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# Governance, assessment and incentives in the research and innovation funding system

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*15 October 2015*

# Research and innovation policy – three contracts or governance paradigms

- First: Post-War – *Endless Frontier* – 'hands-off' approach to science funding; expectation that welfare would increase in response but in unpredictable ways
- 1960s, OECD and the start of 'science policy' as tuning science to societal needs (Freeman, Frascati and the resurgence of Bernal ..)
- Second: 1970s on, breakdown in trust in science as a 'neutral' force; politicisation of technology (eg Vietnam); societal demands of S&T focus on industrial and technological development
- Third: Circa 2000, 'grand' (systemic?) challenges; no longer about industry but fear that we have finally hit the limits to growth (climate, energy, ageing, disease … )
- In policy these generate **layers** – the current funding system needs to balance basic research, innovation-related and societally driven efforts all at the same time

# Some key observations from studies of national innovation systems

- Innovation is a non-linear process involving many actors
- 'Bounded rationality' causes path-dependency and means both institutions and learning affect performance
- Institutions are inter-dependent and co-evolve in ways that may be specific to the national system
- Good systems performance depends upon intelligence and performance in all sub-systems
- 'Bottleneck analysis' and system development are key policy roles
- Innovation system complexity tends to defeat central planning but distributed intelligence enables a healthy mix of bottom-up and top-down policy design and implementation ('subsidiarity')

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# Principles of good governance

- Multi-layer governance based on
  - *Distributed intelligence*
  - *Subsidiarity*
  - *Distributed capacity*
  - *Linked to both higher (EU) ad lower (regional) levels*
- Able to overview system performance, policy and its effects
  - *Support the formation of an overall strategy*
  - *Balance or prioritise different elements in the mix*
- Able horizontally to group sector interests
- Bringing needed societal stakeholders into the formation and implementation of strategy
- Under the new paradigm: evolving to tackle the societal challenges

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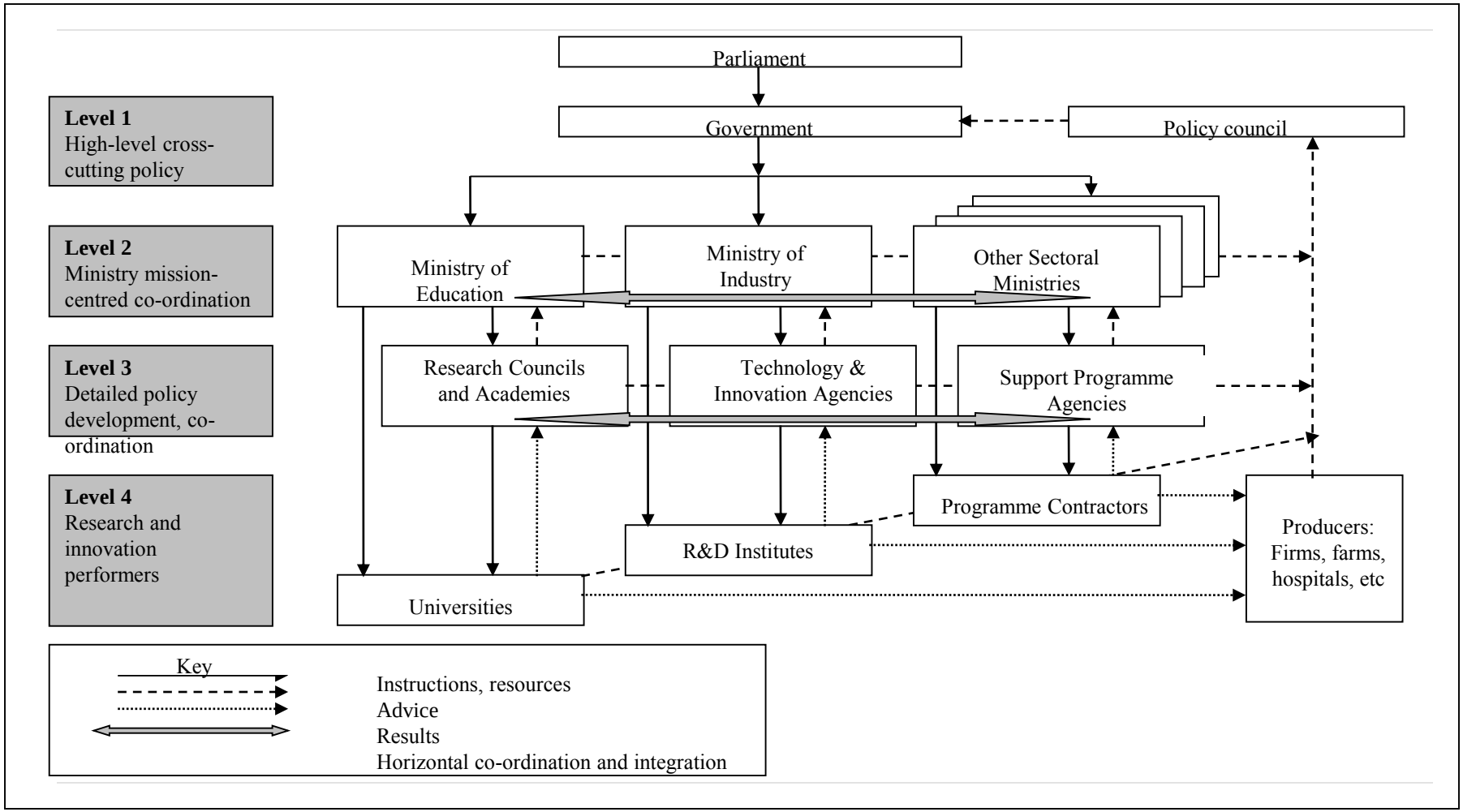
# All countries struggle to govern the state's role in the NIS



