Research funding and peer review system in JSPS

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Senior Program Officer, Research Center of Science Systems, JSPS

S&T Policy System in Japan

Cabinet Office → Council for Science and Technology Policy (CSTP)

Ministry of Education, Culture, Sports, Science and Technology (MEXT) → JSPS (Bottom-up Approach) → Universities and National Research Institutes

Ministry of Economy, Trade and Industry (METI) → JST (Top-down Approach) → Research Education

Ministry of... → NEDO

Provides the frameworks of S&T policy
General coordination

Provides S&T policies and budgets

Funding agencies

Other funding is available for Medical research and Information & Communication
Competitive Research Funding System in Japan

Ministries

- MEXT (Ministry of Education, Culture, Sports, Science & Technology)
- METI (Ministry of Economy, Trade and Industry)
- Ministry of Health

Funding Agencies

- JSPS (Japan Society of Promotion of Science)
- JST

40% of All
= Euro$2 billion

KAKENHI

Grant

Grants

FAs related to other Ministries

Institutions

Researchers in
Universities, Research institutions, Private Sector

JSPS: Japan Society of Promotion of Science

founded in 1932

1) Research funding  individual res. Grant etc.  
   Grants-in-Aid for Scientific Research (Kakenhi)

2) Fellowships       doctoral students, post-doctoral fellowship overseas fellowship

3) International scientific cooperation workshops inviting scholars

annual budget  approx. 3000M$Eueo

staff  130 (all administrative)

Res. Center of Science Systems  18 Senior POs
(formed in 2004)  100 Pos
(3 years appointment)
Kakenhi (Scientific-Grant-Aid)

- Covers entire spectrum of academic fields including the humanities, social sciences, and natural sciences.
- Competitive funding fair to any field of area/age
- Perfectly bottom-up grant (curiosity-driven)

So,

- Most popular governmental research fund for university professors and researchers in gov. and private research institutes.

**Approx. 250,000** researchers eligible to apply kakenhi

- 200,000 males, 50,000 females
- more than 90% University professor

About 25% receives JSPS grant Kakenhi as PI
### Major Grant Categories of KAKENHI

- **Covers All Disciplines including Humanities, Social Sciences**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Characteristics</th>
<th>Newly Awarded Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specially Promoted Research</td>
<td>Internationally highly appraised research 3 - 5 years Max 5MS$Euro + 30% indirect cost</td>
<td>19 projects, 16.7% (FY2008)</td>
</tr>
<tr>
<td>Scientific Research</td>
<td>S 5 years / max 2MS$Euro + 30%</td>
<td>86 projects, 15.6% (FY2008)</td>
</tr>
<tr>
<td></td>
<td>A: $200,000 - 500,000</td>
<td>A: 567 projects, 24.0%</td>
</tr>
<tr>
<td></td>
<td>B: $50,000 - 200,000</td>
<td>B: 2,749 projects, 24.9%</td>
</tr>
<tr>
<td></td>
<td>C: Up to $50,000</td>
<td>C: 7,765 projects, 23.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,640 projects, 12.3%</td>
</tr>
<tr>
<td>Challenging Exploratory Research</td>
<td>Early-stage challenging research with very unique concept and very high goal 1-3 years Up to $50,000</td>
<td></td>
</tr>
<tr>
<td>Encouragement of Young Scientists</td>
<td>S: Research carried out by individual young researchers ($ $ up to age 42, A &amp; B: up to age 39)</td>
<td>S: 39 projects, 4.8% (FY2008)</td>
</tr>
<tr>
<td></td>
<td>A: 2 - 4 years</td>
<td>A: 350 projects, 18.7%</td>
</tr>
<tr>
<td></td>
<td>B: $200,000 - $1,000,000</td>
<td>B: 6,487 projects, 27.8%</td>
</tr>
<tr>
<td></td>
<td>C: $50,000 - 200,000</td>
<td></td>
</tr>
<tr>
<td>Start Up</td>
<td>Start-up research conducted by a newly tenured researcher 2 years Up to $30,000</td>
<td>934 projects, 24.9% (FY2008)</td>
</tr>
</tbody>
</table>

### Application & Grants Awarded in KAKENHI

- **Over 100 thousands New Applications per year**

![Graph showing application and grants awarded over 10 years from 1997 to 2009](image)
Big Ban

- On April 1, 2004, all national Universities underwent “Big Ban” of reform, i.e. “Incorporation”.
- Expecting to be more responsive, more agile, more globally competitive with high standard and quality of education and research.
- Budgets are basically covered by the government.
- Faculties and staffs are not government employees.

