

# Societal Effects of Scientific Migration: Insights from Russian-Speaking Nanoscience Émigrés

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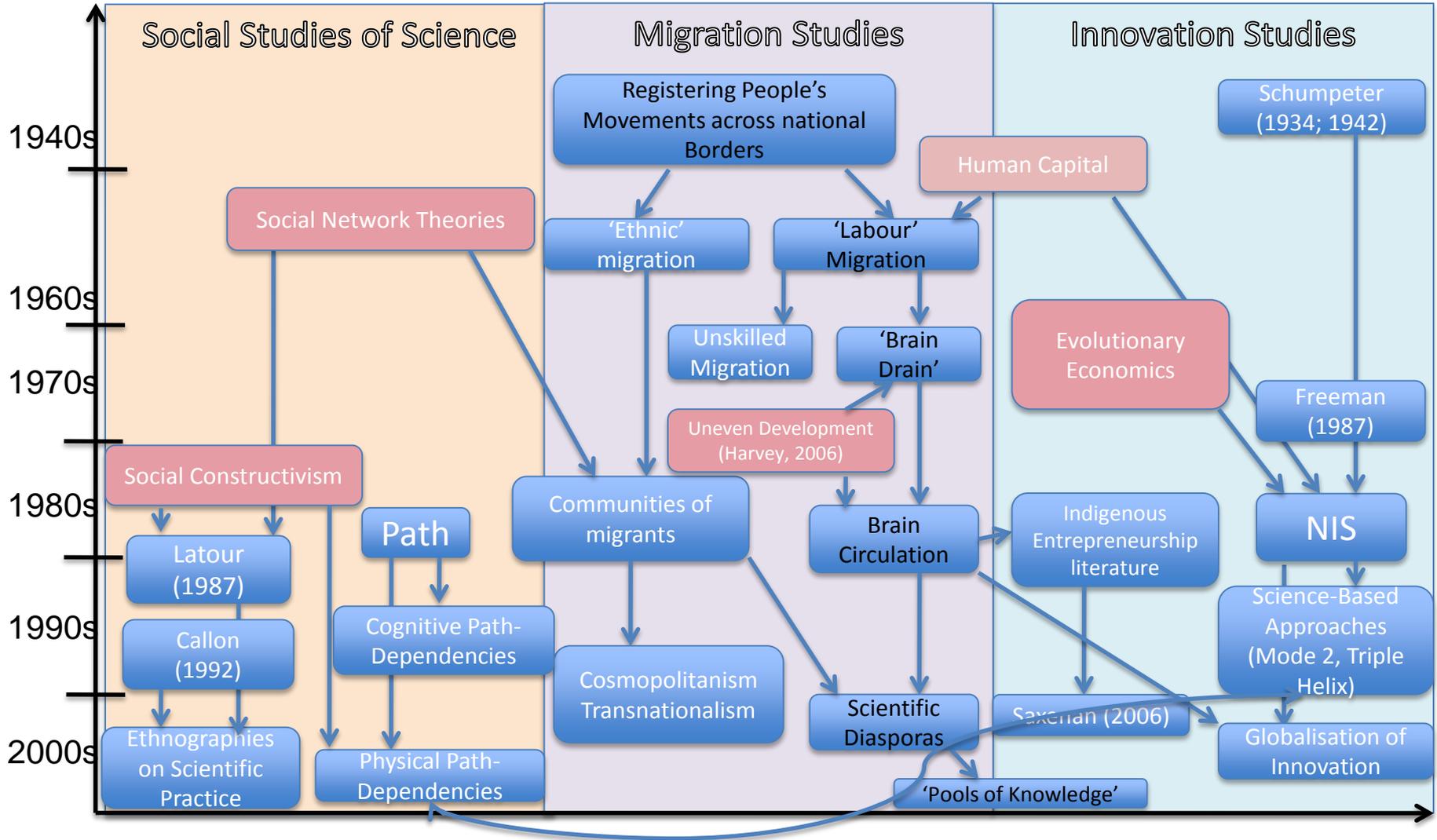
## Research Objectives

- Investigate the history of and contemporary approaches to scientific migration studies and develop an understanding of generally accepted concepts and models
- Investigate the potential of the transition of the [character] of scientific migration with regard of the changing global situation and the impact on receiving systems and organisations
- Investigate the potential of these changes to affect social behaviour in receiving organisations and systems
- Investigate policy responses to understand and regulate scientific migration and underlying factors of these policies