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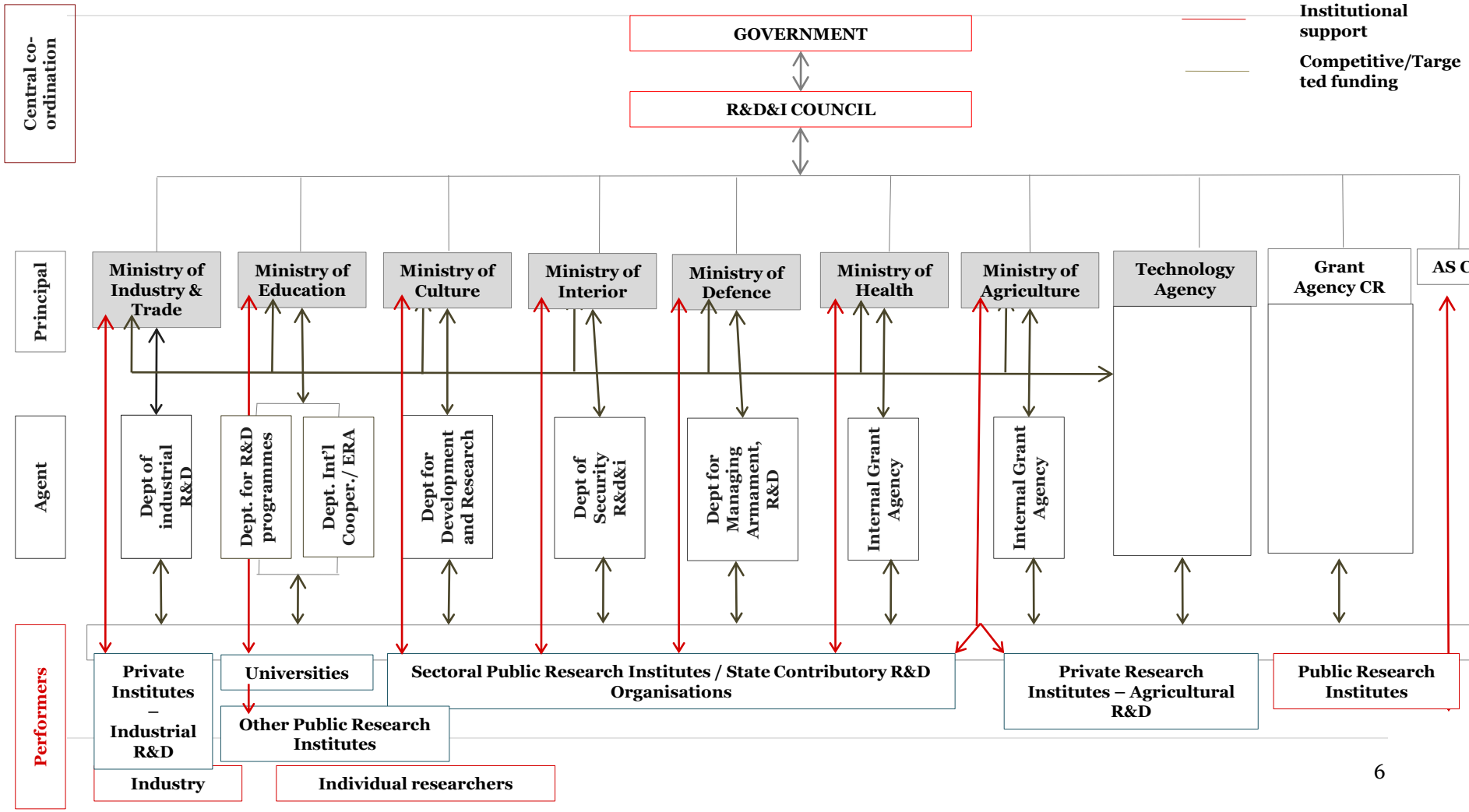
# Czech Republic model is hybrid, transitional



