

# Evaluation, Organizational Change, and Evaluation Capacity Building at the Federal Railroad Administration

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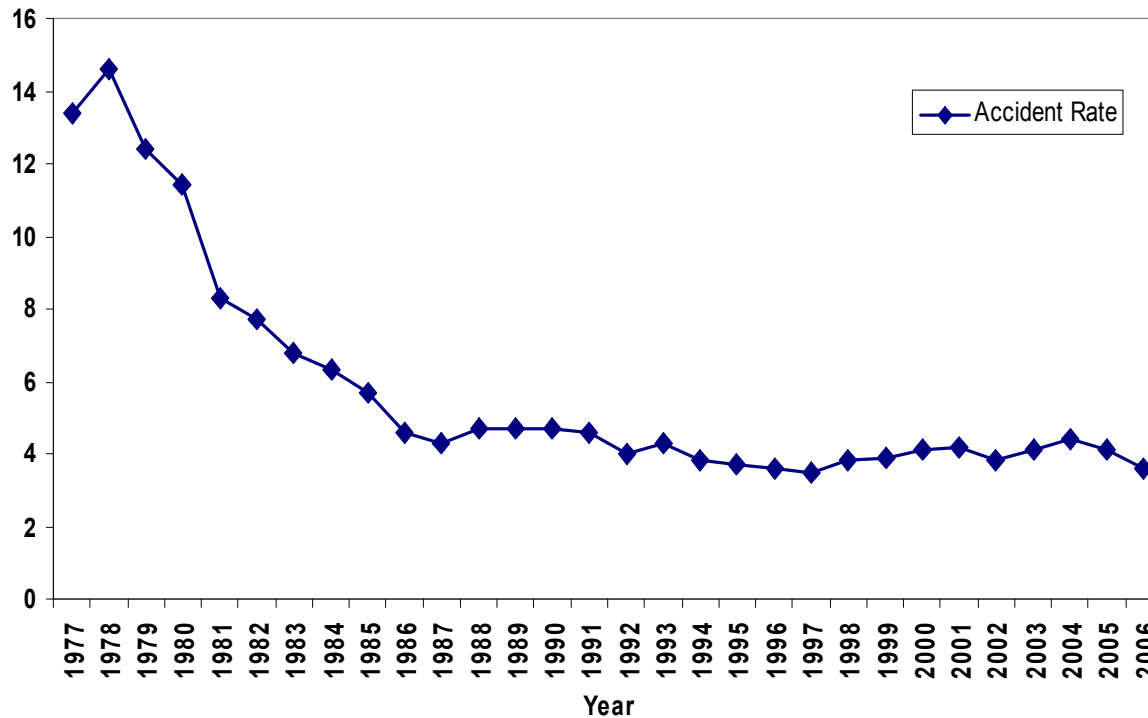
**Abstract:** The Federal Railroad Administration has been engaged in three related streams of activity: evaluating innovative safety programs, organizational change, and evaluation capacity building. What began as a single evaluation developed into a comparative evaluation of several different ways to achieve the same end. As these programs were deployed, they coalesced into an organizational change within the agency—a change that in itself had evaluation requirements. All this activity led to an emphasis on data-informed decision making and the evaluation capacity needed to support it. This presentation will summarize each of these three activities and how they interacted with one another.

# U.S. Railroad Industry in Context

- Militaristic culture
- Federal Employer's Liability Act
- Adversarial relations
- Lack of trust
  - Labor
  - Management
  - FRA
- Within this context, safety has been improving

