Research That Matters

Heilmeier Catechism
(DARPA questions)

What are you trying to do? Articulate your objectives using absolutely no jargon.

How is it done today, and what are the limits of current practice?

What is new in your approach and why do you think it will be successful?

Who cares? If you succeed, what difference will it make?
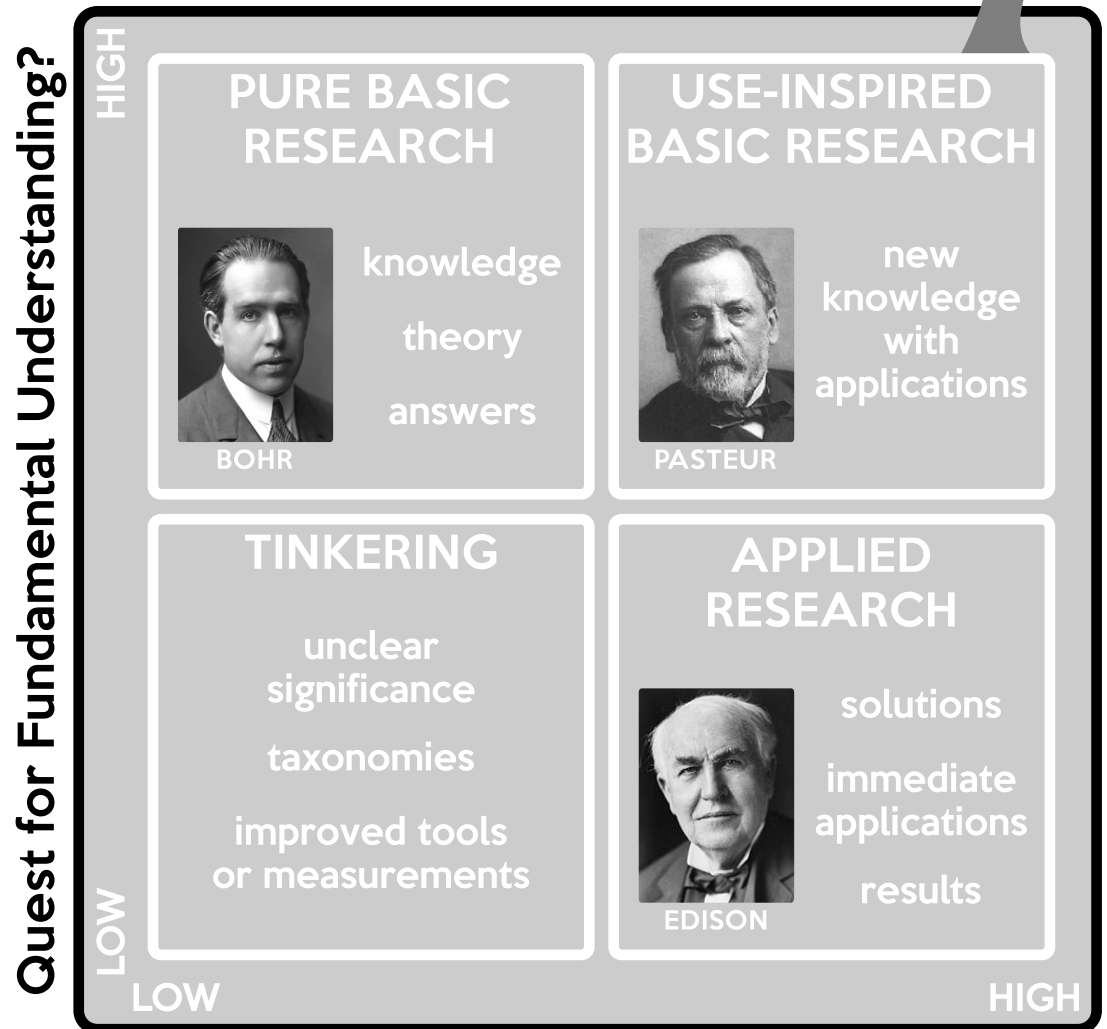
What are the risks?

How much will it cost?

How long will it take?

What are the mid-term and final "exams" to check for success?

For Machine Learning applications: Do scientists in these disciplines even need such a model? Do they publish about this subject in their journals?

Pasteur's Quadrant

Quest for Fundamental Understanding?

HIGH

Consideration for Use?

LOW — HIGH

PURE BASIC RESEARCH BOHR — knowledge / theory / answers	**USE-INSPIRED BASIC RESEARCH** PASTEUR — new knowledge with applications
TINKERING — unclear significance / taxonomies / improved tools or measurements	**APPLIED RESEARCH** EDISON — solutions / immediate applications / results