the proposed agenda **well justified in the regional/national / international context**, aligned with related development plans and partnerships?
6. Is there a **balanced match between size/structure** of the research team, the **ambition** of the research agenda and the **planned input resources**?

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## 2. Human Resources are capital **and** labour: The quality of the team

1. Are the scientific credentials, **past achievements and experience** of the **key research personnel** convincing to provide
   - *A successful implementation of the centre, particularly the research agenda*
   - *A reasonable assurance of the future quality of the centre*
2. Is there a convincing **proof of commitment** by the members of key staff?
   - *If there are shared / **multiple affiliations**, is there a convincing model of how they will be managed?*
3. Is there a convincing **time-schedule** for the **development / recruitment of the research team**, an assessment of risks?
4. **Proposals will raise doubts** particularly in those cases,
   - *Where on the one hand 'big figures' are presented as representatives of the proposed RTO*
   - *While on the other hand an unequivocal attribution to substantial roles in the operation of the centre is missing*

## 3. Users, peers, and partners: What are these guys doing anyway?

1. Are the **users/application partners** sufficiently **understood and defined**?
2. Is there a **credible 'promise' of** well functioning **partnerships** with research users /application partners?
3. Is there a convincing **needs analysis of potential clients / users**, particularly for the newly built (heavy) R&D **infrastructure**?
4. Is there a **realistic plan** for identifying, approaching & developing **users**?
5. Does the proposal contain a convincing and adequate **business model for use** of the newly built R&D infrastructure **by external users**?
   - *(i) free-of-charge, (ii) service-for-fee, (iii) collaboration*
6. Is there a convincing strategy & plan for the **exploitation of IP(R)**?
7. Is there a convincing time-schedule with milestones for plans to **develop the pool of users over time**? How will they incl. risks be managed?
8. Proposals which suffer from clarity, credibility, **realism** will face poor scores.

## 4. **The** bottleneck, at all places: Human resources

1. Is the **age, seniority and gender structure** of the team, and the plans for its further development **balanced and appropriate**?
2. Does the applicant already has or plans to install a **system for training of R&D personnel**, suitable to contribute to the research agenda?
3. Does the proposal contain a credible, adequate **plan for development of MA /PhD** graduates and for reproduction of the research team?
4. Does the proposal contain a convincing **recruitment plan**, including **re-integration of Czech researchers** from abroad?
5. Does the proposal contain a convincing **career development plan**?
6. Does the proposal contain a convincing **plan for mobility of researchers**, not the least vis-à-vis application / industrial partners?
7. Is there a realistic **overall time-schedule** for HR related activities, an indication of associated risks and how will they be managed?
8. Proposals with a well described but questionable HR policy will be better off than proposals which are lacking substantial statements anyway.

# 5. Management matters: It's the difference, which makes the difference

1. Is the **management structure** sound and appropriate to the proposal objectives?
2. Is the **experience** of the **management** and the **implementation team** adequate? Will **shared affiliations** be managed properly?
3. Does the **management model** properly specify the involvement of users/ partners from the application sector?
4. In case of **consortia**, does the proposal properly define the relationships within the consortium?
5. Are the proposed activities well defined in terms of **logical and temporal sequence**? Are the chosen time periods adequate and realistic?
6. Is there a convincing **quality policy** with respect to research and operational management?
7. Are the various **risks** sufficiently specified and addressed properly (delays, recruitment problems, etc.)?
8. Is there a **clear time-schedule** for an overall project management and eventual changes?

# 6. The bill, please!

1. Are the **budget items** properly structured and well justified?
   - *Are all bigger / more expensive pieces of equipment justified?*
   - *Are there any **budget items missing**?*
2. Are the **budget levels** adequate and appropriate?
   - *Are the estimated **running costs after completion** realistic (depreciation, re-investment)?*
3. Is the **funding and revenue plan** well justified and sufficient? Are its assumptions clearly articulated?
4. Is there a **clear time-schedule** for an overall budgeting and its eventual changes? Is the assessment of risks and the corresponding **contingency plan** realistic?
5. NB: **Regional R&D centres** shall be clear and convincing about income from contract research; **Centres of Excellence** from competitive funding

# How to **think** and **write** a great research centre proposal?

- **Think** a great research centre proposal
- Then **write** it down!
- Create **your** proposal for **your** centre!
- Be **visionary**, strive for goals! ("If a man does not know which port he seeks, no wind is the right wind!" Lucius Annaeus Seneca)
- But be **realistic, as you have to manage it!**
- **Go for it!**

# Opportunities for learning

- The German Fraunhofer Gesellschaft for clarity and simplicity of the organisational and financial model
- The Austrian COMET programme for the strategic collaboration between universities, RTOs and companies
- The Centre for Medical Research at the Medical University of Graz (Austria) for the way to manage so-called core facilities for the clinical and pre-clinical research in the
- The Flemish Inter-university micro-electronics centre (IMEC) for almost everything

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# Thank you!

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