# ON NSERC'S DG COMPETITION AND PROCESS

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## COMPETITION RESULTS 2011
### (SUMMARY BASED ON NSERC'S PUBLISHED DATA)

http://bit.ly/jJobXU

### UofA's Success Rate (overall)

| Early Career Researchers | Established Careers Researchers | |
|---|---|---|
| | (holders) | (non-holders) |
| 58% (54%) | 82% (74%) | 48% (33%) |

### UofA's Avg Funding (overall)

| Early Career Researchers | Established Careers Researchers | |
|---|---|---|
| | (holders) | (non-holders) |
| $20.1k ($22.5k) | $36.5k ($35k) | $29.5k ($28k) |

# SOME MORE STATISTICS (1)

- For ECRs UofA's has the 4th largest total funding (tied with UBC), but is 23rd (of 30!) wrt avg funding.
- For ERs (holders) UofA's has the 4th largest total funding, and is 9th wrt avg funding.
- For ERs (non-holders) UofA's has the 2nd largest total funding, and is 12th wrt avg funding.

# SOME MORE STATISTICS (2)

**Figure 1.** **Distribution of Grant Levels to Successful Applicants – 2011 Competition**
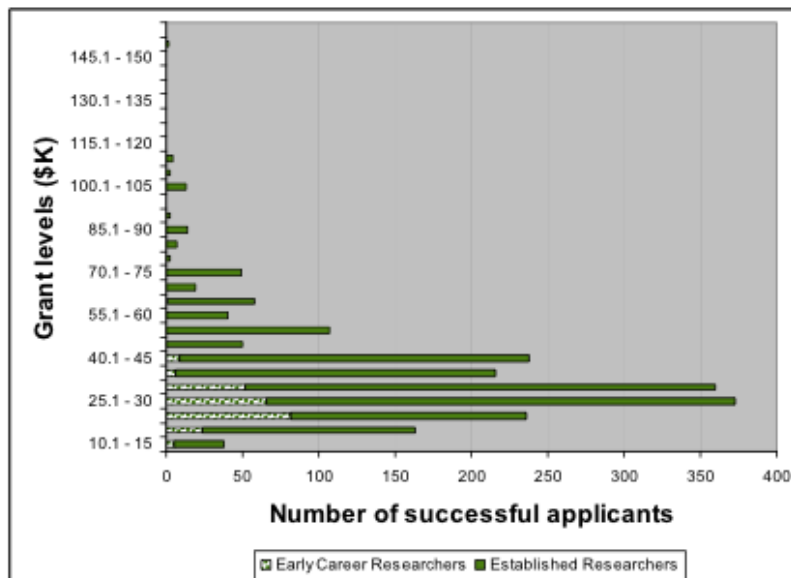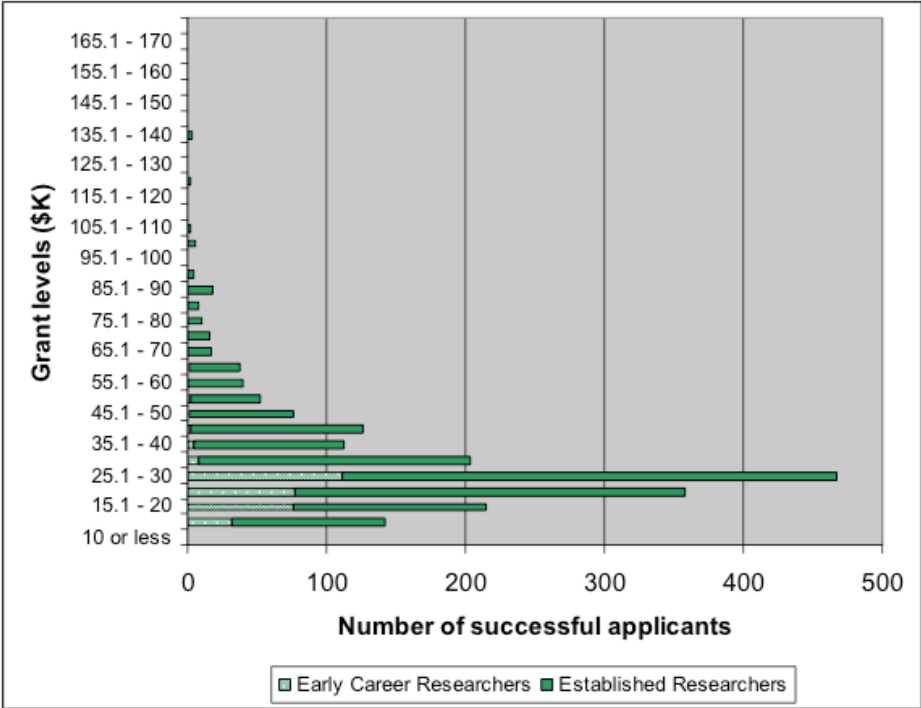
**Figure 1.    Distribution of Grant Levels to Successful Applicants – 2010 Competition**



