

# Accelerating Capital

Growing the Greater Lansing Region through Rare Isotope Beams

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## What is the Facility for Rare Isotope Beams?



Source: FRIB

The Facility for Rare Isotope Beams (FRIB) will be a new national and international user facility for nuclear science. Located on campus and operated by MSU, FRIB will provide intense beams of rare isotopes (that is, short-lived nuclei not normally found on Earth). FRIB will enable scientists to make discoveries about the properties of these rare isotopes in order to better understand the physics of nuclei, nuclear astrophysics, fundamental interactions, and applications for society. (University, 2014).

### What's the Big Deal with the F-RIB?

"A beam of particles is a very useful tool. A beam of the right particles with the right energy at the right intensity can shrink a tumor, produce cleaner energy, spot suspicious cargo, make a better radial tire, clean up dirty drinking water, map a protein, study a nuclear explosion, design a new drug, or discover the secrets of the universe." (Accelerators for America's Future, p. 4)

### About our Client, Lansing Economic Area Partnership, Inc. (LEAP)

The Lansing Economic Area Partnership LEAP is a coalition of area leaders committed to building a prosperous and vibrant region where businesses can thrive. To do this, we help entrepreneurs start new businesses, help existing businesses grow, and attract new businesses to the region.

## Case Studies

### LOCATION



Source: CERN Courier



Source: MSU Today



Source: MSU Today



Source: JLab



Source: Interactions



Source: NSCL

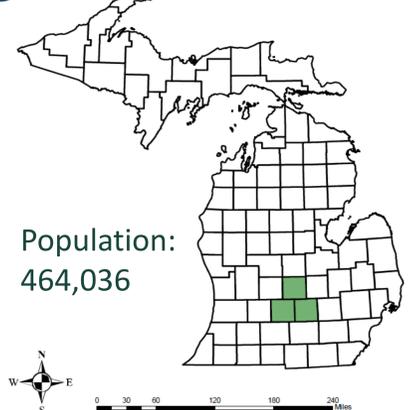
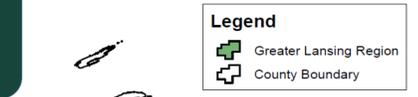
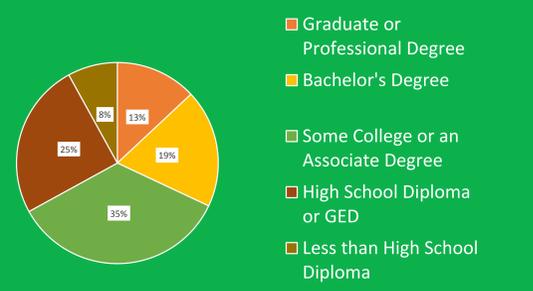
In science, there is no second place for the Nobel Prize, and no reward for repeating experiments already completed by others. Remaining on the cutting edge of science is vital to the long term existence of TRIUMF (TRIUMF Five-Year Plan, 11)

## Methodology

Our research corresponded with the Greater Lansing Region utilizing United States 2000 and 2010 Census data, along with recent American Community Survey (ACS) five-year estimates. We then generated a literature review which discusses how universities can play a role in knowledge and high-technology transfer, specifically in regard to regional economic impact. The case study facilities were selected based on their similarity in either size or scope to the F-RIB at MSU. Three cases are from outside the Greater Lansing Region, these are TRIUMF in Vancouver, Canada, Fermilab outside of Chicago, Illinois, and the Jefferson Laboratory (J-Lab) which is based in Newport News, Virginia. The fourth case analyzed was the National Superconducting Cyclotron Laboratory (NSCL) based at MSU. For each site, research was done by reviewing information that has already been published (e.g. plans, reports, analyses, etc.) as well as an attempt to contact persons from each facility.

## Accelerating Capital Region

### Educational Attainment



Indicators/ Data Variables	TRIUMF	J-LAB	FERMILAB	NSCL
# Incubators in the region	5	2	N/A	N/A
# Spin-Offs (10 yrs.)	6	2	N/A	4
# Full-Time Employees (FTE)	340	720	1,757	240
# Patents (10 yrs.)	30	85	8	N/A
# Conferences (Annually)	Average 7-11 per year	6	24	3-4
Visiting Researchers (Per yr.)	500 (10-15 per day)	1,250	2,300 (in year 2010)	200
Conference Attendees (Per yr.)	1,000 – 1,500	80	1,581	300
Royalties? (10 yrs.)	\$17,279,000 (FY2002-03 – FY2012-13)	\$606,512 (8 year period)	N/A	\$100,000
Temporary Construction Jobs	N/A	N/A	N/A	N/A
Operating Funding (Per yr.)	2013 (\$86 million) 2014 est. (\$74 million)	\$100 million	2010 (\$478.3 million)	\$22.5 million

Variables	TRIUMF	J-LAB	FERMILAB	NSCL
Intellectual Property Assistance	X	X	X	X
Partners/Public Private Partnership (PPP)	X	X	X	
Hazard Mitigation Plan	X	X	X	X
University Partnership	X	X	X	X
Venture Capital Fund	X		X	

## Recommendations

Action Item	Responsible Party	Timeframe
Develop a <u>branding / marketing strategy</u> for the F-RIB & Greater Lansing Region	Educational Institution, Regional Economic Development Organization	Short-Term (Less than 2 years)
Review existing regional <u>incubator facilities</u> and existing capacity, determine future demand	Regional Economic Development Organization	
Prepare a <u>Hazard Mitigation</u> strategy for the F-RIB	Educational Institution	Medium-Term (2-5 years)
Hold a series of <u>community meetings</u> to receive input regarding F-RIB and potential regional impact	Regional Economic Development Organization, Government Entity	Ongoing (for 5 or more years)
Establish an F-RIB specific ongoing analytics and measurement plan with regional indicators of barriers and success	Educational Institution, Regional Economic Development Organization	
Hold <u>Accelerator Task Force</u> meetings to engage all interested stakeholders at a regional level	Regional Economic Development Organization	
Determine the feasibility of <u>MSU and Lansing Community College (LCC) specific degree programs</u> related to entrepreneurship, co-operatives, and accelerator technology	Educational Institution, Regional Economic Development Organization	

Source: United States Census American Community Survey 2008