THIRD IEF NOC-IOC FORUM
CHALLENGES, INVESTMENT AND COOPERATION

HOSTED BY

ओएनजीसी
ONGC

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The Roots of NOC-IOC Cooperation

Mark Thurber
Associate Director, Program on Energy and Sustainable Development
Stanford University

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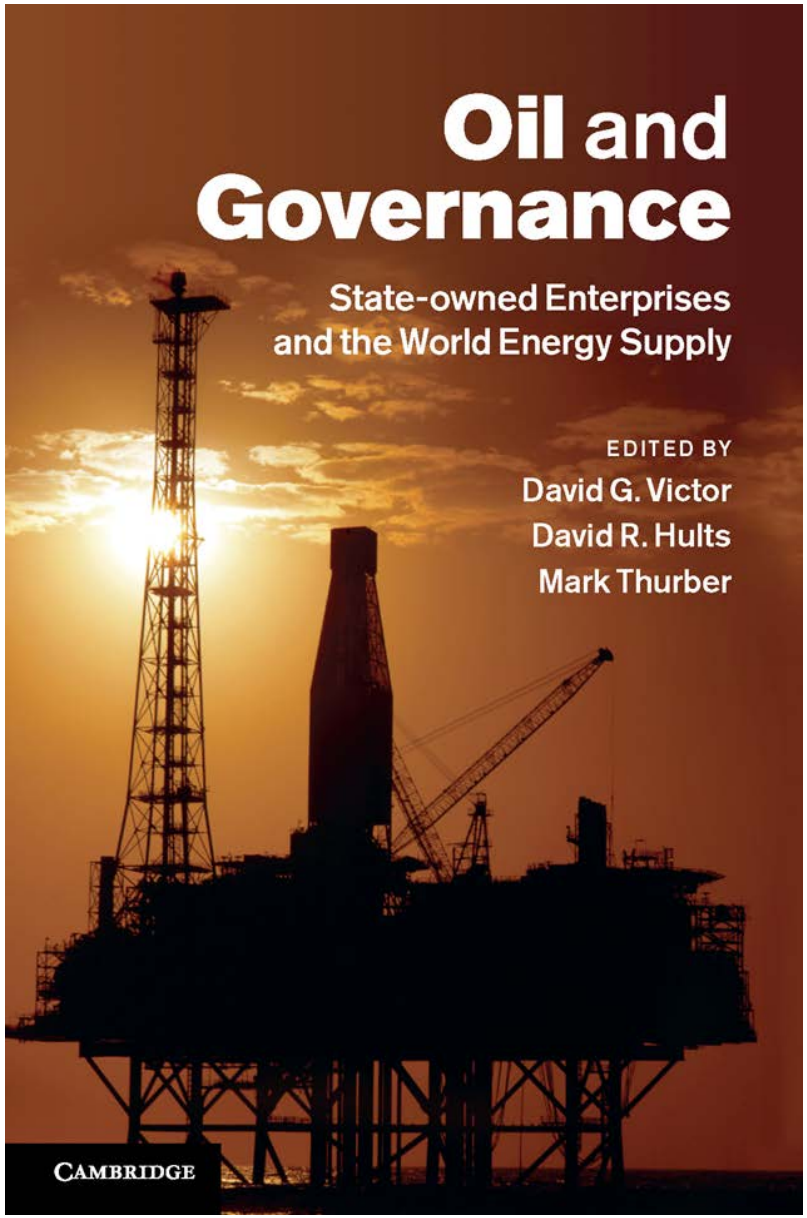
Partnerships address two main kinds of risk

1) Geological risk
   - Will exploration well find commercial reserves?
   - Will developed field produce at expected rates?
2) Market risk
   - Can resource profitably be brought to consumer?

