System Downtime: Global Analysis
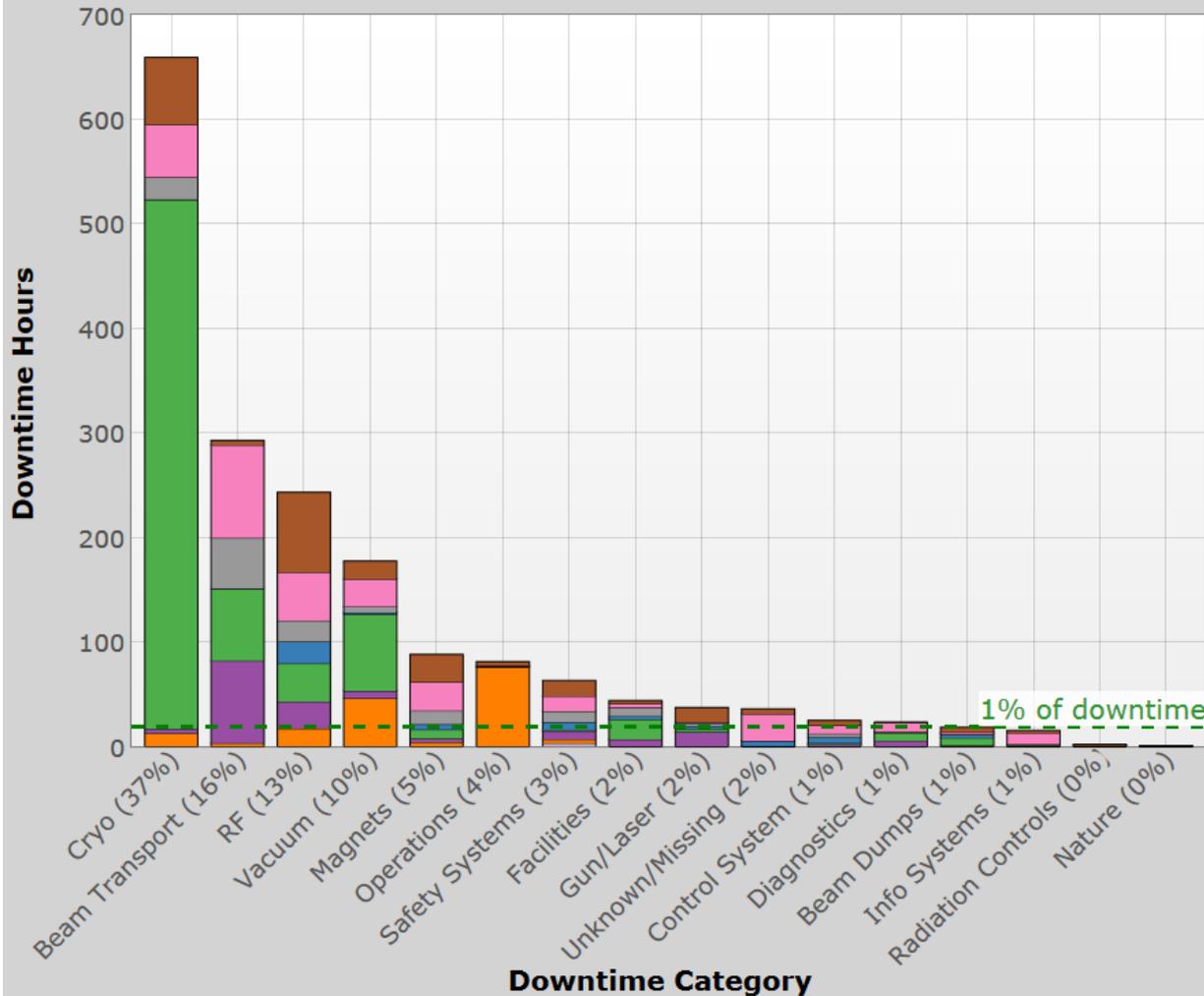
Randy Michaud

"Stay-Treat July 16, 2015"

FY2015

Accelerator System Repair Report

October 1, 2014 - October 1, 2015

	Hrs	%
Oct 2014	244	14%
Nov 2014	315	17%
Dec 2014	134	7%
Feb 2015	56	3%
Mar 2015	735	41%
Apr 2015	157	9%
May 2015	161	9%
Jun 2015	3	0%
Total:	**1,805**	

Data Driven Decisions

Without data you're just another person with an opinion.

- W. Edwards Deming, engineer, statistician, author, consultant

Plan – Do- Check- Act - Repeat

Metrics are for doing,
not for staring.
Never measure just
because you can.
Measure to learn.
Measure to fix.

Tracking System Downtime…

- Is a major investment.
- Is a team effort.
- Is controversial.
- Is not the same across all machines.
- Is not perfect, but improving.
- Is how we monitor systems health.
- Is where we identify improvements.
- Is how we set goals to be better.