# SOME MORE STATISTICS (3)

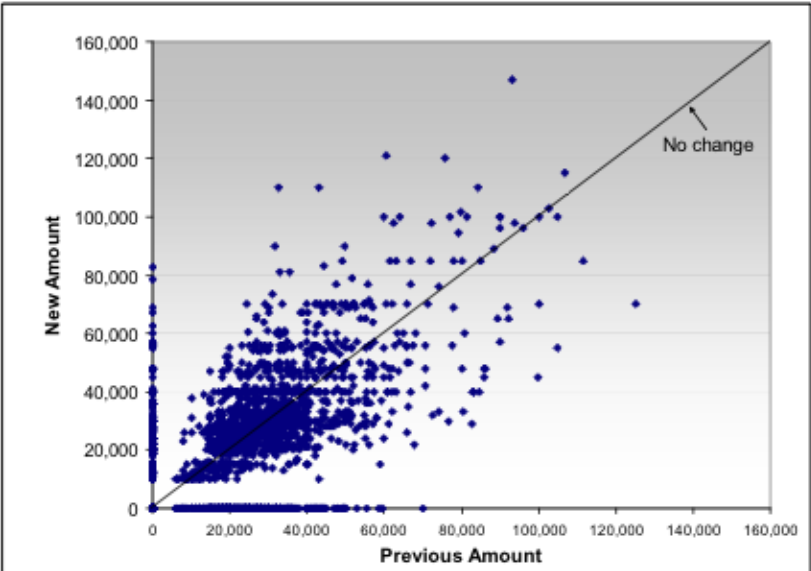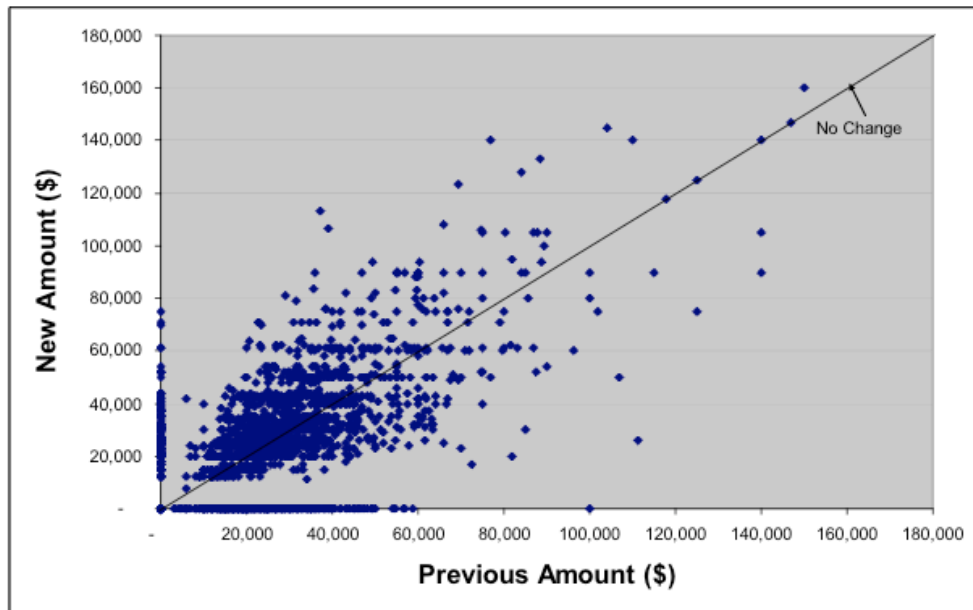**Figure 2.    Change in Grant Level for All Established Researchers – 2011 Competition**