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# The Audit found significant weaknesses in the R&D&I Council

- Under-estimation of importance of consensus-building & open dialogue with policy implementing bodies, stakeholders & citizens
  - *Culture of strong top-down steering & control of policy implementation*
- Setting up a long-term strategy, essentially top down
  - *Has to include MEYS for international dimension*
  - *Priority setting governed by the Council*
  - *Agencies to design and implement programmes*
  - *Weak links to sectoral policies*
- Strategic intelligence
  - *Research and analysis outsourced, but not to stakeholders*
  - *Evaluation 'automated'; provides little information about policy effectiveness*
- Focus on resource allocation means members become representatives
- Over-centralisation means there is too much for the Council to do to do it well

# Desiderata for a Council

- Functions as an open **arena** for **consensus**
- Is **legitimate** in scientific, industrial and political terms
- Collates and publishes **strategic intelligence** when needed, within a system of distributed strategic intelligence
- Sets **long-term strategic directions**, reducing dynamic inconsistency
- **Coordinates** vertically, horizontally and over time
- Has a **high profile** with the government and the public
- Is independent enough to be a **change agent**
- Has a clear **interface to government**

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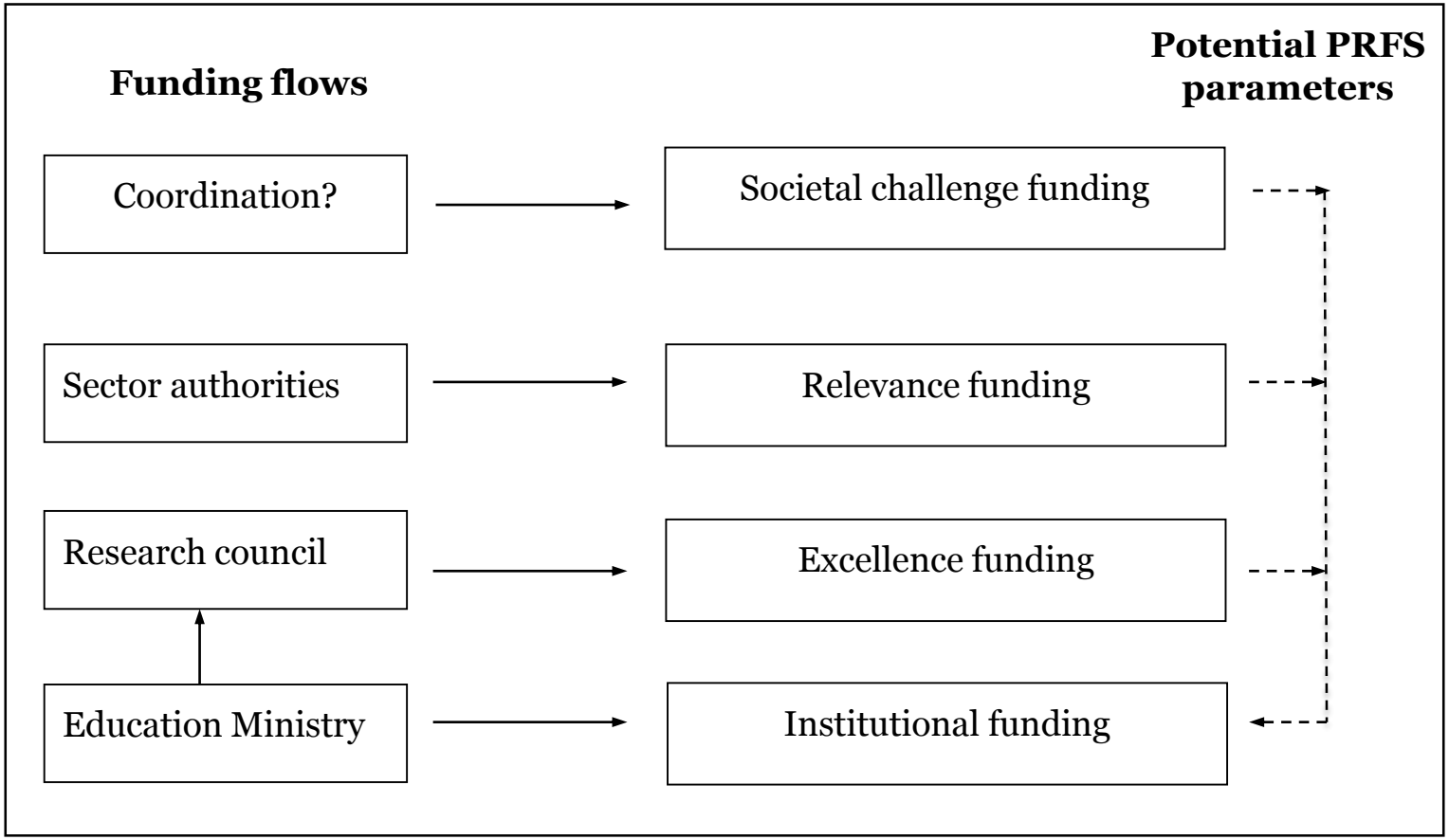
# The structure of research funding