## Research Qs and Hypotheses

1. What are the patterns of the outward scientific migration?
  1. There is a difference between scientific migration immediately after the breakup of the SU and further waves that features in differences of career trajectories, migration decisions and extra-scientific activities
  2. The character of scientific migration is non-linear. There are certain 'transit' migration spaces and 'end destination' migration spaces
2. What explains the formation and the character of these patterns?
  1. There are factors that contribute to 'holding' scientific migrants in place besides the conventional pull and push factors
  2. National borders play a lesser role in the international scientific migration because of the cross-national research clusters and sub-national research clusters.
3. What are the effects of scientific migration on academic practices of receiving systems?
  1. There is a certain 'scientific tradition' that was formed in the countries of the former Soviet Union during the period of 1917-1990, and scientific migrants continue to exercise the learned practices after moving elsewhere
  2. Academic practices of scientific migrants are maintained after the act of migration.

# Literature Review

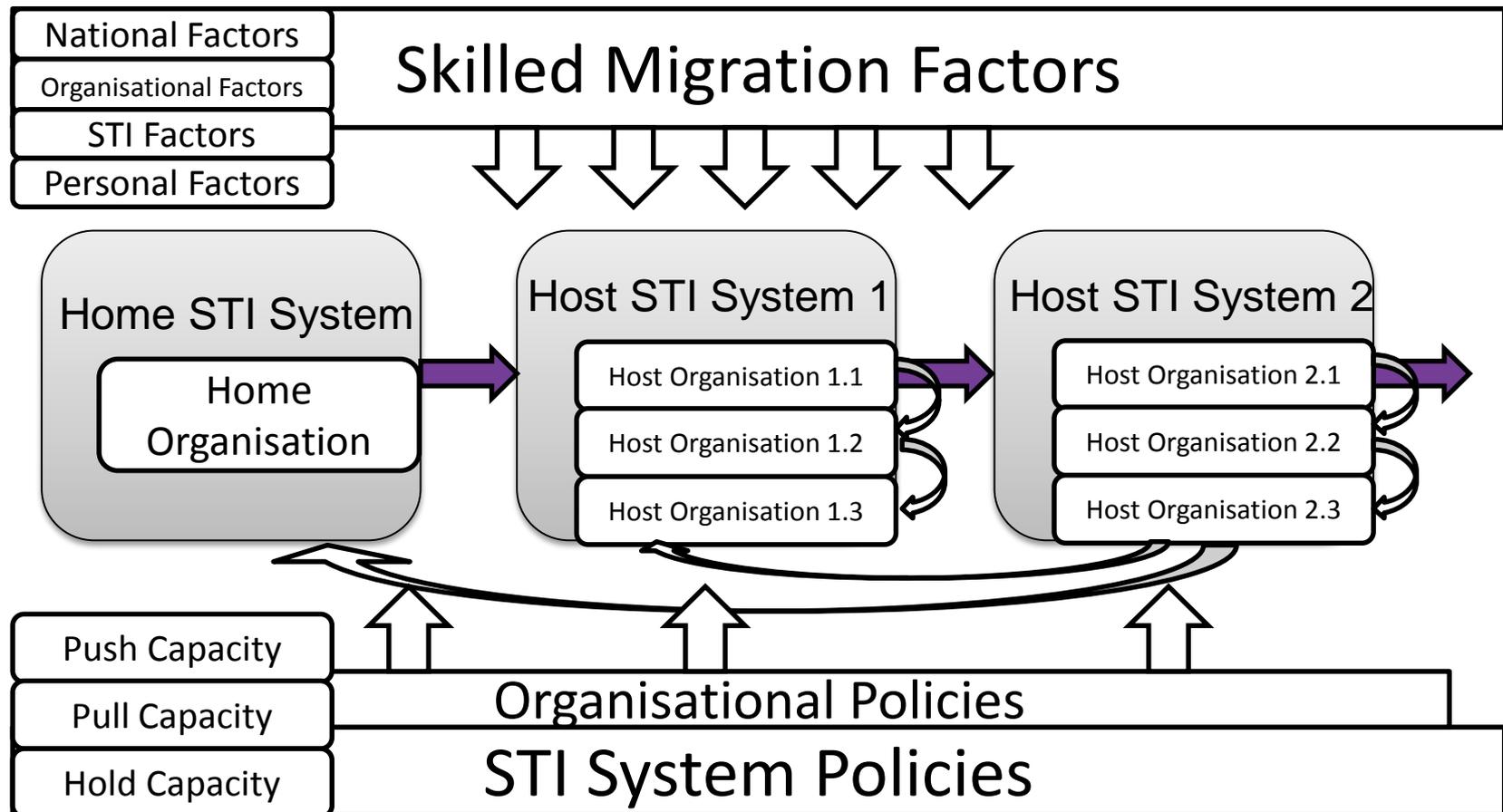


Metaparadigm: Postmodernism

- Human Capital Theories
- Social Constructivism Theories
- Habitus

Instruments of Inquiry: Career Trajectories,  
Scholarly Publications, Academic/Scientific  
practices