Accelerators for America's Future

The Department of Energy's Office of Science has launched an initiative to encourage breakthroughs in accelerator science and their translation into applications for the nation's health, wealth, and security.

2010 Report highlights topics from an inaugural workshop, sponsored by the Office of High Energy Physics. (Link to Accelerators for America's Future Report)

Potential uses for Accelerator Technology	
•shrink a tumor	•diagnose a disease
•produce cleaner energy	•reduce nuclear waste
•spot suspicious cargo	•detect an art forgery
•make a better radial tire	•implant ions in a semiconductor
•clean up dirty drinking water	•prospect for oil
•map a protein	•date an archaeological find
•study a nuclear explosion	•package a Thanksgiving turkey
•design a new drug	•discover the secrets of the universe

What's the big deal?

Reliability – the future will be determined by how we conquer that obstacle.

Areas of R&D identified by each working group. All areas are of importance to each working group. Color coding indicates areas with greatest impact.

Challenge the Status Quo

"If everyone is thinking alike, then **somebody isn't thinking.**"
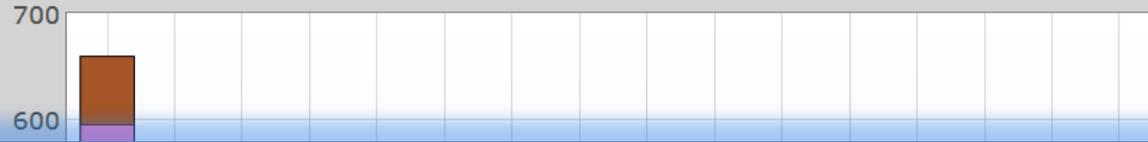- General George Patton

It is up to us

- **Set system by system goals to improve.**
  - 99% reliable? Great – go for 99.1%
- **Without risk, there is no reward.**
  - Think outside the box; create and innovate.
- **What you measure, you can improve.**
  - Use the data we collect; help make it better
- **Pay attention to system and overall performance.**
  - Team work to develop metrics, tools, ideas
- **If it was easy, everyone would do it.**
  - Overcome challenges; funding, technology, time are always going to be obstacles
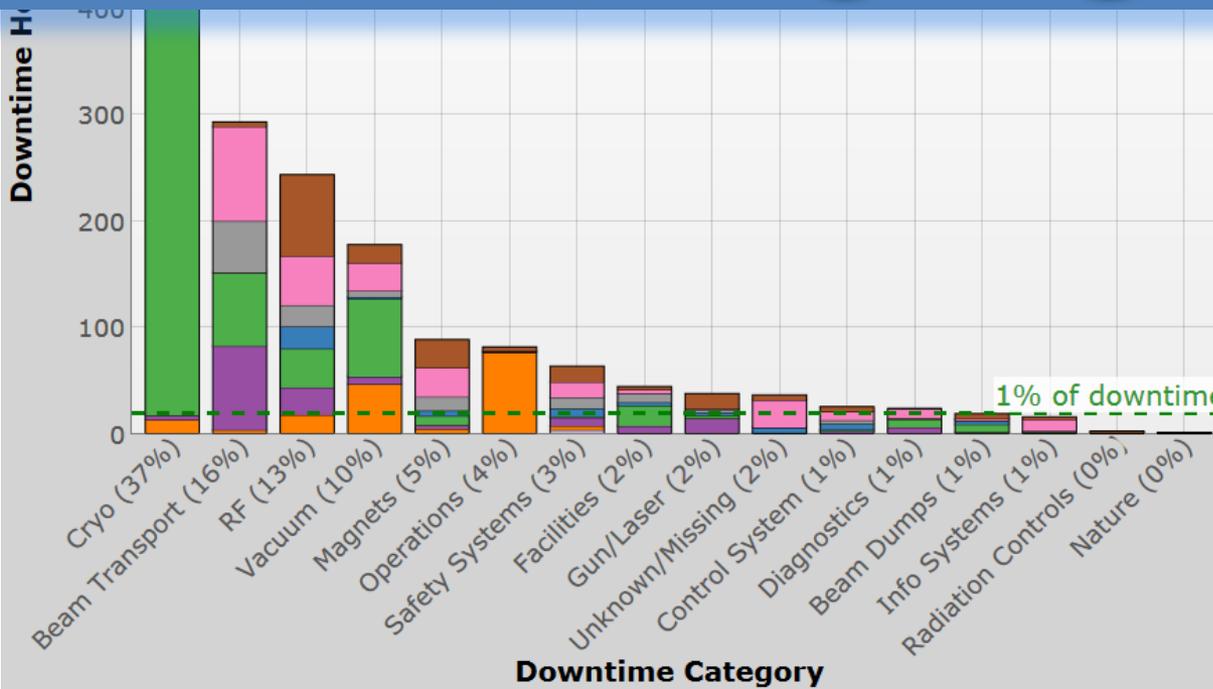
Discussion

Accelerator System Repair Report
October 1, 2014 - October 1, 2015

What are we going to do!?!