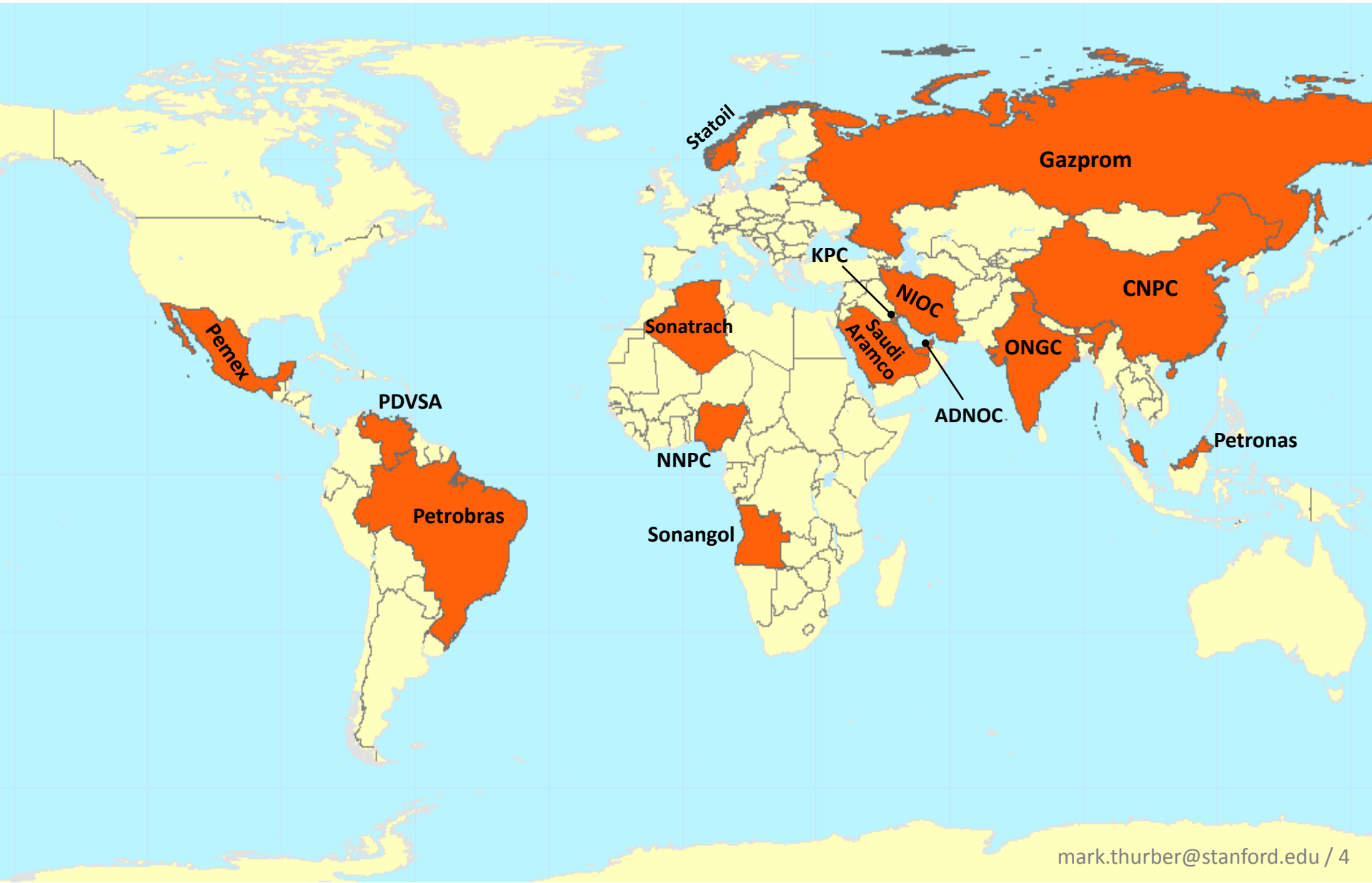
   Example: Developing natural gas value chain

What factors make NOCs different?