## Conceptual Framework



# Literature Review: Factors affecting scientific migration

## National

- ✓ Language
- ✓ Immigration Regulations
- ✓ Visa/Residence Permits/Citizenship Accessibility
- ✓ Labour Market Regulations
- ✓ History, Culture, Reception

## Organisational

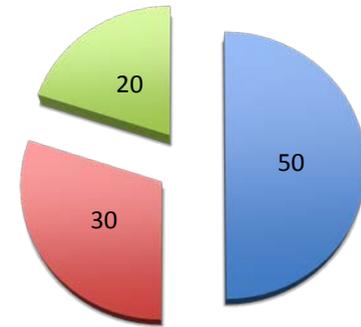
- ✓ Working Environment
- ✓ Salary and Financial Incentives
- ✓ “Star” Scientists and Reputation
- ✓ Opportunities for Training and Professional Development
- ✓ Career Development Opportunities
- ✓ Teaching vs Research Loads vs Admin Loads

## STI

- ✓ “Clusters” and favourable regional positioning
- ✓ Research Agendas
- ✓ Research Equipment and Facilities
- ✓ Scientific Diasporas
- ✓ Company and User Links, Availability of Knowledge Transfer Mechanisms
- ✓ The Organisation of the Research System
- ✓ Research Funding and Grants

## Personal

- ✓ Personal Research Network
- ✓ “Migrant Community”
- ✓ Childcare and Schools
- ✓ Personal Relationships
- ✓ Maintaining/Transferring/ Accessing Health Insurance, Pension Rights
- ✓ Age of the Researcher



■ Physics and Mathematics ■ Chemistry and Biology ■ Others

Estimated by Gokhberg and Nekipelova (2002)

## Data: Russian-Speaking Nanoscientists

“..who were born in the countries of the former Soviet Union, for whom Russian is a native language, independently of their ethnicity.” (Kopnina, 2005: 1)

- trackable ‘waves’ of migration: 1987-1994 (The 1<sup>st</sup> and the 2<sup>nd</sup> waves: Graham and Dezhina, 2008)
- Reduced ‘2<sup>nd</sup> generation’ problem
- Ethnic/national scientific migration not researched
- Little Return migration

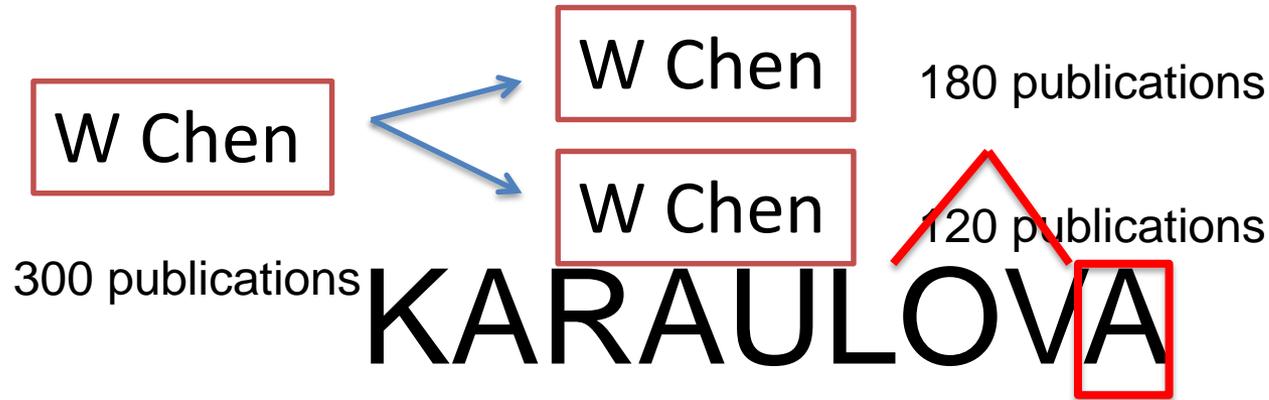
### Nanoscience émigrés

- Nano as identity formation
- Nano as a interdisciplinary science
- Nano as a boundary