# U.S Railroad Industry: Assessing the Need for Change

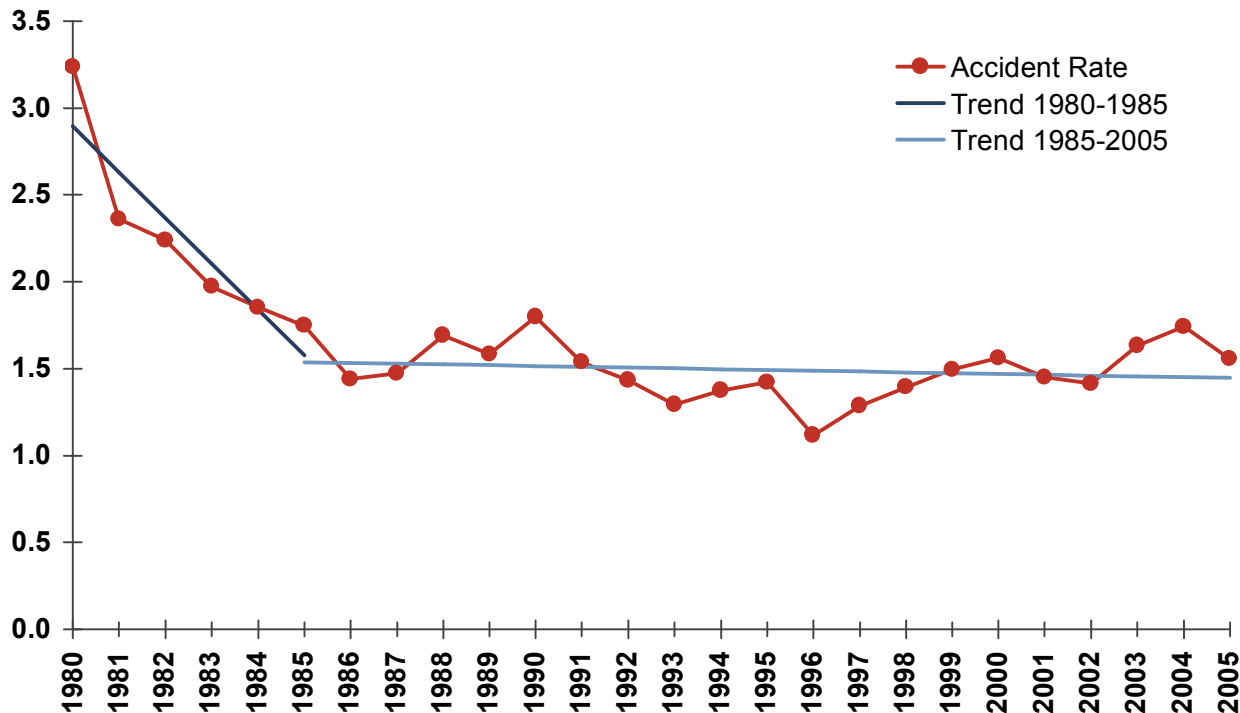
Train Accidents/Incidents per Million Train Miles



- **Over 50% reduction from 1977-85**
- **Little change from 1985 to present**

# Human Factor Accidents

Human Factors-Caused Accidents Per Million Train-Miles



While the decrease between 1980 and 1985 is significant ( $t(4) = -.910, p < .05$ ), there is insufficient evidence to suggest the rate decreased between 1985 and 2005 ( $t(19) = -.115, p > .05$ )

- Over 50% reduction from 1977-85
- Little change from 1985 to present

## Origins of Change Efforts

- FRA determined that for further improvement, new approaches need to emphasize voluntary behavior and organizational change rather than changes in technology, regulation, or enforcement
- Over the past five (?) years FRA has implemented three (?) independent innovations, each with its own evaluation.
  - Behavioral based safety
  - Confidential Close Call Reporting System
- These programs have four common themes
  - Problem identification
  - Non-threatening exchange of information
  - Cooperative labor/management root cause problem solving
  - Exclusion of emphasis on blame and punishment

