



Turning Knowledge into Practice

Research Triangle Park, North Carolina



A Web Enabled Analysis Tool (WEAT) for the BRFSS

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Presentation Outline

- Background on the BRFSS
- Overview of WEAT
- CDC Specifications
- Concept Development
- Prototype Development
- Demonstration
- Scalability and extensibility
- PHIN Standards and the WEAT

Development Team

- CDC Behavioral Surveillance Branch
 - ◆ Ruth Jiles
 - ◆ Ali Mokdad
- SAS
 - ◆ Rob Carscadden
 - ◆ Michael Celii
 - ◆ Kay Obenshain
- RTI International
 - ◆ Liz Dean
 - ◆ Joe Eyerman
 - ◆ Laura Flicker
 - ◆ Fred Huebner
 - ◆ Joey Morris
 - ◆ Keith Wurst
 - ◆ Dea Zullo

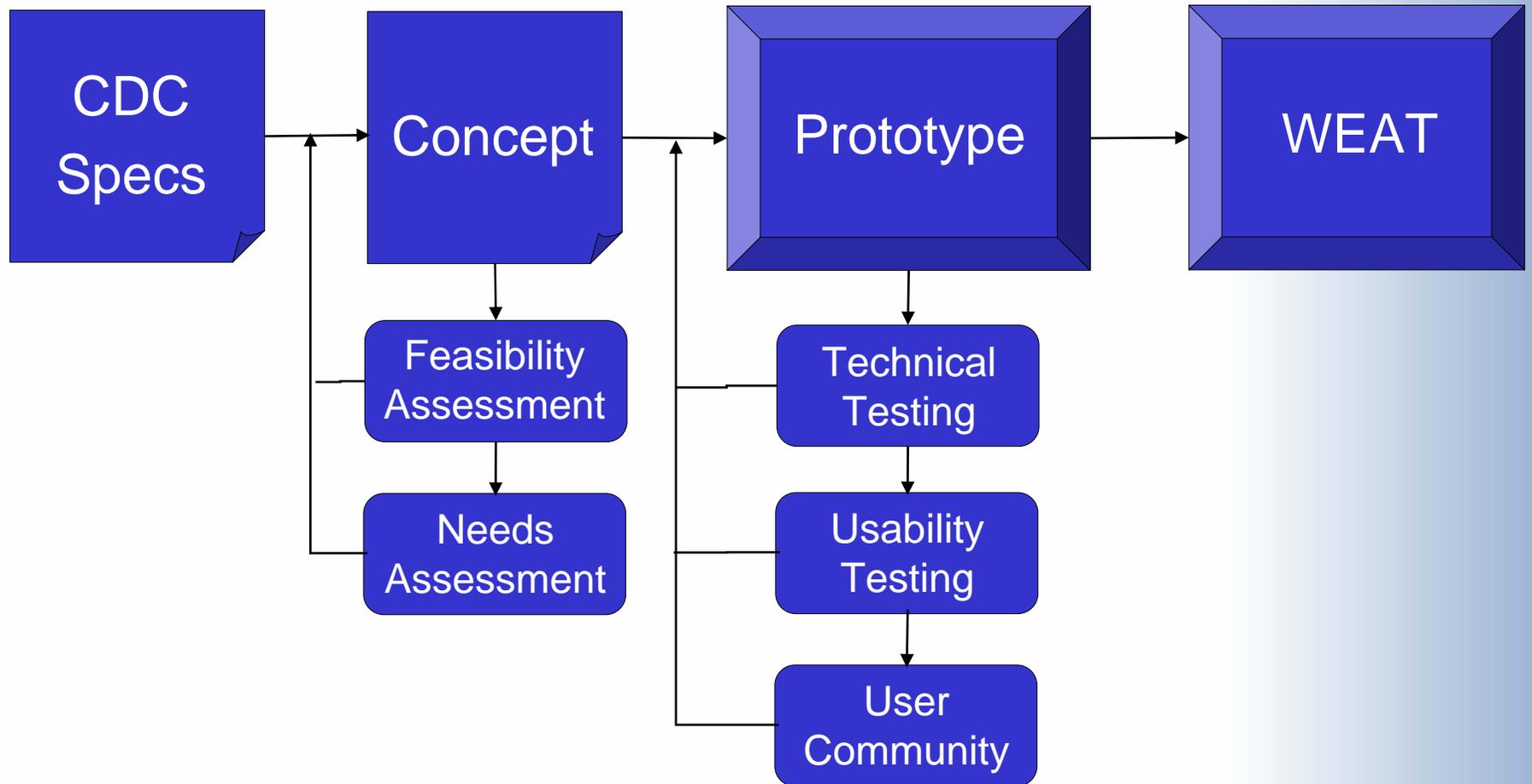
BRFSS

- Behavioral Risk Factor Surveillance System (BRFSS)
 - ◆ The world's largest telephone survey
 - ◆ Random digit dial
 - ◆ All 50 states and DC, Puerto Rico, and the Virgin Islands (53)
 - ◆ Began in 1984
 - ◆ Core national questionnaire with optional modules
 - ◆ Complex sample design
 - ◆ States can add sample and questions