## Research Questions and Research Design

RQ	Data Collection	Data Analysis
What are the patterns of the outward post-Soviet scientific migration?	Bibliometric Analysis	
What are the main reasons – external factors and internal motivations - for the formation of these patterns?	Qualitative Interviewing	Template Analysis Content Analysis
What are the effects of scientific migration on academic practice of receiving systems?		Narrative Analysis
How can policy impact the migration flows?	Qualitative Interviewing	Template Analysis Secondary Data Analysis

# First Results: Quantitative Pilot Study 1



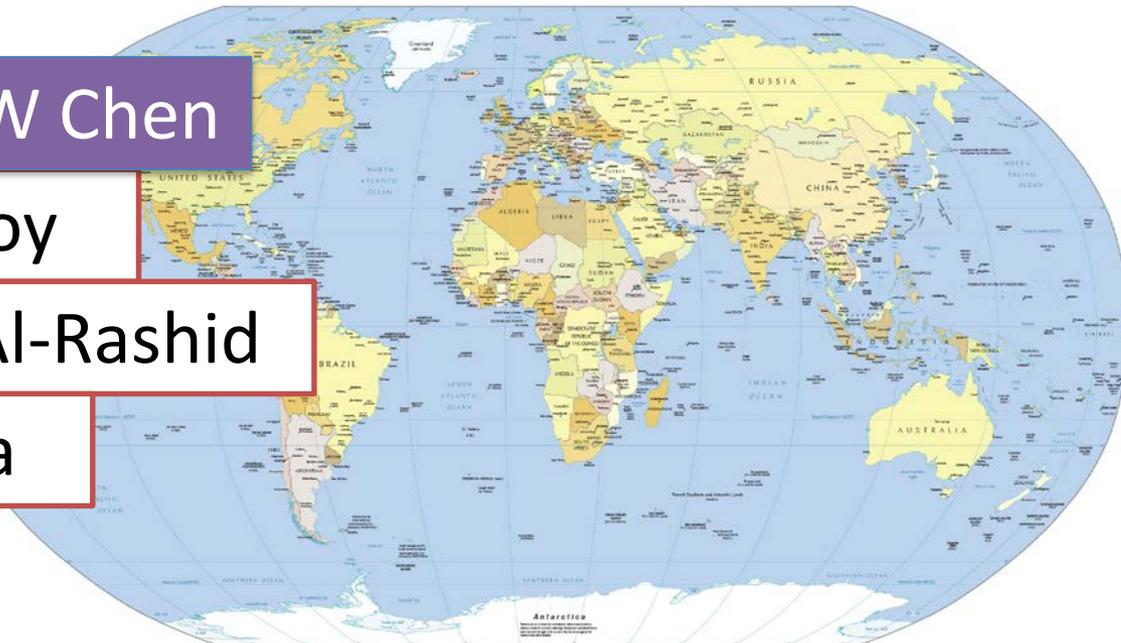
2008

W Chen

L Tolstoy

H Al-Rashid

M Gupta



## First Results: Quantitative Pilot Study 2

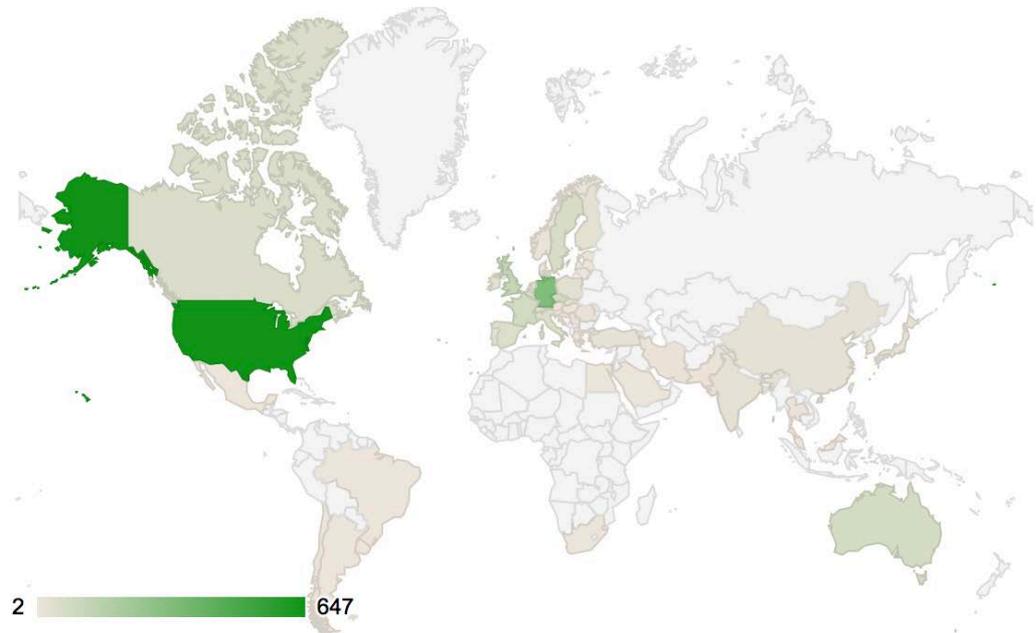
Country	Publications produced
USA	647
Germany	317
UK	116
France	84
Czech Republic	80
Australia	71
Sweden	64
Canada	56
Italy	51

TYPE / YEAR	T-4	T-3	T-2	T-1	T	T+1	T+2	T+3	T+4
Continuant			X	X				X	
Newcomer				X		X			
Mover		X		X					
Transient				X					
[Active but not publishing]			X		X				

(From Moed et al. 2013)

### Russian-named Scientific Diaspora in 2012



\*2 records or more



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Manchester Business School

## Interview Targets Selection Criteria

- Country/Location
- Position
- “Migration Age”
- Gender
- Home Location
- Host Institution ranking/type
- Accessibility

## First Results: Qualitative study

Pilot: Qualitative Interviews in the UK and Brazil to explore the character of scientific migration and formulate interview guidelines

Rounds of Fieldwork:

USA (2 rounds)

Switzerland

UK

Germany

France

Sweden

Initial Results:

- The list of factors in the study is comprehensive, but other significant issues are revealed in the interviews, such as the importance of research group and tenured position
- “Forced skilled migration”
- The number of moves seems to be significant for academic behaviour
- The importance of organisational policies and practices
- The difference in practices between theoretical, fundamental and experimental researchers rather than between researchers of different disciplines in the character of scientific work they’re doing

## First Results

1. What are the patterns of the outward scientific migration?
  1. The 'first wave' migrants have quite radically different outlook on life and science, they can be characterised as 'forced scientific migrants', whereas the younger generation of scientists, while maintaining peculiarities of the (post)Soviet scientific schools, have more freedom in choosing where they move, and they are also more prompt to return
