



Can the Three-Dimensional Evaluation Method Be Aligned For Potential Standardisation ?

The case with networking and infrastructure projects

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About TUBITAK

Evaluation by peer-review

Three-dimensions of:

- Research Infrastructure Projects
- Networking Projects

Method

Phrase-anchored rating:
most attractive and not-attractive criteria

Validation

Total Budget ~600 million Euros / year

- To identify Science, Technology and Innovation Policies
- Research – Institutes
- Funding (~300 millions Euros / year)
 - ✓ Academic research project support
 - ✓ Industrial research, development and innovation support
(More than 7000 projects; less than %30 selected for funding)
 - ✓ People (Fellowship) support

A Proposal is a Scenario

- Proposed by **someone**
- For the benefit of **something**
- To be attained in **someway**

TUBITAK Proposal Evaluation and Funding Process

- **Funding** organizations invest in scenarios
- Select by **evaluation** of the scenarios

TUBITAK Proposal Evaluation and Funding Process

Is that **someone** (person / institution) **the most eligible / right one** ?

Is that **something** really **the most beneficial thing** ?

Is that **someway** really **the best way** ?

Three Dimensions

Research Infrastructure

- Scientific Merit and Technological Integrity
- Potential Utilization and Operability
- Viability

Networking

- Authenticity and Legitimacy
- Potential Impact of Expected Outcomes
- Viability and Manageability

All three-dimensions are given
equal weights

Evaluation Process

Panel System

5-8 Individual Panelists (Reviewers)



a meeting for a final verdict

evaluate up to 8 proposals
by referring to the sub-criteria phrases

Phrase-Anchored Rating Scale

(instead of Likert Scale – 1, 2, 3, ...)

Sub-criteria phrases describing

- * **Very attractive (3 points)**
- * **Attractive (2 points)**
- * **Not-attractive (0 point)**

features of the proposal

Very Attractive

- scientifically and professionally **outstanding** and **very well justified** project
- points to an opportunity for a **major contribution** to the advancement of the knowledge and/or to the resolution of a problem of practical importance
- ...

Attractive

- Scientifically and professionally **competent** and **justified** proposal which will make a contribution to the advancement of knowledge and/or the resolution of a problem of practical value
- ...

Not Attractive

- work **routine** in character
- scientifically and professionally **unsatisfactory** and **poorly organized**
- ...

Research Infrastructure

Research Infrastructure - Three Dimensions

- Is that someone (person / institution) the most eligible / right one ?

Viability of proposed infrastructure with respect to qualifications and synergy of research team, and efficacy of infrastructure

- Is that something really the most beneficial thing ?

Potential utilization (exploitability) of proposed infrastructure

- Is that someday really the best way ?

Scientific merit, technological integrity and operational feasibility of proposed infrastructure



TÜBİTAK – PROPOSAL EVALUATION FORM

Research Infrastructure

PROPOSAL NO & TITLE :

PI :

1- Team & Efficacy

Very attractive Attractive Not- attractive

Justification:

2- Exploitability

Very attractive Attractive Not- attractive

Justification:

3- Sci & Tech Integrity

Very attractive Attractive Not- attractive

Justification:



Team & Efficacy – Very Attractive

- **Principle investigator is professional in infrastructure management, others are proficient in basics, & necessary training for set-up, operation & maintenance has been planned**
- **Institution is competent in total quality management practices including environmental & personal safety & accustomed to external evaluation / accreditation**
- **Team & institution have excellent record of**
 - **operating facilities in excellent conditions & full capacity &**
 - **university – public - private sector cooperation**
 - **serving without discrimination**

Team & Efficacy – Not Attractive

- **Principle investigator lacks experience even for a much smaller scale infrastructure**
- **Insufficient information on credentials of critical team members**
- **Unsatisfactory commitment & record of team / institution regarding management of facilities open to wide group of users**
- **Unspecified / very limited users implying low capacity service**

Exploitability – Very Attractive

- **High priority critical research will be undertaken to tackle national or regional / sectoral problems**
- **Access & procedures are convenient for researchers from other locations / centers / institutions as well**
- **High potential for investments to be warranted by rewarding results & achievements**
- **Extended use realistically envisioned for future projects as well**

Exploitability – Not Attractive

- **Limited use expected because**
 - expertise & interests of team not compatible with infrastructure
 - focused on a single project / random & unintegrated studies / experiments
 - duplication of facilities used undercapacity elsewhere
 - not modular & not upgradable
 - although quite relevant, industrial use has not been envisioned
- **Insufficient managerial commitment for extended use**
- **Unspecified / very limited users implying low capacity service**
- **Added value of expected impact of research not worth the investment**