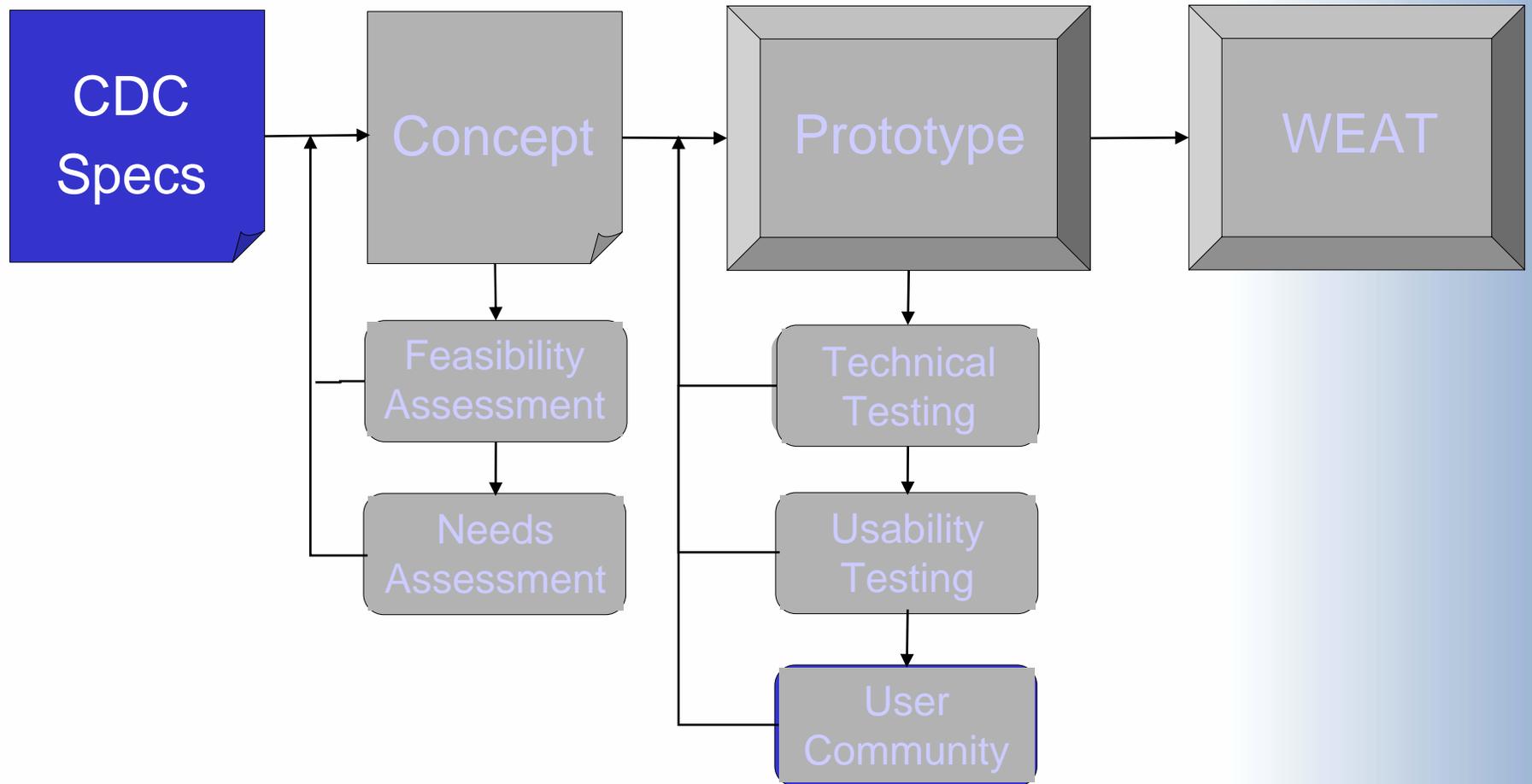
Overview of WEAT

- CDC has made the data available on the web as a SAS data file for several years (public use files)
- The intended end users for these data are
 - ◆ State and local public health officers
 - ◆ Government policy makers
 - ◆ University researchers
- The health officers and the policy makers generally relied on staff statisticians to download and analyze the public use files
- CDC wanted a tool that allowed end users to conduct preliminary and exploratory analysis prior to contacting the statistician
- CDC asked RTI to develop a prototype that could meet this need