# Current Understanding of the Change Challenge

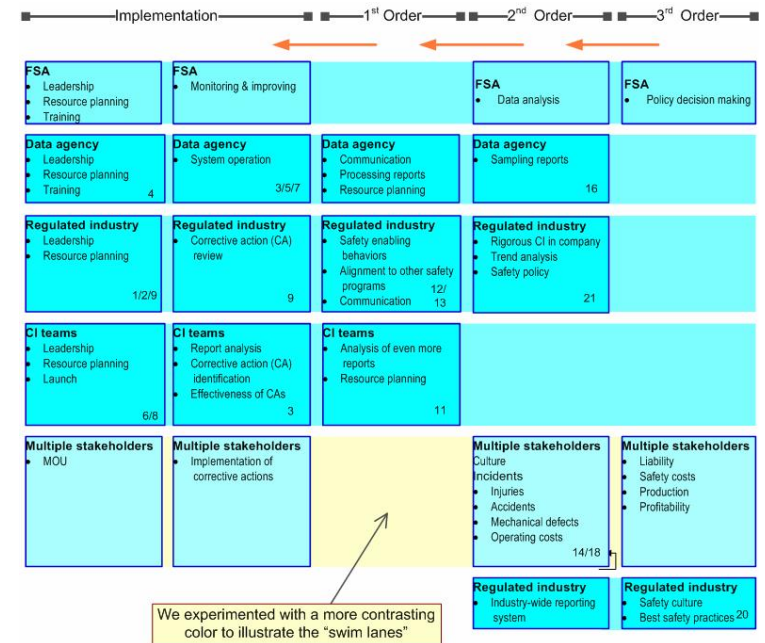
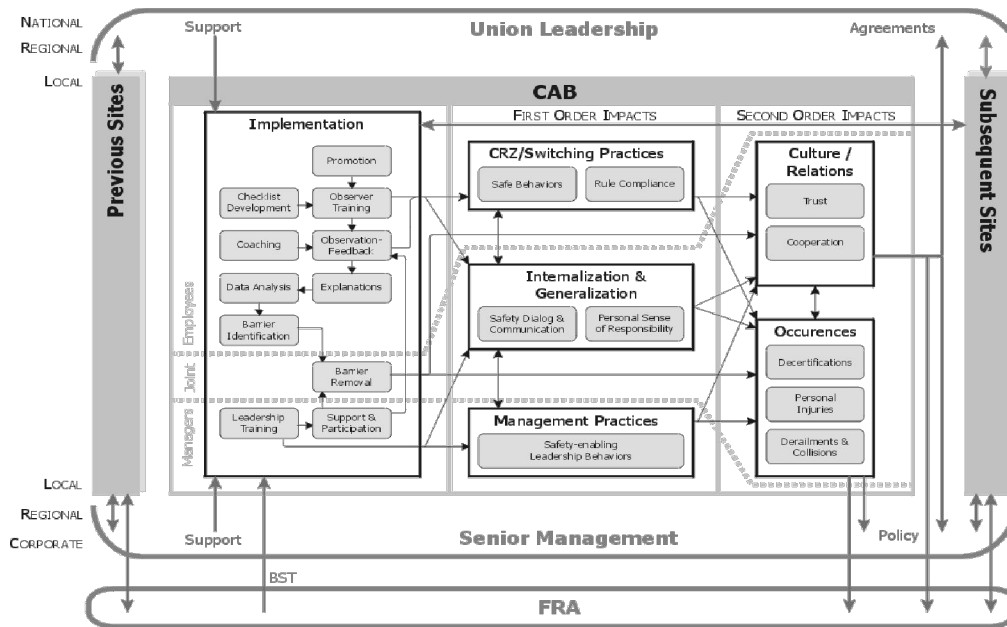
- Each program has similarities and differences
- Sustained change requires a systematic approach to innovation
- Long term viability of the new approach requires that innovations come from the industry, not the FRA
- Any new program suggested by a railroad will be context-specific, but will have to be exportable to the industry as a whole
- The FRA must play a role in eliciting ideas, evaluating them, and exporting them
- If industry is to adopt a new approach to safety, complementary change must take place within the FRA

# Program Evolution: Consequences for Evaluation

- The evaluation had to move from
  - Testing a few discrete innovations, to
  - A comparative evaluation of related system-wide changes
- The evaluation challenge is to assess
  - Each innovation in its own right:
    - implementation,
    - Impact,
    - sustainability
  - Change within the FRA
  - Relationship between change in the industry and change in the FRA
- Separate evaluations are underway
- We need to retrofit these evaluations so that
  - The integrity of each evaluation is maintained, but which also
  - Provides an overall system view
- The approach can be expressed in logic model form