Sci & Tech Integrity – Very Attractive

- **Compatible with the vision, mission, strategies and present assets / facilities of the institution**
- **Well-defined relationship between research & selected equipment, specs & accessories & well-justified budget for work to be undertaken**
- **User friendly & compatible with technological developments**
- **High-tech facility for investigation of scientific & technological problems**

Sci & Tech Integrity – Not Attractive

- **Irrational collection of unintegrated equipment & full accessories**
- **Outdated / unflexible / short life / poor quality**
- **Not related to major research / need**
- **Proposed equipment & budget not compatible with the project in terms of capacity & specs**
- **Institution / team not compatible with proposed infrastructure project**

Networking

Networking - Three Dimensions

- Are those people / institutions the most eligible / right ones ?

Authenticity and legitimacy of proposed networking

- Is that something really the most beneficial thing ?

Potential impact of expected outcomes

- Is that somehow really the best way ?

Viability and manageability of proposed network



PROPOSAL NO & TITLE :

PI :

1- AUTHENTICITY & LEGITIMACY

Very attractive Attractive Not- attractive

Justification:

2- POTENTIAL IMPACT OF EXPECTED OUTCOMES

Very attractive Attractive Not- attractive

Justification:

3- VIABILITY & MANAGEABILITY OF PROPOSED NETWORK

Very attractive Attractive Not- attractive

Justification:



Authenticity – Very Attractive

- **Compatible with**
 - **vision, mission, strategies & present assets / facilities of partners**
 - **national / sectoral priorities in science, technology & innovation**
- **Major stakeholders all included**
- **Concrete steps planned to cooperate / integrate with similar international networks**

Authenticity – Not Attractive

- **Synthetic association of irrelevant teams / institutions / facilities / activities: rationale / scope / objectives not well defined**
- **Major stakeholders not all associated**
- **Not eligible to cooperate / integrate with international networks**

Impact – Very Attractive

- **Wide audience for knowledge to be generated / elaborated / exchanged / disseminated**
- **Aiming to explore / exploit national resources & enhance national innovation / competitiveness**
- **Potential to attract researchers & encourage academia-industry mobility**

Impact – Not Attractive

- **Short term / modest improvement over current state-of-the-art / technology / business / employment**
- **Unclear impact on**
 - **partners' current status**
 - **uncertain audience**
- **Narrow range of users / scope limited to single project / unlikely to catalyze new projects / industrial benefits disregarded**

Manageability– Very Attractive

- **Management plan intelligently formulated in terms of well-defined**
 - **work packages & distribution to working groups & time tables**
 - **assignments of mandates & responsibilities**
 - **budget & financial procedures**
 - **sustainability measures**
 - **performance criteria & impact analysis**
 - **flexibility to accommodate expansion & new partners**
 - **measures against adversities & unethical conduct**

Manageability– Not Attractive

- **Partners' infrastructure, culture & mechanisms inadequate to contribute to & sustain the network**
- **Inadequate / unjustified budget & resources requirements & allocations**
- **Unsatisfactory commitment & record of teams / partners in cooperation & in sharing facilities**

TUBITAK Proposal Evaluation and Funding Process

Three dimensional evaluation used by TUBITAK for the evaluation/selection of research project proposals grouped under eight categories:

1. **Research Infrastructure**
2. **Networking**
3. **Curiosity-driven academic research**
4. **Scientific meetings and missions**
5. **Organizing & hosting scientific meetings**
6. **International research projects**
7. **Customer-driven applied research**
8. **Industrial research, development and innovation**

METHOD

1-10 versus 3, 2, 0

1. Principal Investigator: Potential to perform world class research

Quality of research output: Has the Principal Investigator published in high quality peer reviewed journals or the equivalent? To what extent are these publications ground-breaking and demonstrative of independent creative thinking and capacity to go significantly beyond the state of the art?

Intellectual capacity and creativity: To what extent does the Principal Investigator's record of research, collaborations, project conception, supervision of students and publications demonstrate that he/she is able to confront major research challenges in the field, and to initiate new productive lines of thinking?

2. Quality of the proposed research project

Ground-breaking nature of the research: Does the proposed research address important challenges in the field(s) addressed? Does it have suitably ambitious objectives, which go substantially beyond the current state of the art (e.g. including trans-disciplinary developments and novel or unconventional approaches)?

Potential impact: Does the research open new and important, scientific, technological or scholarly horizons?