  2. There is a number of the 'first', or 'transit' destinations, such as Israel and Germany, and there are other 'final' destinations, such as the US.
2. What explains the formation and the character of these patterns?
  1. There are factors, such as an overall research excellence, the availability of permanent positions and research groups, that are significant in 'holding' researchers and are unaccounted in the literature.
  2. National borders play a lesser role in the international scientific migration because of the cross-national research clusters and sub-national research clusters. – mixed evidence
3. What are the effects of scientific migration on academic practices of receiving systems?
  1. There is a certain 'scientific tradition' that was formed in the countries of the former Soviet Union during the period of 1917-1990, and scientific migrants continue to exercise the learned practices after moving elsewhere – there definitely is a tradition, the issue of whether it's sustained should be investigated further. It is definitely not sustained if there is a strong organisational policy in the receiving organisation that conflicts it.
  2. Academic practices of scientific migrants are maintained after the act of migration. - mixed evidence

# Implications and Future Research

## Implications

- Diaspora engagement and empowerment
- Measuring migration: surname-based search algorithm.
- Contribution to understanding and bringing in rigour
  - “re-migration”
  - “forced skilled migration”
- Policy contribution

## Prospective research directions

- Policy analysis, classification and modification in the light of the findings of the study, including return policy analysis of home country
  - Case: Russian policy to engage scientific diaspora
- Borders and globalisation; forced scientific migration
- Further quantitative exercise: investigating time series migration movements of scientists

## Papers pending

- Detecting Scientific Diaspora: Surname-Based Approach. Presented at Atlanta STI Conference, September 2013
- Conceptualising Re-migration: the case of Post-Soviet Nanoscience Émigrés. To be presented at ISA congress, July 2014



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# Thank You for Your Attention!

## Q&A

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