Figure 2. Change in Grant Level for All Established Researchers – 2010 Competition



# SOME MORE STATISTICS (4)

Figure 3. Change in Grant Level for Established Researchers 1st Renewal – 2011 Competition
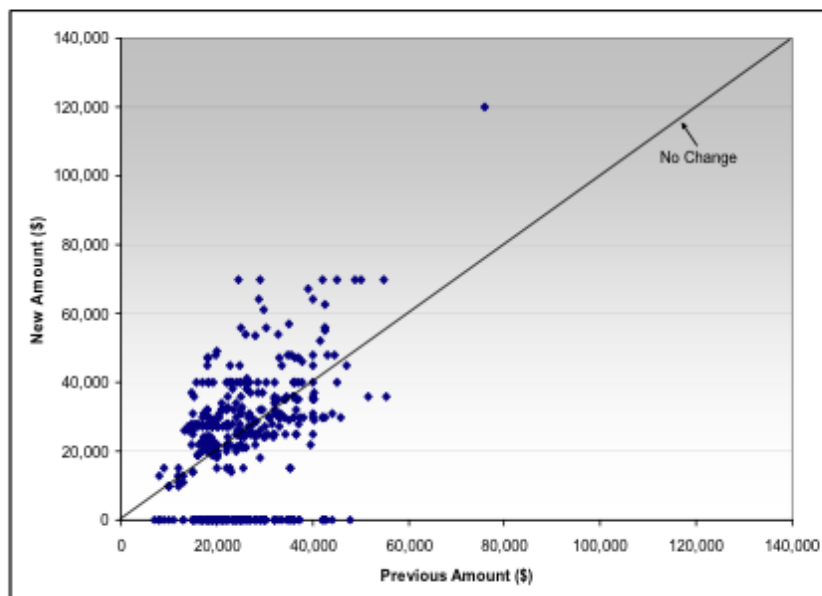
**Figure 3.** Change in Grant Level for Established Researchers 1<sup>st</sup> Renewal – 2010 Competition
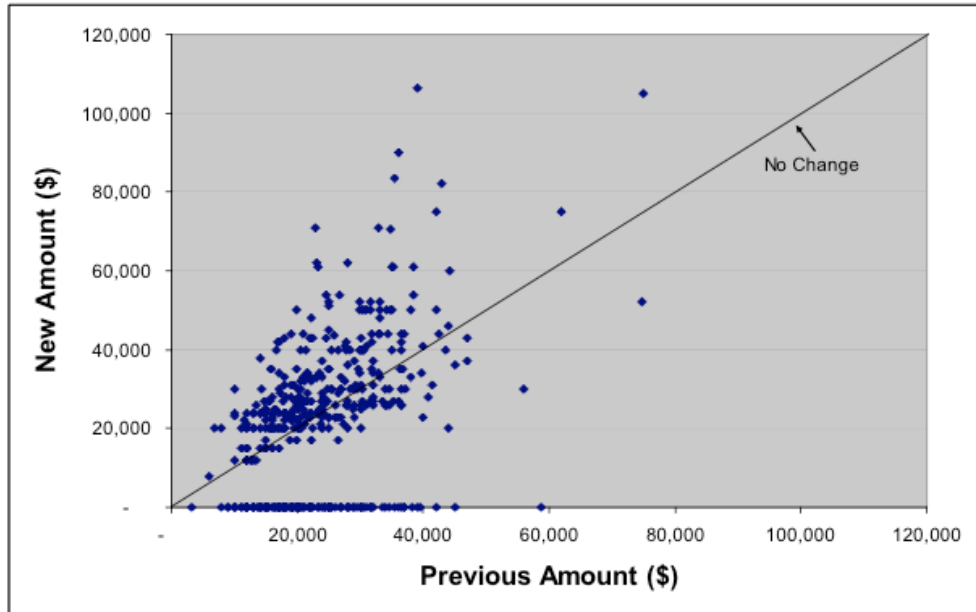