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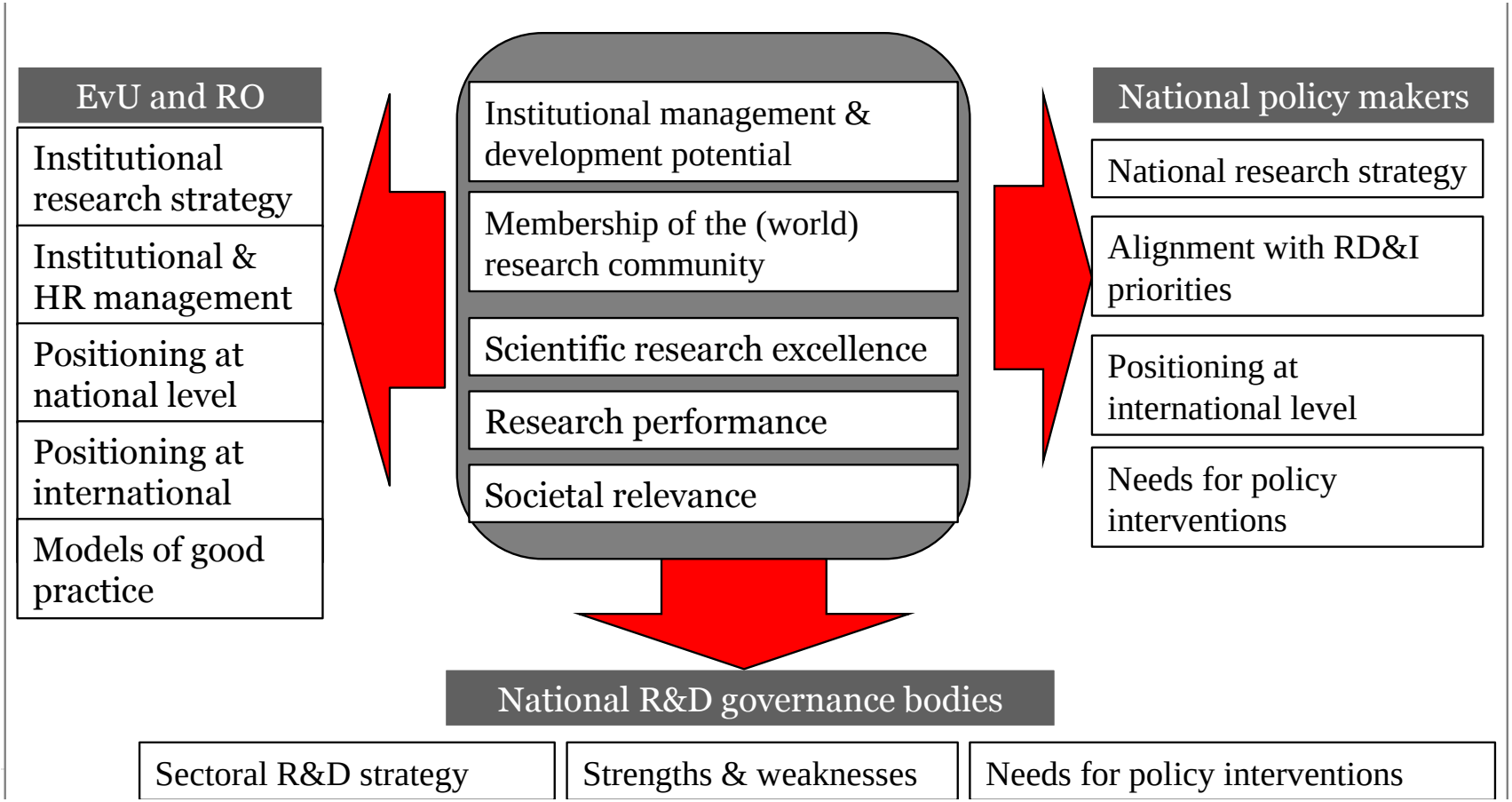
# The CR needs a developmental assessment system with many dimensions – not just simplified performance measures