- From IOCs
- From each other



Considered 15 NOCs around the world



Shareholder goals

IOCs

- Maximize and grow profits

NOCs (many are possible)

- Maximize and grow profits
- Fund government budget
- Subsidize domestic fuel
- Ensure “energy security”
- Pursue foreign policy aims
- Provide social programs
- Provide employment
- Catalyze industrial development and growth

Typical incentives

IOCs

- Takeover threat
- Bankruptcy threat
- Must compete globally for licenses and capital

➢ *Manage risk*

➢ *Create global supply chains*

NOCs

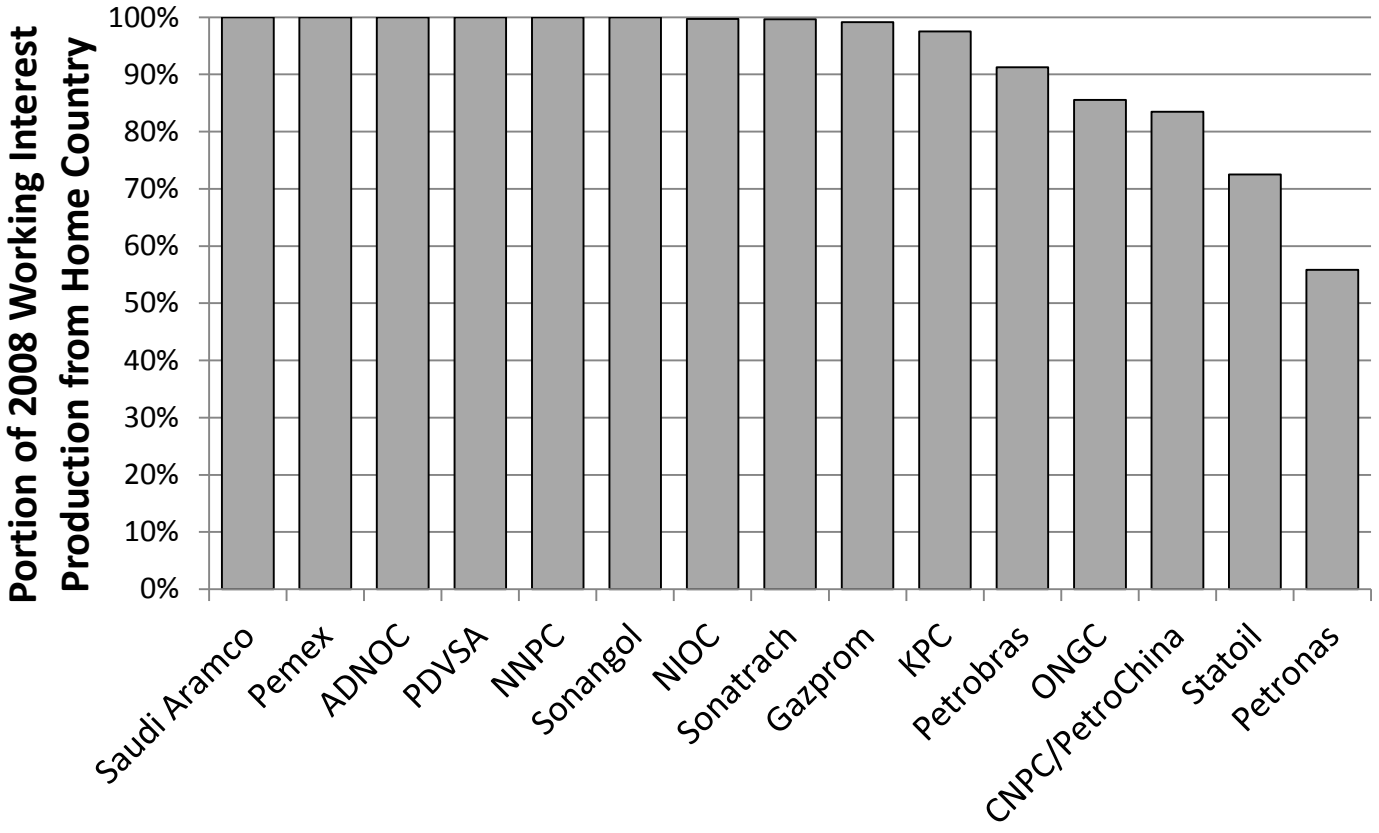
- Keep job if satisfy government
- Soft budget constraint
- Preferential resource access at home – *but also higher non-hydrocarbon burdens*