# SOME MORE STATISTICS (5)

**Figure 4.** Percentage Change in Grant Level – 2011 Competition
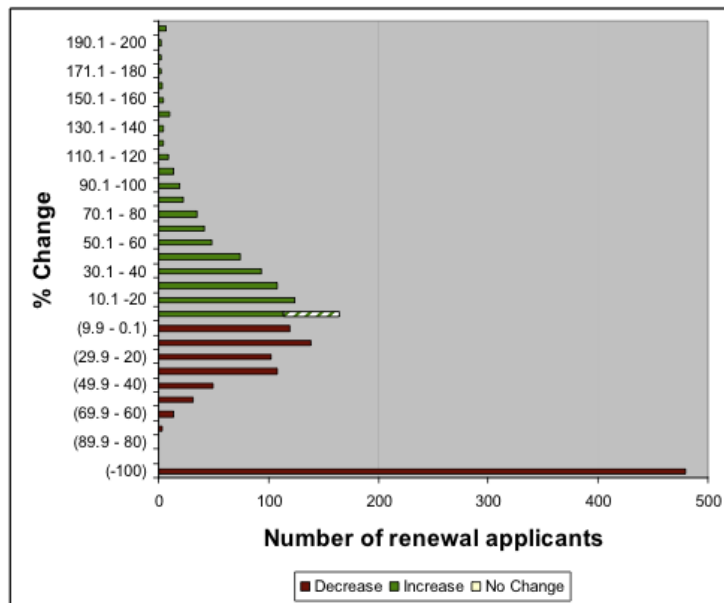
Figure 4. Percentage Change in Grant Level – 2010 Competition
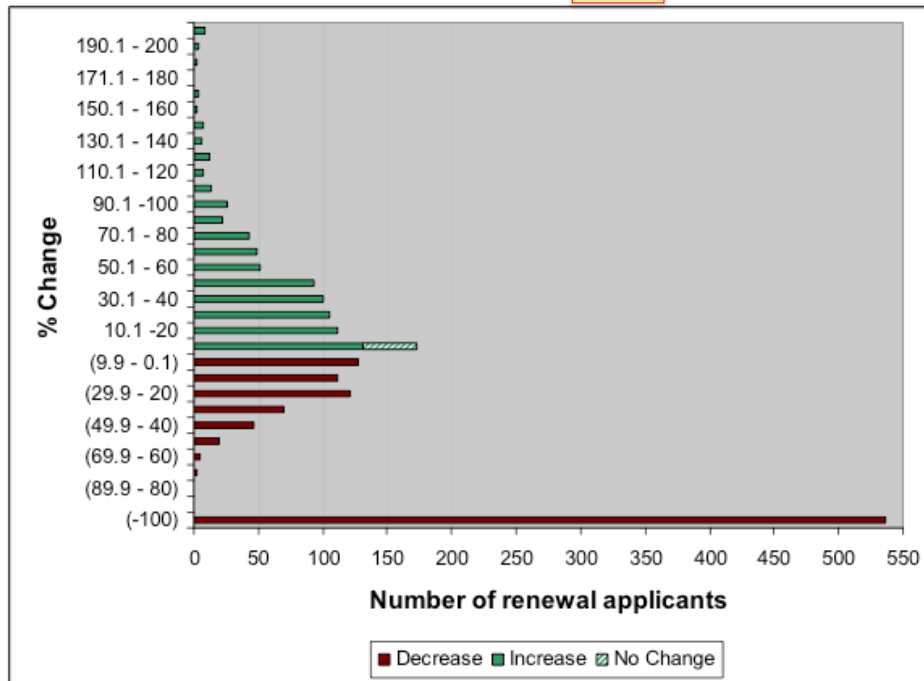
# UOFA'S 2011 RESULTS