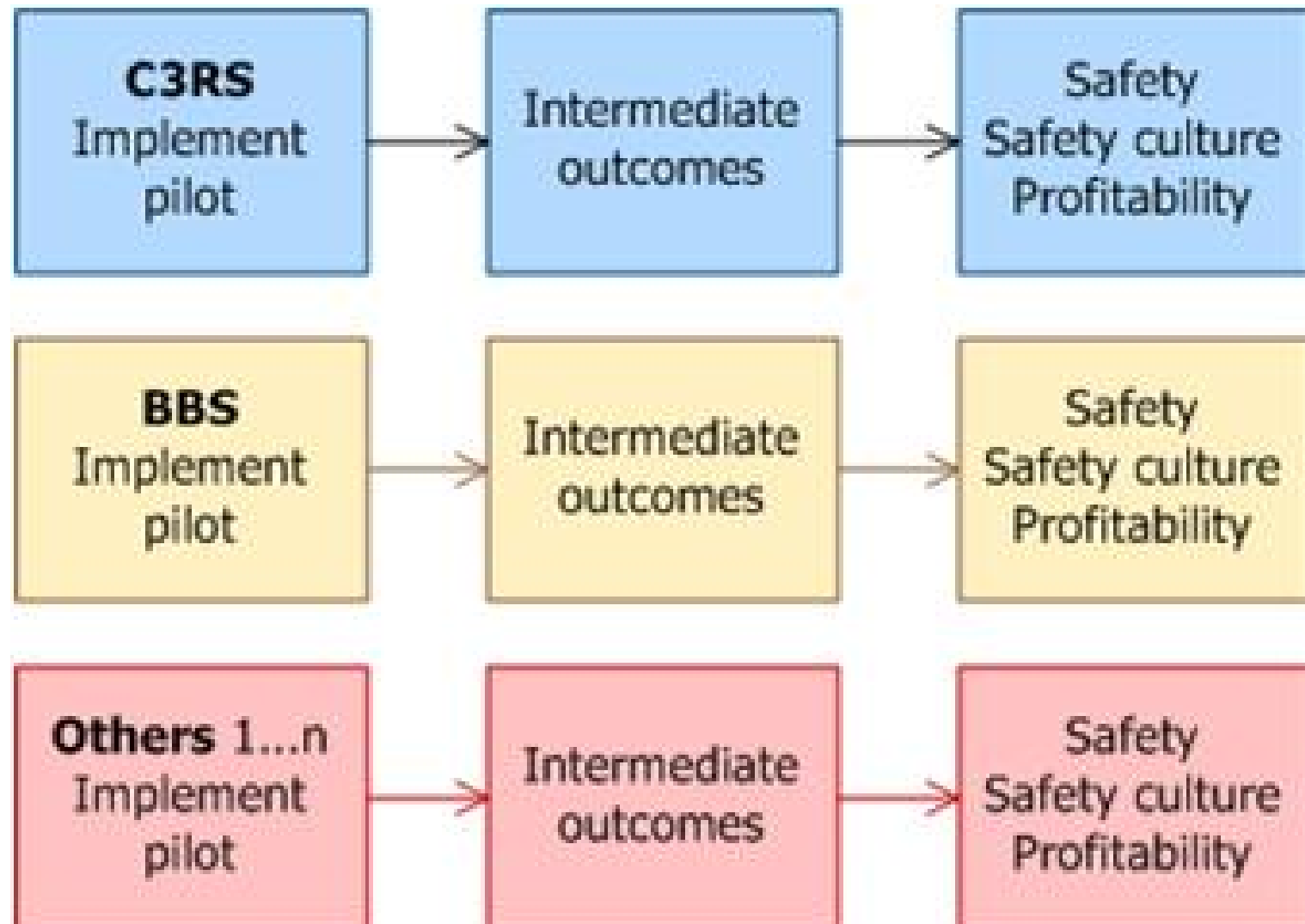


# Step 1: Begin With The Individual Program Logic Models

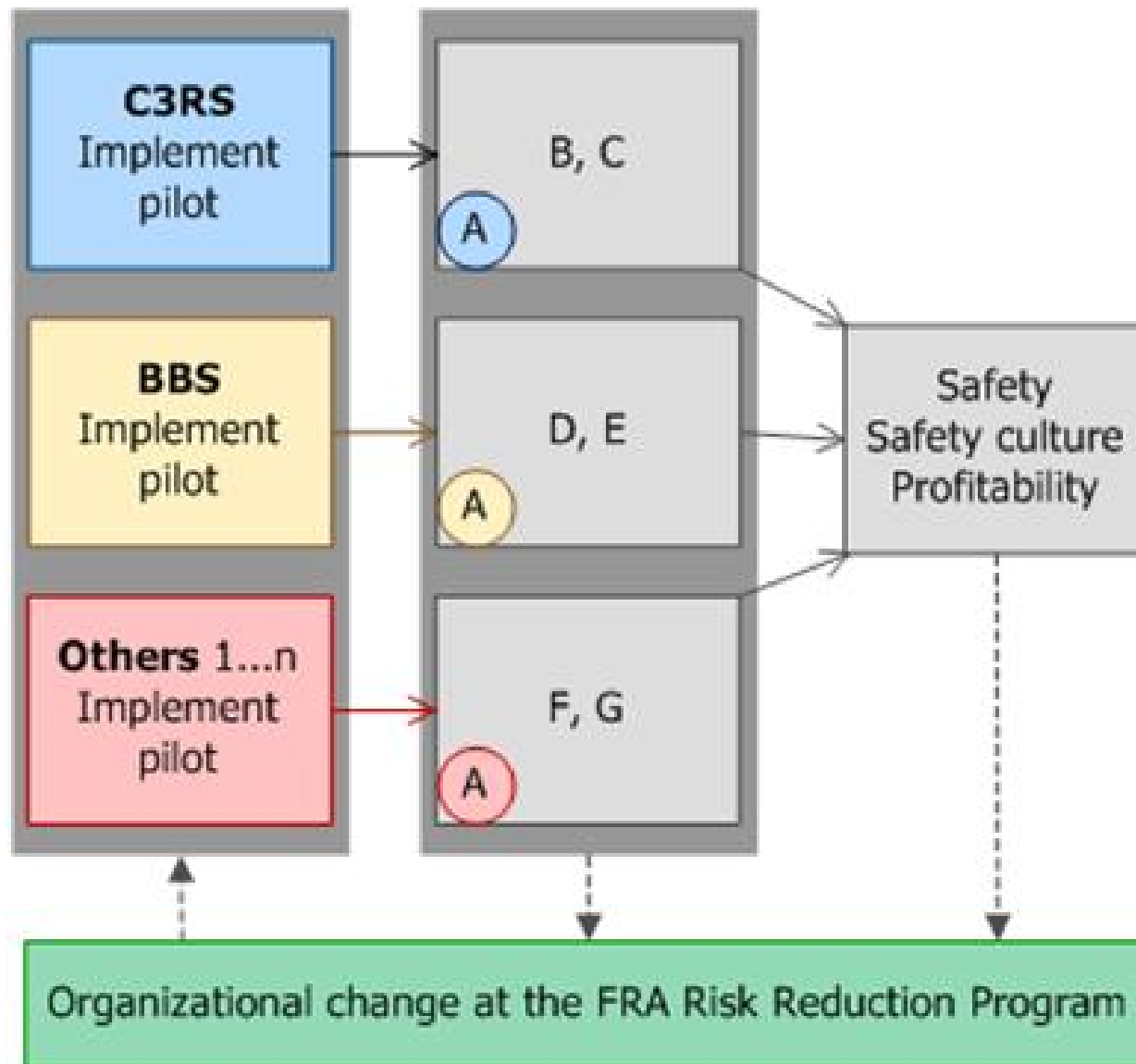


Long run sustainability of safety program and Outside influences

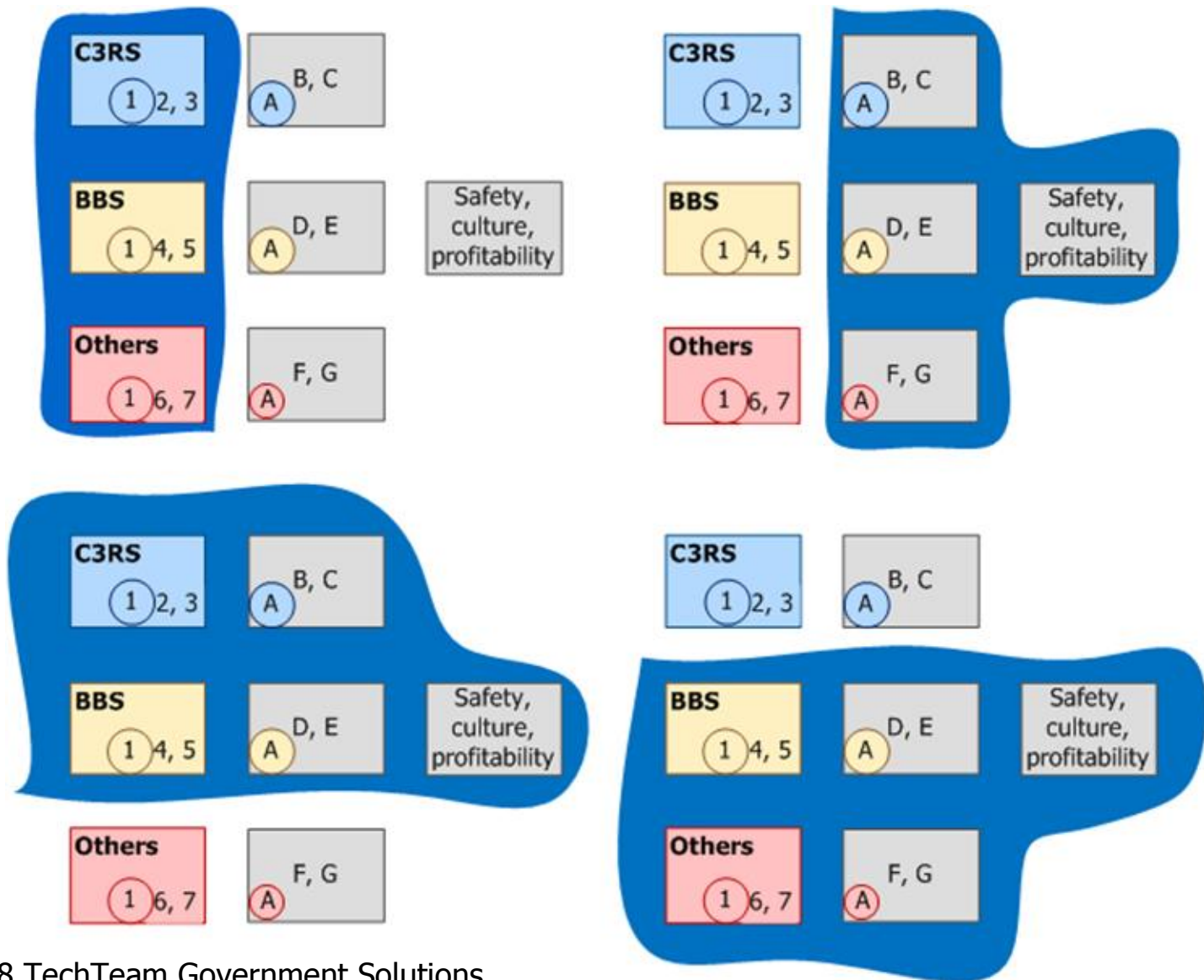
## Step 2: Recast Each individual Logic Models in a Simple Common Form



Step 3: Recast the individual models to show common and unique:  
1) program elements, 2) intermediate and 3) long-term outcomes.



Step 4: Choose useful longitudinal and cross-sectional comparisons that are not accounted for in any of the original evaluation plans



## Step 5: Expand evaluation to understand how changes in the industry affect the regulatory agency