➢ *Take, avoid, or manage risk*

➢ *Go abroad only if needed*

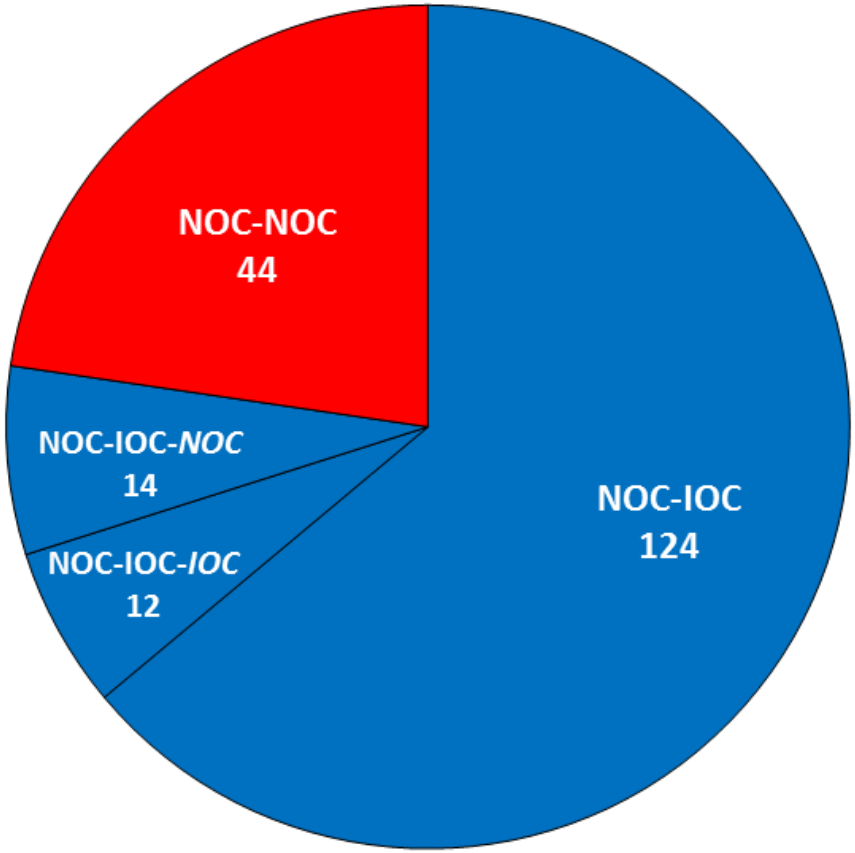
Going abroad

NOC moves abroad usually spurred by perceived resource insufficiency at home



Data Source: Wood Mackenzie Corporate Analysis Tool

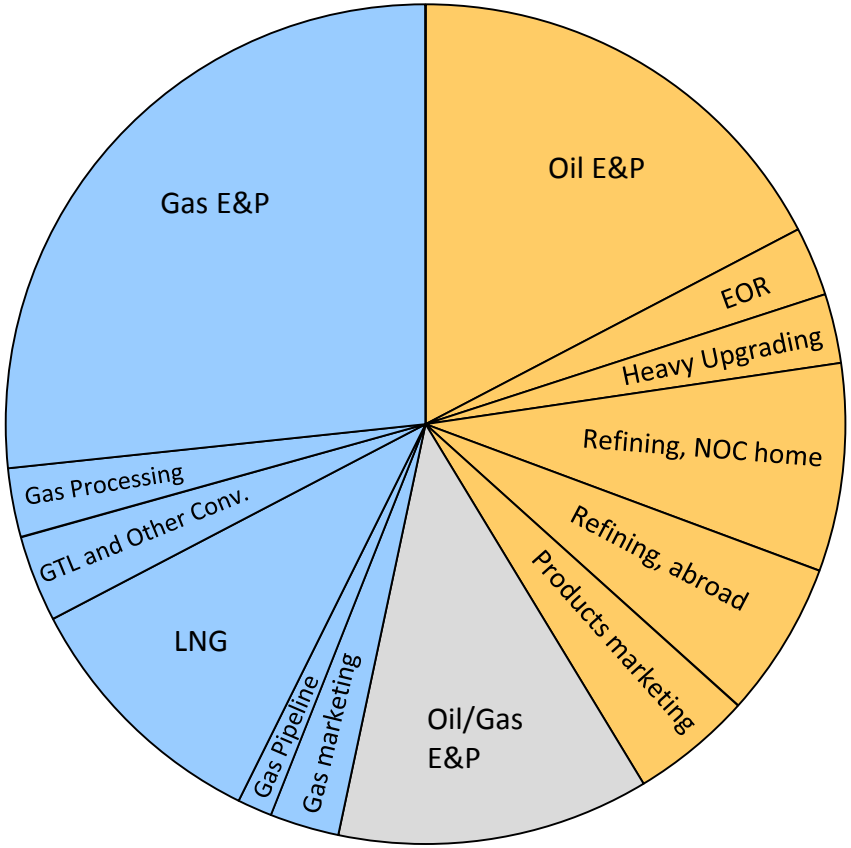
Stanford/PESD Database of NOC-IOC and NOC-NOC Projects (1990-2011)