Methodology: is the outlined scientific approach (including the activities to be undertaken by the individual team members) feasible? (Stage 1)

1-10 versus 3, 2, 0

The range of the marks

Marks range from 0 (missing information), 1 (very poor) ... to 5 (excellent). Marks are awarded in integers or halves.

Reviewers are encouraged to reserve the extremes at the scale (0, 1, ...5) for exceptionally bad / good proposals.

In all cases, reviewers are requested to stick strictly to the review criteria.

1-10 versus 3, 2, 0

SCIENCE

Does the proposed Action address real current problems/scientific issues?

4: Highly exciting and interesting proposal on a very important and/or timely topic

3. Interesting proposal on an important topic

2. Some interesting aspects, but lacks clarity and/or coherence

1. Serious lack of substance and/or relevance.

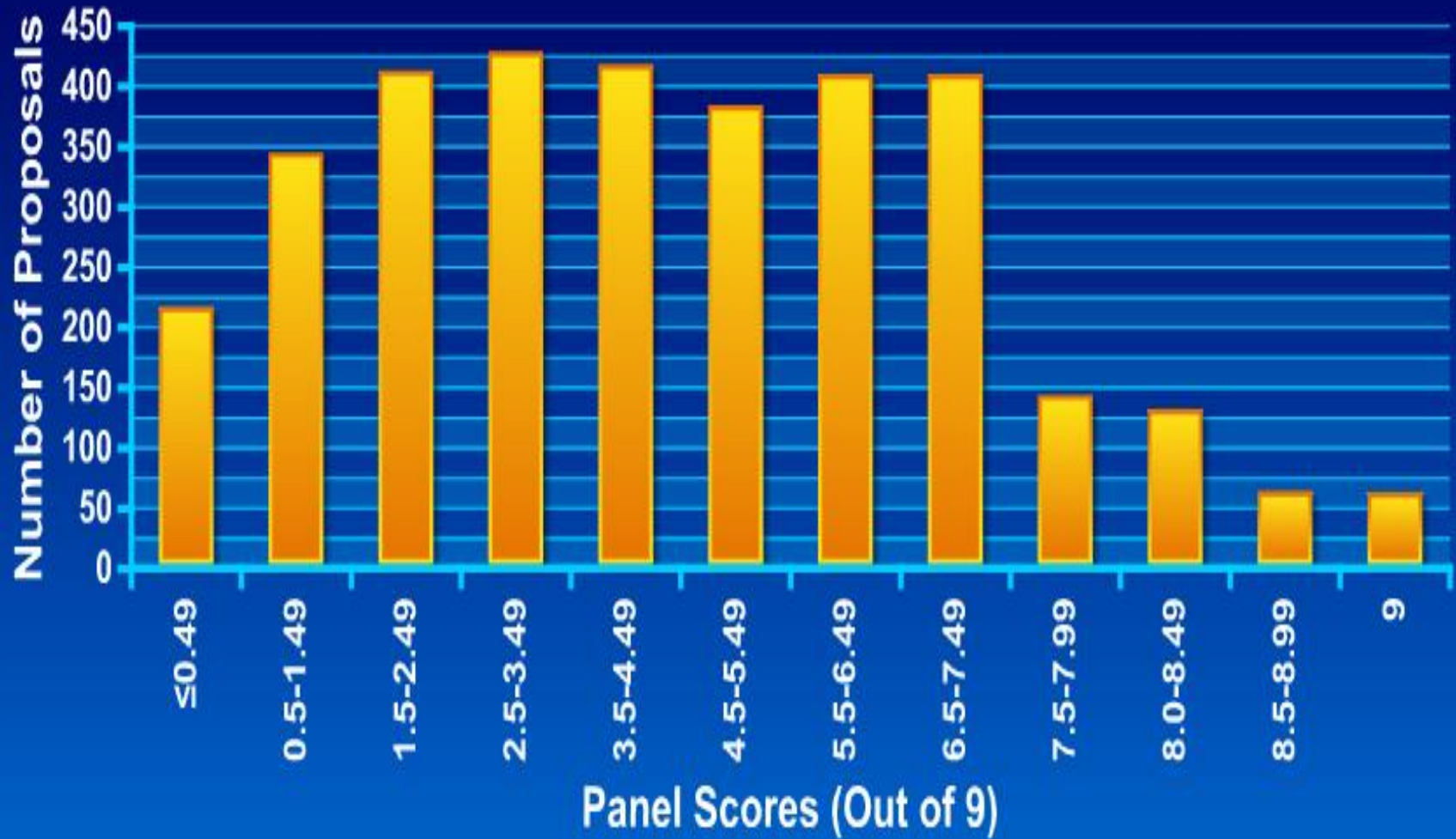
yes

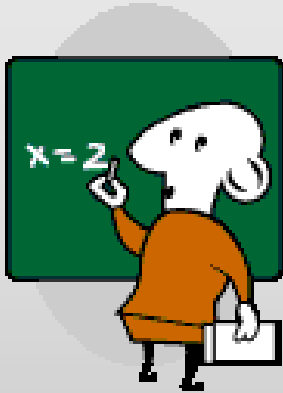
no

4 3 2 1

Panel Score Distribution of Proposals in 2007

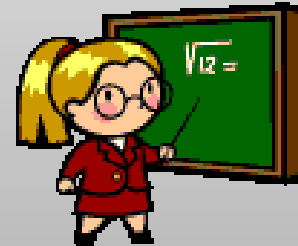
3393 Proposals





5^{10784.36}
2.719372
9÷1

VALIDATION