Development Process



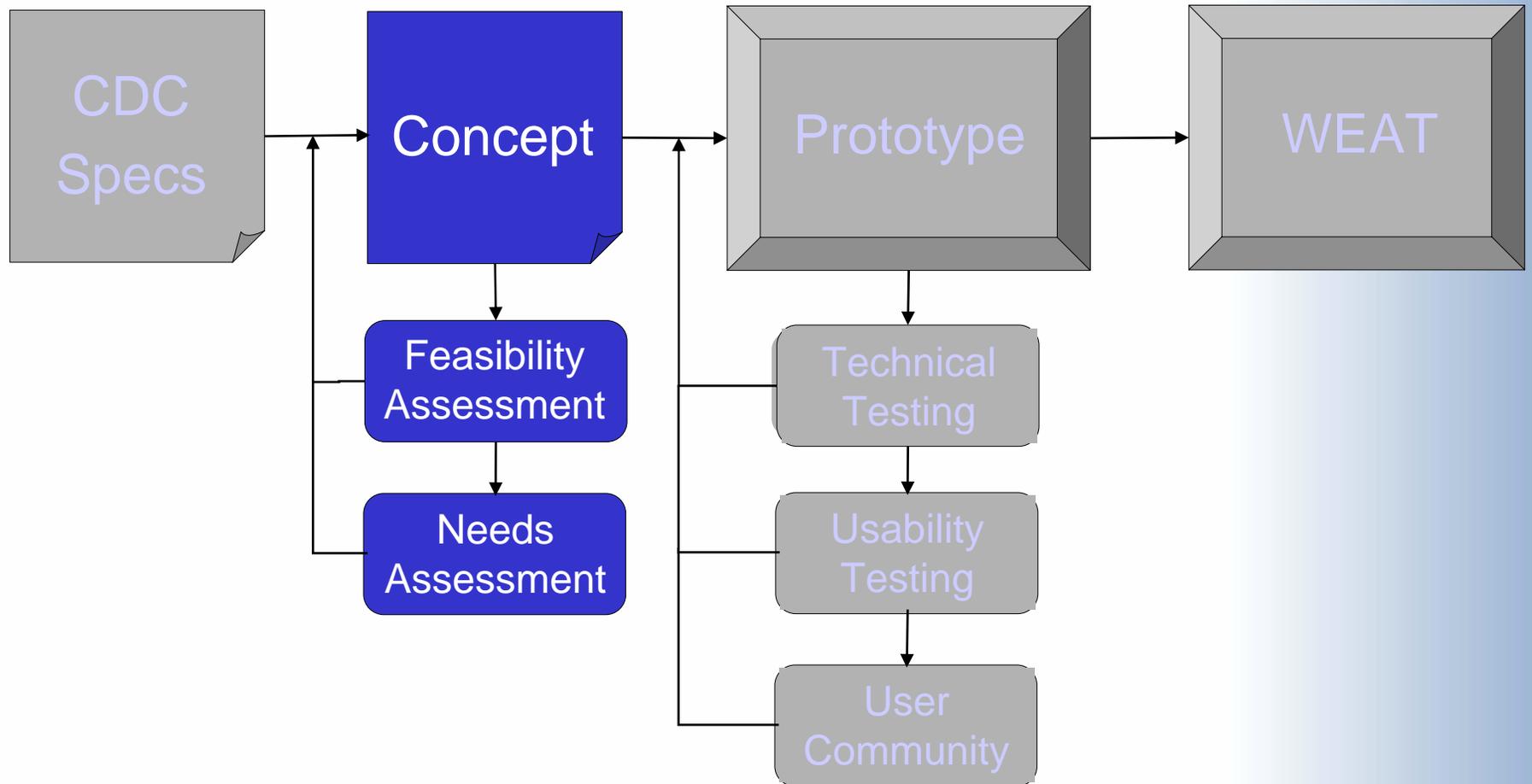
Development Process



CDC Specifications

- Usable tool
 - ◆ Point and click on the web
 - ◆ Reflect the needs of actual BRFSS data users
- Real time statistical analysis
 - ◆ 2-way cross tabs stratified by a third and fourth variable
 - ◆ Logistic regression
 - ◆ Correct standard errors with a complex survey design
- Scalable and extensible
 - ◆ Additional data years and surveys
 - ◆ Additional statistical techniques