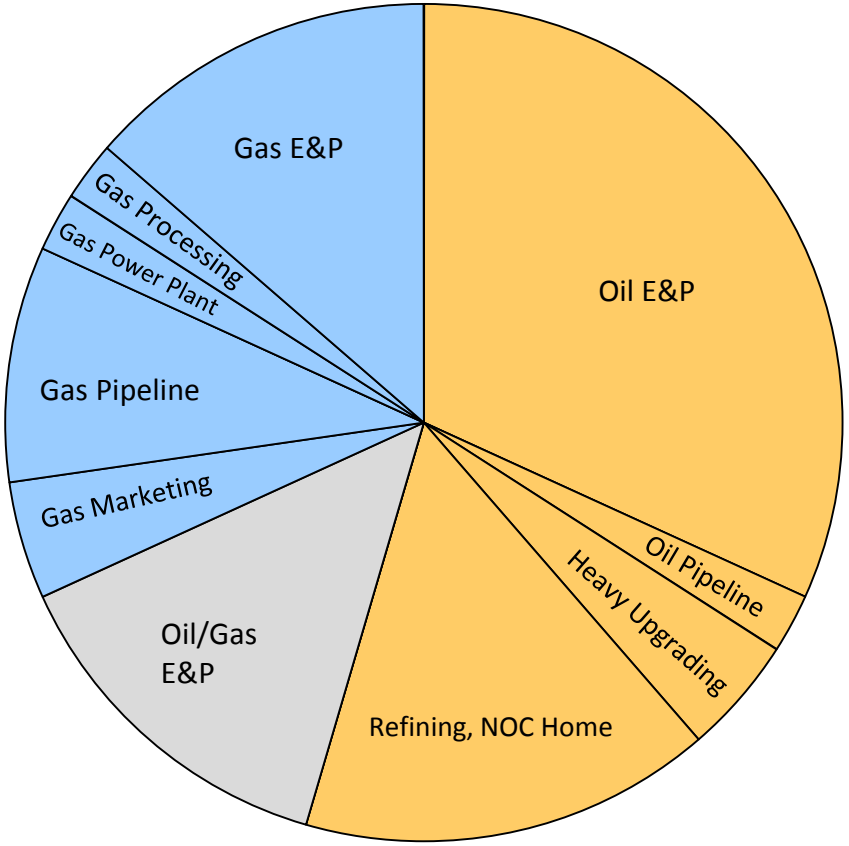
Total: 194 projects

Comparing NOC-IOC and NOC-NOC projects

NOC-IOC Projects



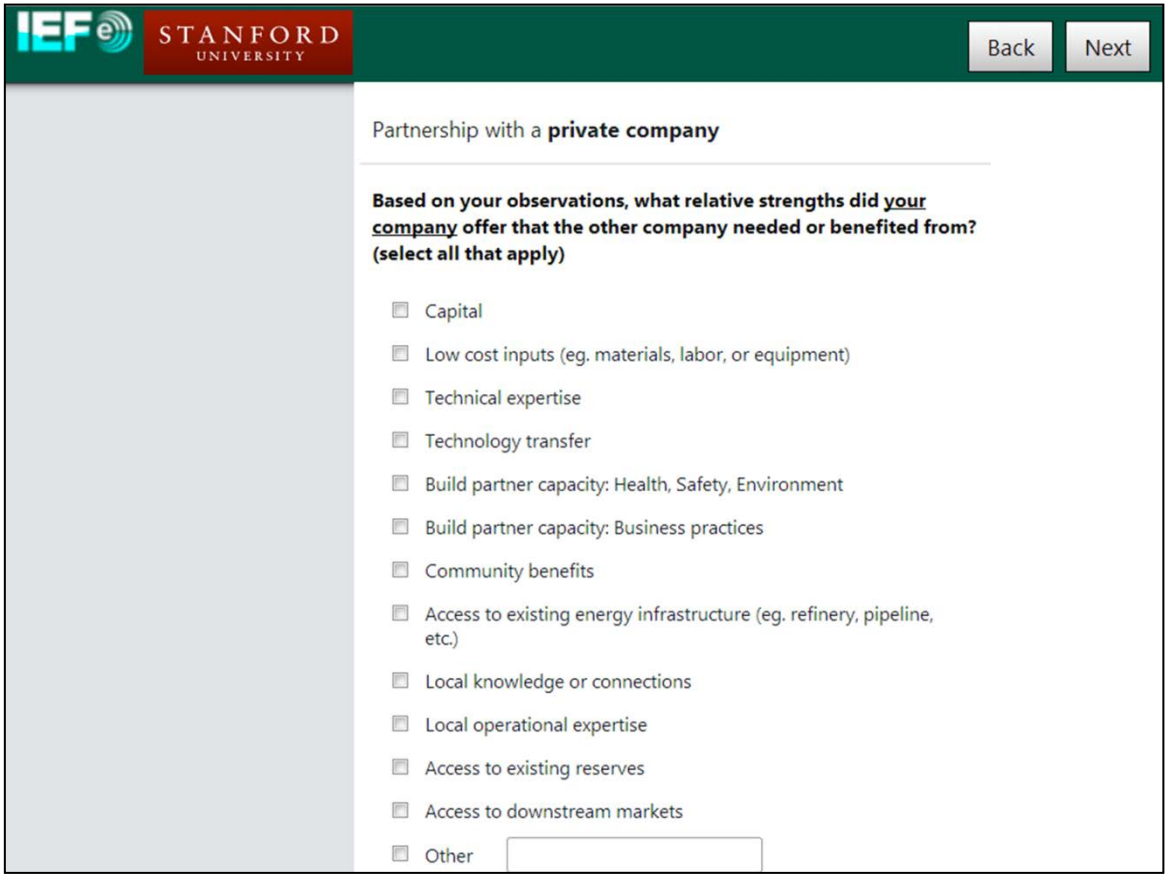
NOC-NOC Projects



Each of the 194 projects in the database was assigned to one of the mutually-exclusive types shown in the charts

Source: Stanford/PESD Database of NOC-IOC Partnerships (2012)

Contribute your own knowledge:
Stanford/IEF survey of NOC-IOC/NOC-NOC projects



Understand…

- What makes these pairings work?
- How can they be improved?