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# A performance-based institutional funding system needs up to three functional elements

- A 'block grant'
  - *Providing stability and a degree of 'Planungssicherheit'*
  - *Slowly changing over time, reflecting change needs and performance in the research system*
- A performance-based component
  - *Providing rewards for good performance in the short-medium term*
  - *Providing an economic incentive for change*
  - *Encouraging good performance through prestige*
- A prospective element, such as a performance contract
  - *Enabling entry into the system*
  - *Combating the conservative tendencies of block and performance-based funding by supporting development and capacity-building*

# UK Experience

- The RAE is the 'mother of all PRFS'; allocates most of the money
- Peer review – in more recent times 'informed' by bibliometrics
- Driven by massification and a need to justify cuts in the 1980s
- "A complex process whereby the Russell Group gives itself most of the money"
- Non-linear allocation formula intended to concentrate resources
- Widely acknowledged bias against multidisciplinary and heterodox research
- Stable outcomes; high correlation with performance in research council system
- Anecdotally, massive effects on recruitment, promotion, research management
- High cost: recurring question about greater reliance on metrics

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# Czech Republic

- Post-reform system of 'research intentions' as basis for funding abandoned owing to low trust and low governance capability
- 'Coffee grinder' 2009-11 wholly metrics based – across fields and different types of research organisation
- 'Coffee Grinder points' devalued by 60% 2009-11
- Included many categories of non-scholarly output – which were clearly gamed (as were some peer-reviewed publications)
- Combined with erratic allocation of state research budget, the Coffee Grinder caused instability in institutional funding
- Despite constant fiddling with the parameters, the Coffee Grinder was dropped as unfit for purpose following the Research Audit in 2012

# Norway

- PRFS introduced following the university 'quality reform' of 2002 – at first in the universities, later (separately) in the institutes
- Simple, metrics-based, no field normalisation, includes a classification of local publication channels
- Reallocates 2% of funding – huge change for little money
- University PRFS
  - *Quantity but not quality of publications has risen (cp Australia)*
  - *Proportion of faculty publishing has risen – especially in weaker organisations*
  - *Decline in monetary value of a publication*
- Institutes PRFS: effects on publication volume, research management and HR but not on international income or cooperation with universities (already quite high)

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# About performance-based research systems

- There's not much evidence yet behind the policy trend to PRFS
- Policy purposes seem rarely to be made explicit. If you dig, you can find them
  - *UK: Matthew effect*
  - *NO: Quality of the whole system*
  - *CZ: Overcoming governance failures*
- PRFS are high-leverage interventions
  - *Behaviour change drivers are probably career and status*
  - *Possible to use them without destabilising institutional funding*
- Highly prone to gaming and unintended effects
- Longer-term risks include 'normalisation' of science and research (Kuhn), changes in cooperation behaviour and undermining academia/rest-of-society links
- They provide a tool for policy implementation – they are not a substitute for strategy, policy or governance

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# Thank you

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