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<thead>
<tr>
<th>Category</th>
<th>Area</th>
<th>Discipline</th>
<th>Research Field</th>
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<tbody>
<tr>
<td>Humanity &amp; Social sciences</td>
<td>Humanities</td>
<td>Economics</td>
<td></td>
</tr>
<tr>
<td>Science &amp; Eng.</td>
<td>Math/Physics</td>
<td>Chemistry</td>
<td>Civil Eng</td>
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<td></td>
<td>Fluid Eng.</td>
<td>Dynamics/Control</td>
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</tr>
<tr>
<td>Biological Sciences</td>
<td>Biology</td>
<td>Agricultural Science</td>
<td>Medical Science</td>
</tr>
<tr>
<td>Comprehensive fields</td>
<td>Informatics</td>
<td>Environmental science</td>
<td>Medical eng.</td>
</tr>
<tr>
<td>&amp; New Innovative fields (Interdisciplinary)</td>
<td>Environmental science</td>
<td>Medical eng.</td>
<td>Nano tech. etc</td>
</tr>
</tbody>
</table>

**Total No. of research fields approx. 300**

All proposals are submitted to one of the research fields
Once per year (application in November, decision in end of March)
Application and awarded

1) Basic grant

<table>
<thead>
<tr>
<th>Level</th>
<th>Appls.</th>
<th>Awarded</th>
<th>Success rate</th>
</tr>
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<tbody>
<tr>
<td>SS</td>
<td>100</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>S</td>
<td>500</td>
<td>90</td>
<td>20%</td>
</tr>
<tr>
<td>A</td>
<td>2,000</td>
<td>500</td>
<td>25%</td>
</tr>
<tr>
<td>B</td>
<td>10,000</td>
<td>2,500</td>
<td>25%</td>
</tr>
<tr>
<td>C</td>
<td>30,000</td>
<td>10,000</td>
<td>30%</td>
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2) Grant for young (YS) not called

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<tr>
<td>YA</td>
<td>2,000</td>
<td>500</td>
<td>25%</td>
</tr>
<tr>
<td>YB</td>
<td>22,000</td>
<td>7,000</td>
<td>30%</td>
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</table>

The success rate is more or less the same regardless of the research fields.

Researchers’ number (registered) and application rate (to Kakenhi) - age distribution -

Comments:
1) Researcher’s population has a peak around 35 years old and around 62.
2) Application rate has a peak around 35 years old. This is probably because incentive program for young people in Kakenhi.
Applications and success rate - age distribution -

Comments
1) The success rate is very flat; somewhat larger for younger researchers
2) The success rate is almost the same for males and females

Average grant size awarded per year, per grant and per researchers

Per grant
Per person

200万円

Per grant
Per person
Approx. 90,000 proposals are submitted.  
20,000 are awarded (70,000 are declined)

**Selection Process for A, B, C, YA, YB**
First review: 4-6 peer reviewers in research field  
each reviewer handles 50 or more proposals  
Second review: panel (each discipline)

**Selection Process for SS, S**
First review: 3-6 peer reviewers  
(+ overseas reviewers)  
Second review: interview (20min. -25 min. in total)

6000 reviewers are selected by PO, SPO of JSPS RCSS.

**Review  overall grade (relative)**

<table>
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<tr>
<th>grade</th>
<th>5-15%</th>
<th>4</th>
<th>15-25%</th>
<th>3</th>
<th>35-55%</th>
<th>2</th>
<th>15-25%</th>
<th>1</th>
<th>5-15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ comments</td>
<td>1/3 -0.5 page</td>
<td></td>
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Checking points  grade 1 to 5 for each (absolute)
academic excellence  
originality  
research plan/feasibility  
impact S&T/industry/culture/society  
research capability  
(improvement from previous research)
Reply to proposal submitters from JSPS

Selection Process for A, B, C, YA, YB

Yes/no

for No, ranking (top 25% etc.)

weak points (selected from typical ones)

Selection Process for SS and S

Yes/no

for No, review result edited by panel members

(project evaluation in final/intermediate stage)

Review comments in A, B, C, YA and YB are not sent back to the proposal submitters directly.

next step; more direct feedback from reviewers to proposal submitters

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<td>Environmental science</td>
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<tr>
<td></td>
<td>Biomedical eng. Nano-tech.</td>
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<td>Social/Safety system science Genome science</td>
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<td></td>
<td>Brain .... etc more than 40 interdisciplinary fields</td>
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<tr>
<td></td>
<td>Interdisciplinary fields of research are prepared.</td>
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Total No. of research fields approx. 300

All proposals are submitted to one of the research fields

In MEXT, New Frontier Research program

Call for new research field every year

Call for proposals for the newly approved research fields.
Selection of Interdisciplinary Research Proposals

- Basically selection process is the same to the basic/discipline-oriented research proposals.
- Panel + external peer reviewers
- In each research field, the reviewers are selected from wide areas.
- In each research filed, the panels consists of members with various disciplines
- The scores by reviewers have larger variations than those of other proposals.
- Elaborate discussions in the panel are needed.
Remarks

• More direct feedback from reviewers to proposal submitters
• Introduce “Interdisciplinary fields” in addition to existing ones. The proposals in this is treated in special manner