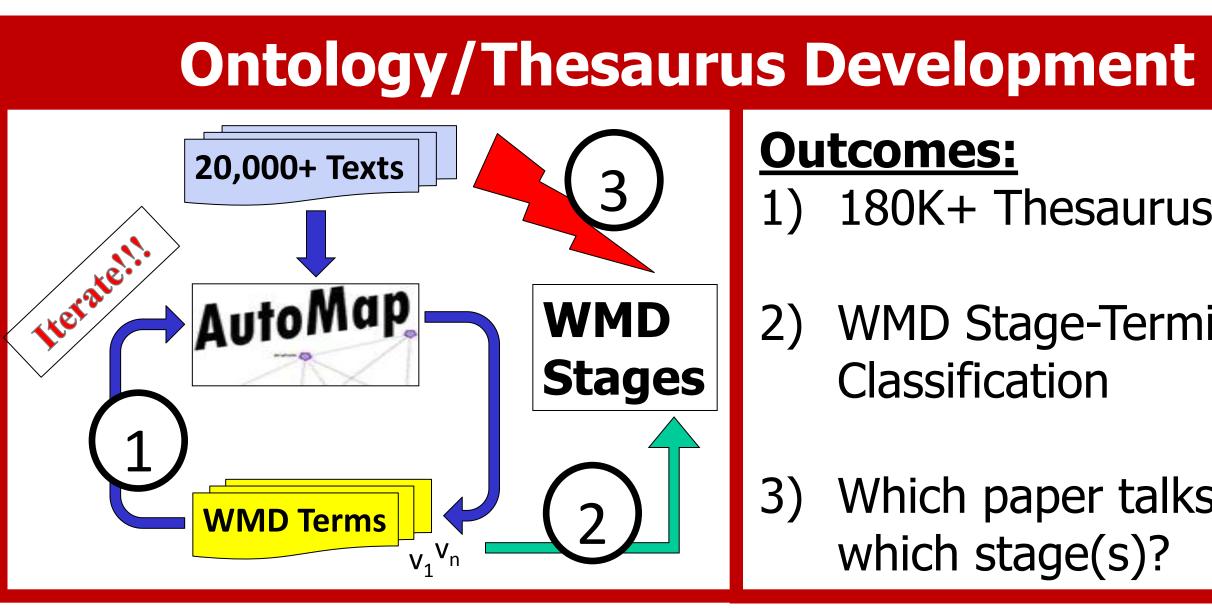


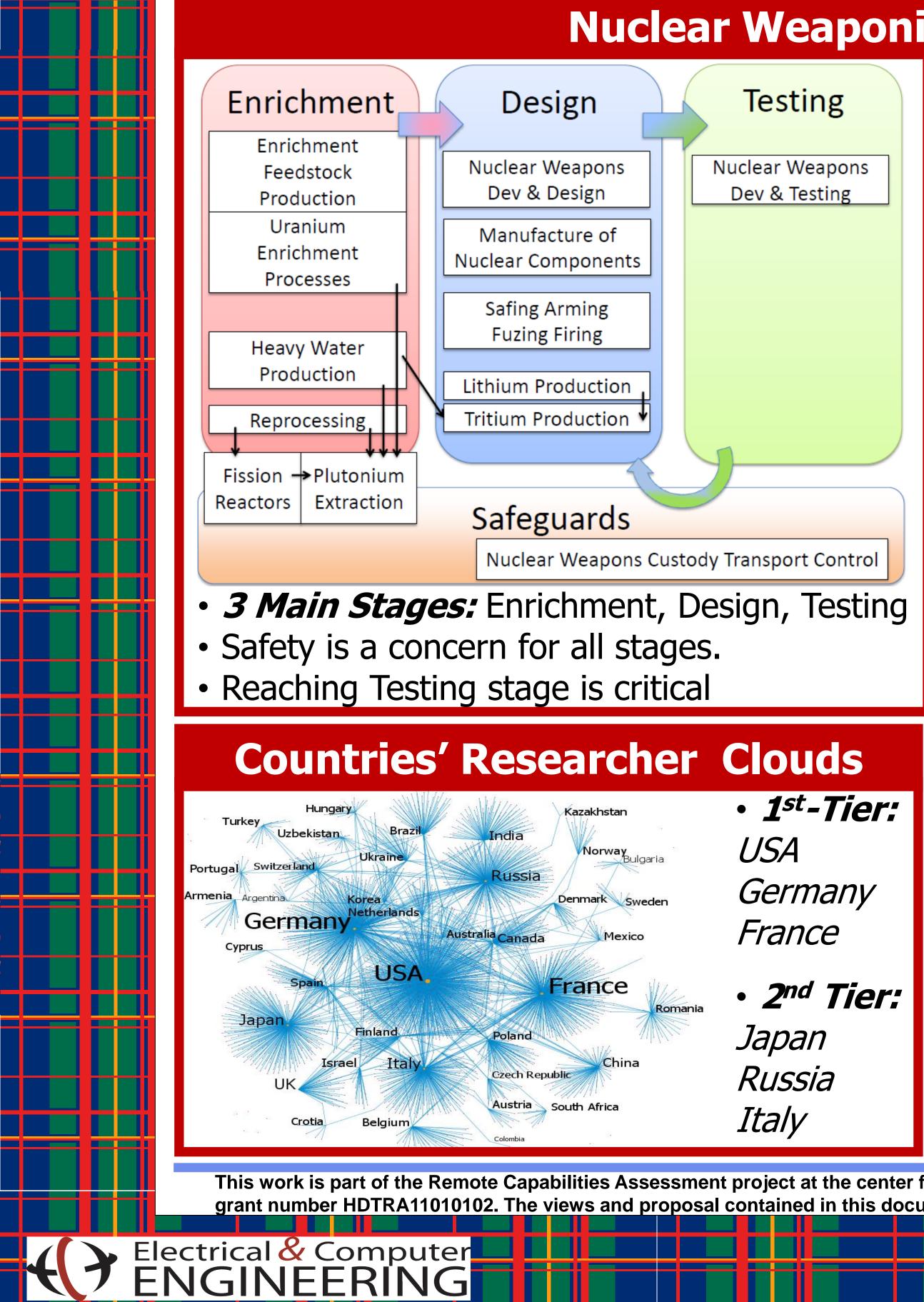
## Miray Kas mkas@ece.cmu.edu

## **Remote Capabilities Assessment** Understanding Structures and Statistics of Scientific Networks for Nuclear Threat Detection Frank Kunkel **Prof. L. Richard Carley (Co-PI) Ghita Mezzour** carley@ece.cmu.edu fkunkel@cs.cmu.edu ghitam@ece.cmu.edu METHODOLOGY – WORK FLOW **CBRNE-WMD** Research Papers Text / Content Metadata AutoMap Parsing Uniformization Cleaning **Outcomes:** WMD Terminology Thesaurus Authors-Organizations-Countries 180K+ Thesaurus Content Capability Linking \*ORA 📕 📕 2) WMD Stage-Terminology Classification Dynamic Network Analysis Signal Processing ₹-5. Which paper talks about Remote WMD Capabilities Assessment which stage(s)? **DYNAMIC NETWORK ANALYSIS Nuclear Weaponization Stages How Information Travels?** (Researcher Mobility) Vetherlands Czech Republic Indonesia Testing South Africa Argentina Australia China Poland Finland Ukraine •Greece •Palestine Romania Belgium Bulgaria Sweder Turkey Nuclear Weapons Bulgaria South Africa France Belgium Slovakia Dev & Testing Cyprus FranceUSA Algeria. Egypt Austria Ukraine Israel Colombia Belarus Portugal Morocco Czech Republic Germany Israel Uzbekistan Indonesia Russia Switzerland Canada Hungary Kazakhstan Colombia 🔌 China Italy Austria Enrichm Australia Armenia Denmark 👡 Taiwar Hungary. Portugal Korea Mexico 🛰 Norway Brazil Greece Spain Argentina Netherlands Brazil Denma Crotia Switzerland Germany Palestine $\rightarrow$ $\rightarrow$ : $\uparrow$ Receiving $\rightarrow$ : $\uparrow$ Sendina Russia Romania Canada Finland Mexico Norway

# Objectives

- Identification and network representation of key WMD expertise
- Identifying key experts by region (organization, city, country)
- Detecting trends and changes in WMD expertise over time