Thank You

Methodology: Characterizing NOC-IOC and NOC-NOC Projects

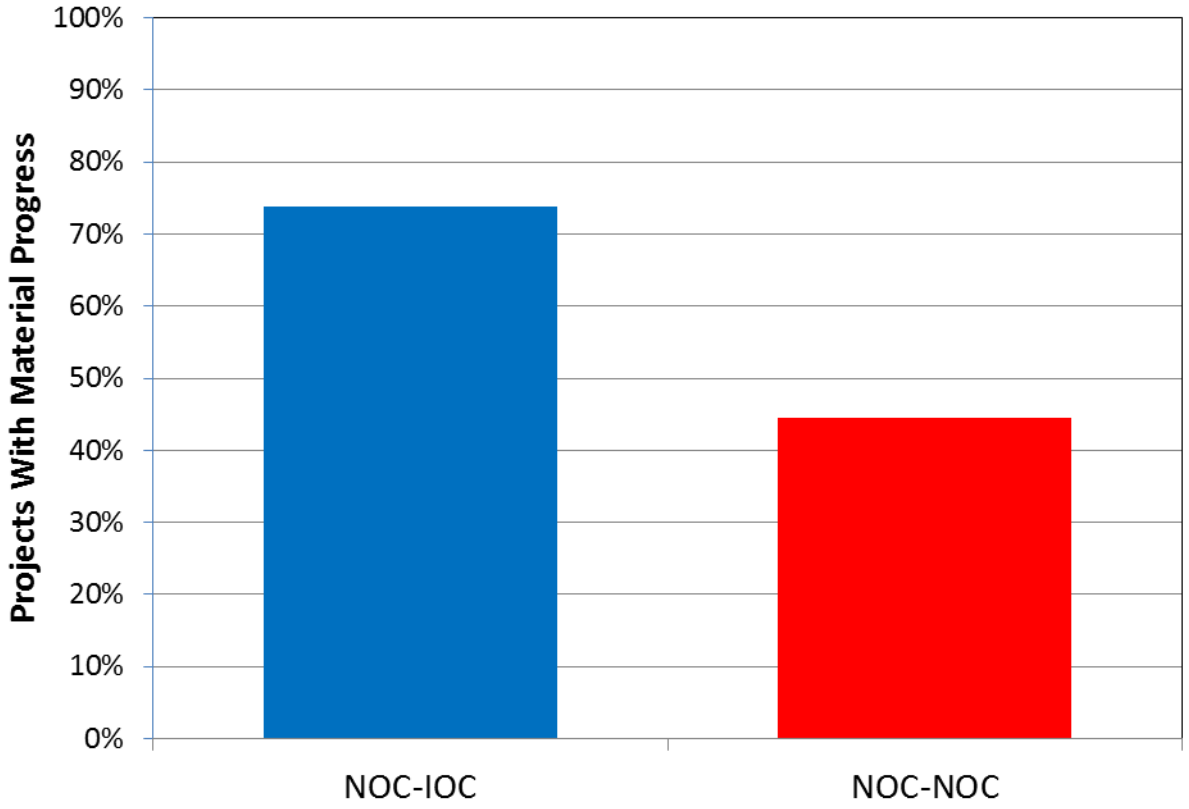
- Systematically search selected set of oil and gas industry publications for partnerships among all 609 combinations of the 29 NOCs and 21 IOCs in the PIW "Top 50" oil companies, and all 406 combinations among the 29 NOCs
- Manually read through all returned articles to cull the set of documents to only those that discuss projects with the following characteristics:
  - Started in 1990 or after
  - The selected two companies each have a 25% or greater share in the partnership. (Sometimes three companies meet this criterion.)
- Include in the project database all partnerships that were discussed by 5 or more articles
- For each project, manually record desired data based on returned articles
- Create separate list of NOC-NOC and NOC-IOC strategic alliances

PIW Top 50 (2011)

Company	Country
Saudi Aramco	Saudi Arabia
National Iranian Oil Corportation	Iran
Exxon Mobil	US
Petroleum de Venezuela	Venezuela
China National Petroleum Company	China
BP	UK
Royal Dutch Shell	Netherlands
Chevron	US
ConocoPhillips	US
Total	France
Pemex	Mexico
Gazprom	Russia
Kuwait Petroleum Corporation	Kuwait
Sonatrach	Algeria
Petrobras	Brazil
Rosneft	Russia
Lukoil	Russia
Petronas	Malaysia
Adnoc	U.A.E
Eni	Italy
Nigerian National Petroleum Corp	Nigeria
Qatar Petroleum	Qatar
Egyptian General Petroleum Corp	Egypt
Iraq National Oil Company	Iraq
Libya NOC	Libya
Sinopec	China
Statoil	Norway
Surgutneftegas	Russia
Repsol YPF	Spain
Pertamina	Indonesia
Oil and Natural Gas Corp.	India
Marathon	US
PDO	Oman
TNK-BP	Russia
Uzbekneftegas	Uzbekastan
Kazmunaigas	Khazakhstan
Socar	Azerbaijan
Chinese National Offshore Oil Co.	China
Devon Energy	US
Reliance	India
Apache	US
BG	UK
Singapore Petroleum Company	Singapore
Novatek	Russia
Occidental	US
Anadarko	US
Hess	US
Canadian Natural Resources Limited	Canada
OMV	Austria
Suncor	Canada