(SUMMARY BY BETTY PEAVEY)

| # of applications | 184 |
|---|---|
| # of awards | 126 |
| Success rate | 68.5% |

| Faculty | Applications | Awards | Success Rate |
|---|---|---|---|
| Science | 69 | 51 | 74% |
| Engineering | 50 | 36 | 72% |
| ALES | 18 | 13 | 72% |
| Social Sciences | 10 | 4 | 40% |
| Health Sciences | 35 | 20 | 57% |

# UofA's 2010 Results

(summary by Betty Peavy)

| # of applications | 185 |
|---|---|
| # of awards | 118 |
| Success rate | 63.8% |

| Faculty | Applications | Awards | Success Rate |
|---|---|---|---|
| Science | 71 | 60 | 84% |
| Engineering | 56 | 42 | 75% |
| ALES | 20 | 7 | 35% |
| Social Sciences | 11 | 2 | 18% |
| Health Sciences | 27 | 7 | 25% |

# The Process

- Form 180
- Form 100
  - Comments, suggestions
- Allocations
- Meeting
- Decisions
- RTI grants

# HOW IT ALL BEGINS …

- Form 180 (NOI)
  - Used by Committee Members to assign reviewers to your proposal
  - Ideally half of the reviewers suggested by the applicant will be used, the other half will be indicated by a single committee member
  - List (knowledgeable) reviewers with a high likelihood of actually responding to NSERC's request (as usual, beware of COI)

# FORM 100 (PDF)

- Credibility is a key factor

- Make sure everything is consistent
  - Number of students in table must match list of students
  - List of grants should be complete and accurate

# FORM 100 (PDF) – CONTRIBUTIONS

- Reporting figures to support importance of contributions, e.g., citation numbers, and impact factors are likely to help your case
  - Do not inflate/exaggerate/invent
  - Caveat: committee members are asked to be very careful with these figures, as many are not verifiable
  - Each contribution is not necessarily a single paper; several papers can (should?) be aggregated into one contribution (topic) with indications of relevance

# FORM 100 (PDF) – CONTRIBUTIONS

- Pay attention to guidelines, e.g., HQP should be underlined (this will strengthen your HQP "weight")
- If a venue is not well-known but you did have a reason for it, explain (it's better than leaving the reviewer wondering)
- NEW: there is a new section on the F100:
  - One full page for detailing HQP contributions

# AN "EXCEPTIONAL" RESEARCHER

- Strong research record (most important)
- Several of the following:
  - Interest in applications
  - Professionally active
    - Journal editor
    - Conference organization
    - NSERC committees
- Significant research contributions in the last 6 years, or prior to this but with continuing impact
- Strong HQP record

# AN "INSUFFICIENT" RESEARCHER

- Many papers in unknown conferences and journals (quantity instead of quality)
- Research lacks focus (too diverse to be credible)
- Publication output insufficient in terms of significance

# EXAMPLES OF COMMENTS TO MODERATE/INSUFFICIENT RESEARCHERS

- Publications not in high-impact venues
- Referee points out that publications have had limited impact.
- Applicant did not take advantage of available space to explain the significance of his/her research record