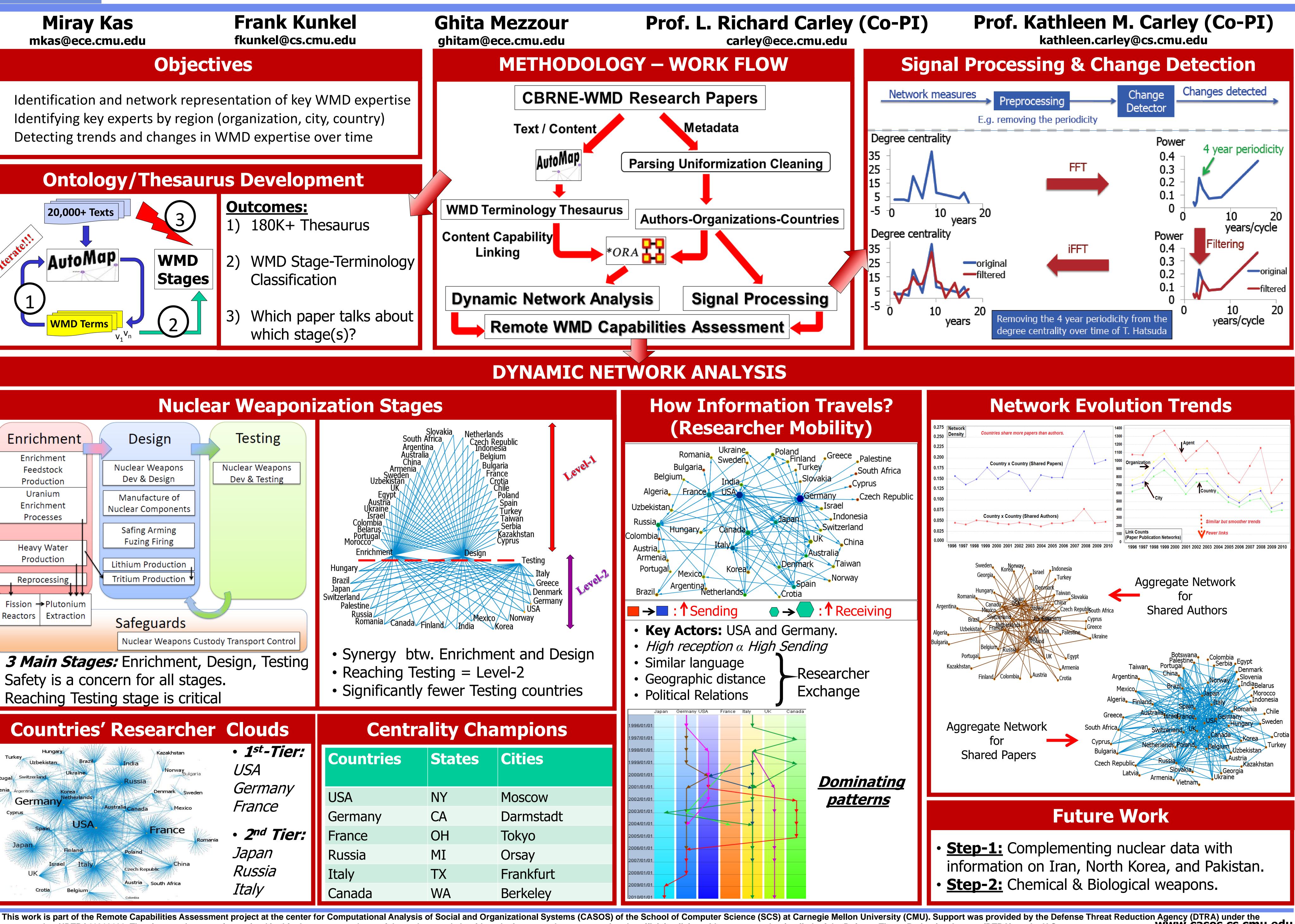




- Synergy btw. Enrichment and Design • Reaching Testing = Level-2
- Significantly fewer Testing countries

S	<b>Centrality Champions</b>			1996/01/01
ier:	Countries	States	Cities	1998/01/01 1999/01/01 2000/01/01
ny	USA	NY	Moscow	2000/01/01 2001/01/01 2002/01/01
	Germany	CA	Darmstadt	2003/01/01
ïer:	France	OH	Tokyo	2005/01/01
	Russia	MI	Orsay	2006/01/01
	Italy	TX	Frankfurt	2008/01/01
	Canada	WA	Berkeley	2009/01/01 2010/01/01

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