Project progress

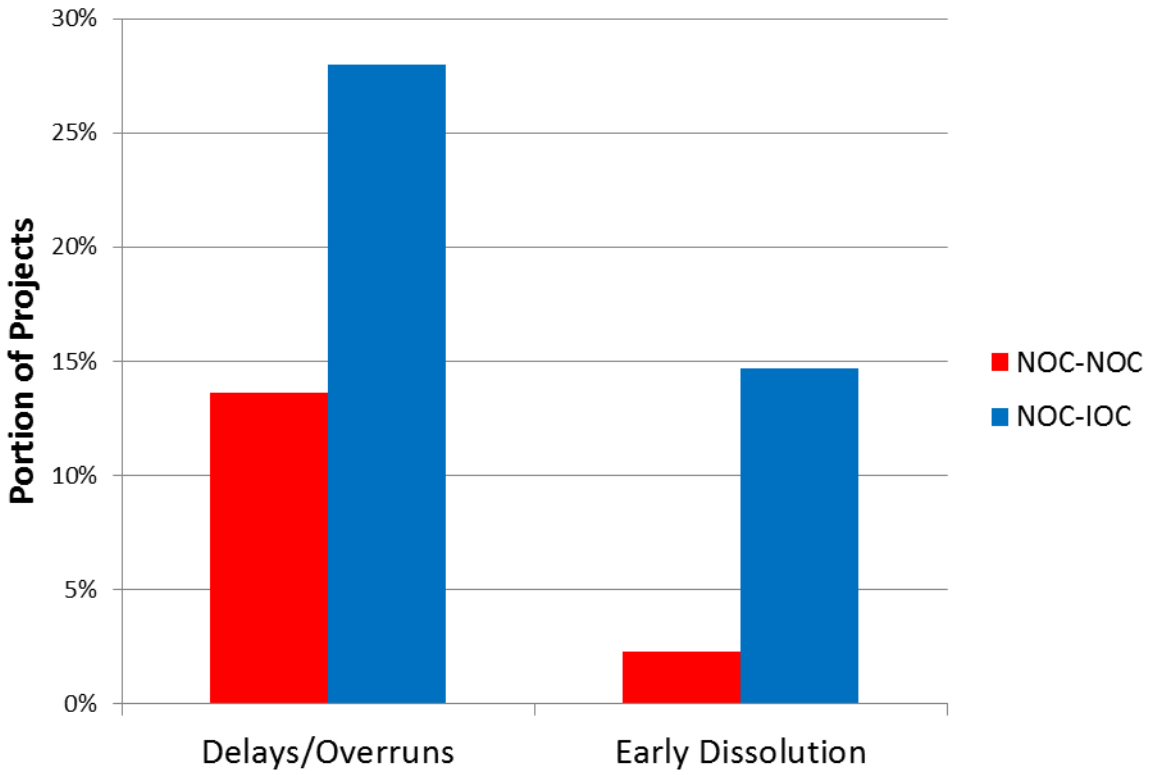
Material Progress = 1 if something physical is in the ground
= 0 otherwise



OLS Regression Model • Uses fixed effects to control for elapsed project duration	
Estimate: Probability of material progress on an NOC-NOC project relative to NOC-IOC baseline	**-0.233**
Standard Error	0.068
P>|t|	0.0007
Observations	194

- A model that controls for project duration (table at right) indicates that an NOC-NOC project is 23 percentage points less likely to have made material progress than an NOC-IOC one – *Why?*

Incidence of reported negative outcomes



- Fewer negative outcomes observed for NOC-NOC projects
  - Possible explanations: ability of NOCs to mobilize resources, differential availability of information in press, characteristic differences in project progress?