# EXAMPLES OF COMMENTS TO MODERATE/INSUFFICIENT HQP

- Too few students supervised
- Has not published with students
- Lacking plan of how students will engage in the proposed research
- Applicant should strengthen number and quality of HQP
- Very few graduate students trained (in a school with strong graduate program)

# RELATION TO OTHER SUPPORT

- If you have other grant support, explain:
  - how this research is different and
  - how it ties in to the other research
- Example:
  - An NSERC CRD supports applied research in X of interest to industrial partners
  - A CANARIE contract supports software development of a system incorporating contributions in X
  - The DG supports basic research and conceptual innovation in X

# WHAT IS EXPECTED FROM A PROPOSAL? (1)

- Common sense?          Think of a paper's introduction
- Make it intuitive/clear but still not sounding relatively easy to accomplish
- It should be a research program, not only a few ideas for projects, but it should have a few concrete "milestones"
- Be realistic wrt goals and resources

# WHAT IS EXPECTED FROM A PROPOSAL? (2)

- Budget
  - Needs to be coherent (linking HQP funding to "tasks"/student in the proposal helps with credibility)
    - NEW: the tri-council has removed limits on student salary and stipends
  - You cannot get what you did not ask for
  - NEW: the budget section is now limited to two pages in length

# WHAT IS EXPECTED FROM A PROPOSAL? (3)

- Contextualize (concisely) the proposed research wrt previous work:
  - Of your own (mentioning citation numbers and importance of venues will help)
  - By/with your students (referring to names will strengthen the HQP component of the evaluation)
  - By others (highlight what you'll achieve beyond others and why it's relevant)

# PROPOSAL SCOPE

- Proposal scope must be well thought out:
  - Too narrow: not a research program, but a project
  - Too broad: infeasible, unrealistic, applicant does not have the expertise and/or the resources
- Include enough technical substance (for the expert external referee)
- Refer to your contributions for more detail

# AN "EXCEPTIONAL" PROPOSAL

- Fundamental theory or system or application
- Coherent and focused research direction
- Clear evaluation plan
- Essence of proposal explained in intuitive terms, and theory and applications nicely weaved into it.
- Gets to the objectives within the first couple of paragraphs
- Maximum 1 page of highly technical stuff
- Why is the proposed work significant?

# AN "INSUFFICIENT" PROPOSAL

- Vague goals
- Lack of focus: too many distinct subproblems
- Claims to attack unrealistic sized problems
- Confusing to read, overuse of acronyms
- Lack of evaluation strategy
- Unclear that applicant has the expertise to do the proposed research

# EXAMPLES OF COMMENTS TO MODERATE/INSUFFICIENT PROPOSALS

- Lack of an evaluation methodology
- Did not show how results can generalize beyond one domain
- Literature review did not include significant relevant work
- Did not discuss how proposed research will advance the state of the art
- Proposal did not have clear objectives, hence feasibility is questioned
- The applicant's prior research record does not include contributions in the area of the proposal
- Methodology was too general, making it hard to see how the potential contribution will generalize
- Methodology too sketchy.
- Not clear how the proposal will compete with established methods
- Scope of proposed research too broad
- Applicant does not have the experience needed to carry out the proposed research

# SUMMARY

- Use your F100 to your advantage, after all it will be "the" factor for the "Excellence of the Researcher" as well as the "HQP" criteria
  - "Cold facts" is only one dimension of it
  - Highlight what you want to be noted, e.g.: contextualize your work in terms of citations; emphasize importance of the venues; note HQP participation

# SUMMARY

- The proposal should be coherent, contextualized (like a paper) and most importantly, credible
- It should aim at a program, but not lose sight of a few mid-term tangible (and feasible) results
- HQP allocation should be realistic, clear and justified
- Members will have less than 15min to discuss your case, make sure they have a reason to remember it!