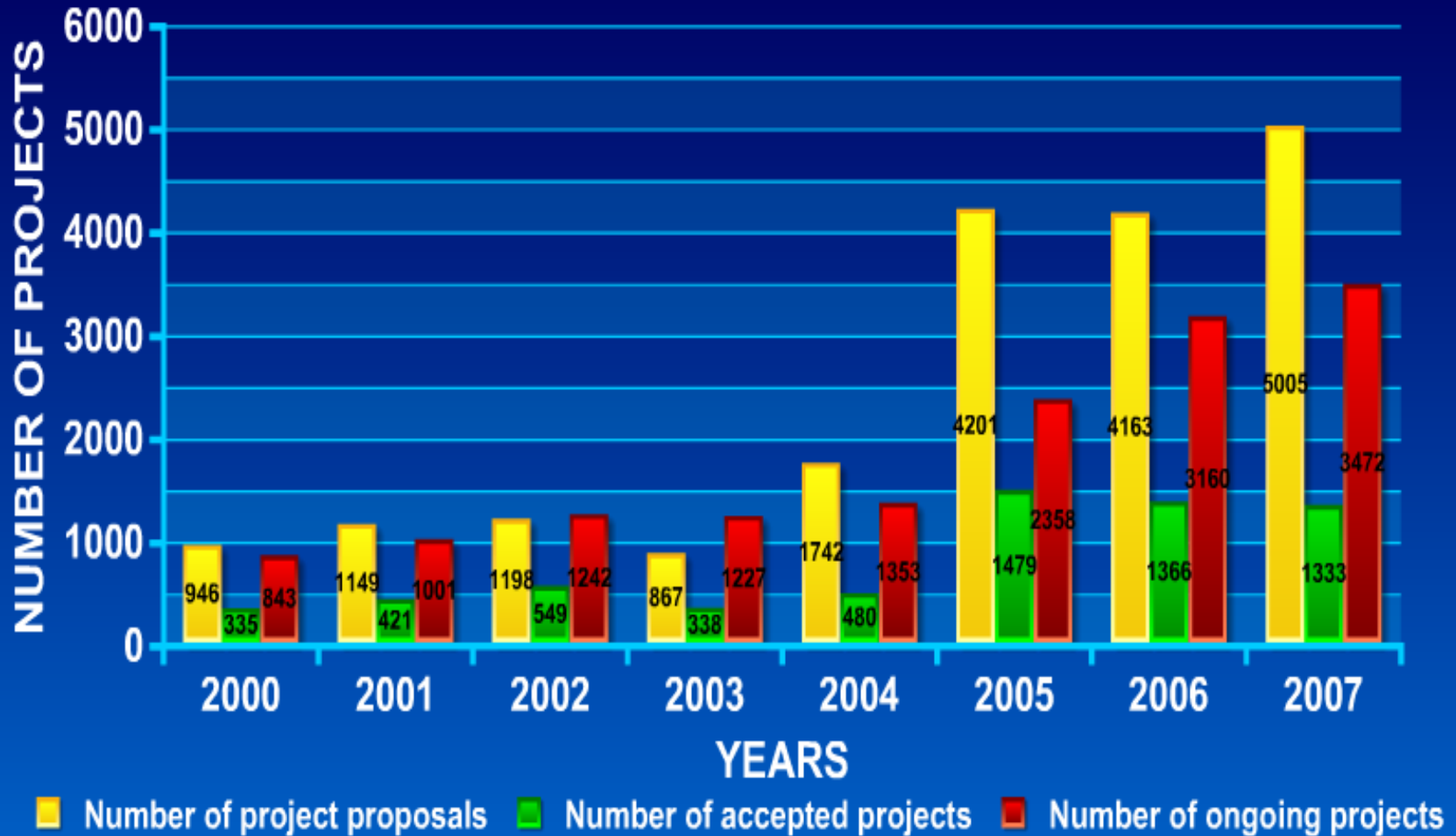
ARDEB Research Grants



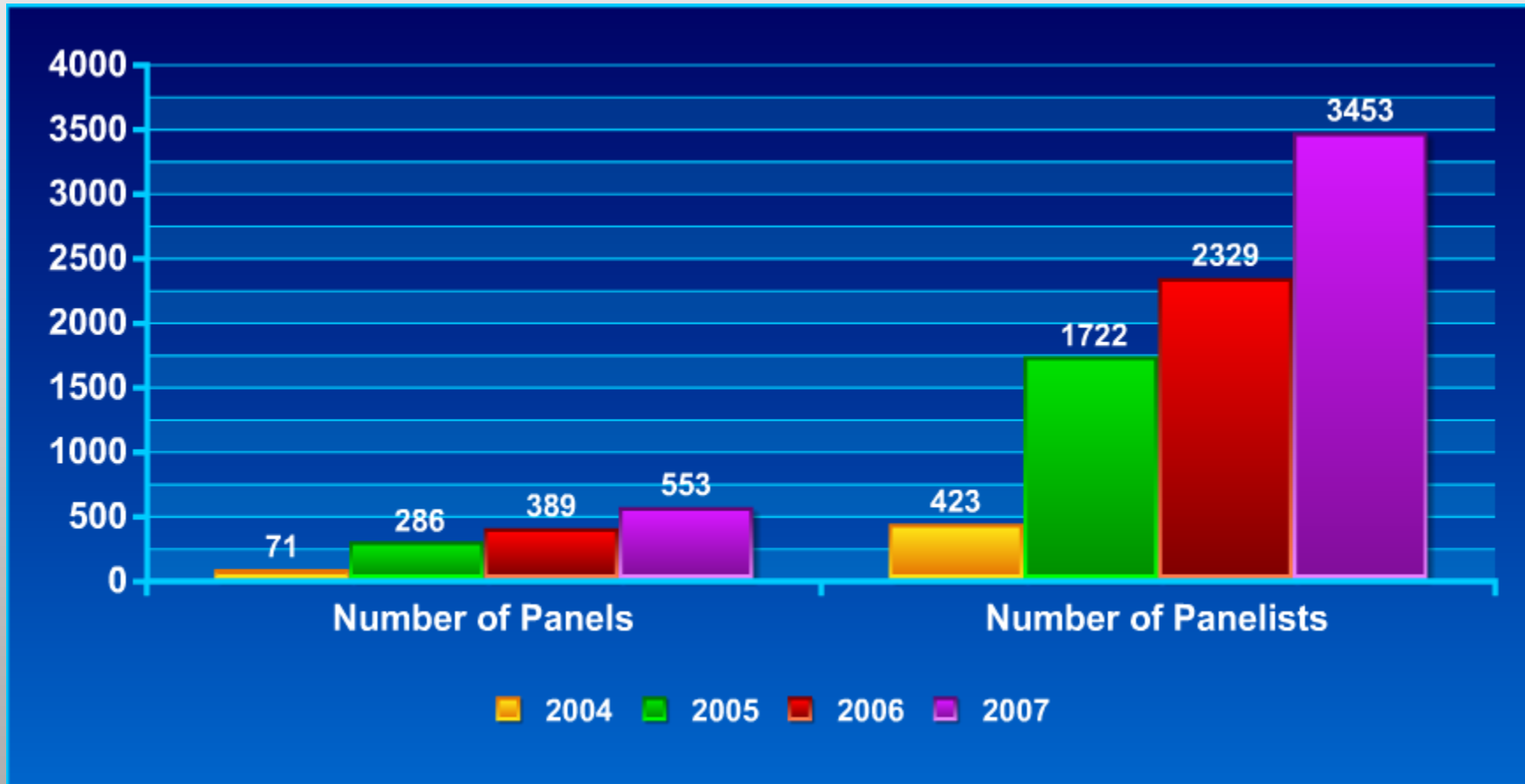
	2000	2001	2002	2003	2004	2005	2006	2007
Project Proposals	946	1149	1198	867	1742	4201	4163	5005
Accepted Proposals	335	421	549	338	480	1479	1366	1333
Ongoing Projects	843	1001	1242	1227	1353	2358	3160	3472

Statistics of ARDEB Research Grants

PROJECT PROPOSALS AND ACCEPTED PROJECTS BETWEEN 2000-2007



Panels and Panelists



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Thank you !

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