# PRE-MEETING

- Once all F180s are in
  - Each committee member is asked to indicate how comfortable he/she is with each application
  - Each committee member receives a set of applications for which he/she is responsible to find reviewers for
    - There is a set of constraints to be observed, e.g., reviewers should not get more than 3 proposals, but members have no idea who is suggesting who

# PRE-MEETING

- Each committee member gets three sets of applications, for which he/she is the $1^{st}$ internal reviewer, $2^{nd}$ internal reviewer or a reader
  - Only those in one of these roles are allowed to make comments wrt an application
  - Two years ago I was assigned about 70-80 applications in total (including RTIs)
    - ~15 As $1^{st}$ internal, ~15 as $2^{nd}$ internal, ~35 as reader plus ~15 RTIs

# MEETING (1)

- Each application has ~12min for discussion
- The 1$^{st}$ internal reviewer presents a summary of the applicant and application, his own review, a summary of the external reviews and gives his/her recommendation
- The 2$^{nd}$ internal reviewer presents his review (avoiding redundancy wrt the 1$^{st}$ reviewer) and gives his/her recommendation

# MEETING (2)

- Readers should only mention issues that were missed by the first two or clarify (or request clarification wrt) issues already mentioned and may be important, and give their recommendation
- All of it has to happen in ~12min (NSERC officer will actually time it) –members often have to move between rooms for different cases
- A final, anonymous and electronic vote is cast at the end the result is announced

# 3 CRITERIA & 6 RANKINGS

- Criteria
  - Excellence of researcher            All equally weighted
  - Merit of the Proposal
  - Training of HQP
  - Cost of research (typically not relevance for CS)
- Rankings
  - Exceptional, Outstanding,
  - Very Strong, Strong,
  - Moderate and Insufficient            Problematic

# DECISIONS (1)

- Who decides grant levels for successful applicants?
  - After applications have been evaluated against the three Discovery Grants selection criteria, they are placed into quality bins based on their ratings. Following this process, the Executive Committee of each Evaluation Group (EG) independently recommends the appropriate level of funding to assign to each bin, in consultation with NSERC staff. Each Executive Committee is composed of the Group Chair and Section Chairs of the EG, who have themselves participated in the evaluation process. The Executive Committees have the important and challenging task of recommending an appropriate balance between the number of funded applicants and average grant sizes, while remaining within the available budget. The funding decision ultimately rests with NSERC, but decisions are made with the full engagement of the Executive Committees.

Quoted from "Q&A: 2011 Discovery Grants Competition" (http://bit.ly/q9EZoI)

# DECISIONS (2)

- After all votes are cast, researchers are assigned a rank in each of the three criteria and will be put into a "bin" based on the "sum" of the criteria's ranks
- Only those applications with Moderate or Lower in any criterion will receive automatic feedback from the committee (all others will receive only feedback by external reviewers)

# DECISIONS (3)

- A rank of Moderate in any criterion means the application may not be funded
  - One year only funding may be a possible alternative recommendation
- A rank of Insufficient in a criterion means the application will (very likely?) not be funded
- Allocation of dollars to bins is done by EG (co)chairs and NSERC officer, there is no involvement of committee members

# DAS AWARDS

- DAS = Discovery Accelerator  Supplement
- 100 awards/year ($40k/yr x 3 yrs)
- Aimed at those who are already doing very well, and show a great potential to do better AND become references/stars in their areas if more funding is provided
- VP Research can nominate researchers (even in mid-tenure of their current DGs) but that does not guarantee anything
- "Internal" nominations (ranked) are made when each case is discussed and a final decision is made afterwards (for all EGs)

# RTI GRANTS (2009'S COMPETITION)

- Each member gets a number of applications and is required to put them in bins uniformly (mandatory)
- Members do not see each other's ranking (only an average before meeting)
- Middle third will be discussed
- A new ranking (and uniform binning) of all applications is re-done
- Final results are decided by RTI/EG chair and will not be announced/discussed