Development Process



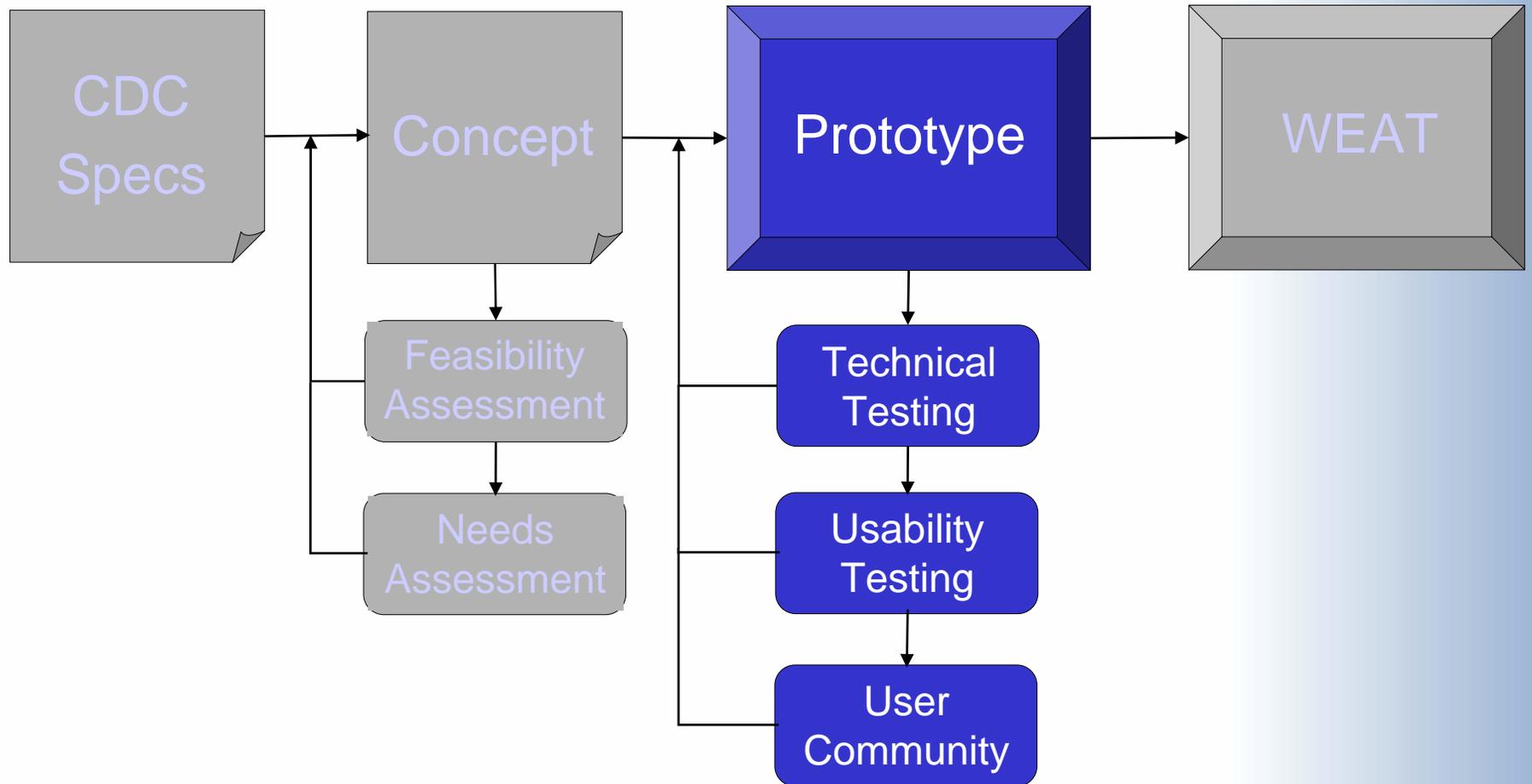
Concept Development

- Translated CDC specifications into concept document
 - ◆ Analyst, statistician, and programmer developed a concept document
- Conducted needs assessment with typical end users
- Evaluated the feasibility of the concept
 - ◆ Compared to existing systems
 - Few used real time analysis
 - None used robust standard errors
 - ◆ Assessed software options
 - No 'off the shelf' options were available during development

Concept Development

- Primary challenge
 - ◆ Develop a web enabled front end for SUDAAN that is friendly to the novice analyst and can be accessed through the web
 - budget
 - schedule

Development Process



Prototype Development

- SUDAAN and SAS are complimentary software packages
 - ◆ SUDAAN provided the capability to compute robust standard errors using a Taylor series linearization method
 - ◆ SAS IntrNet provided a web enabled interface for SUDAAN that met the functional requirements of the end users
- RTI and SAS are complimentary teams
 - ◆ The RTI team contributed a detailed knowledge of the BRFSS project and the client, public health statistics and analysis, survey design and reporting, and the needs of the end users
 - ◆ The SAS team contributed the ability to quickly and inexpensively combine SAS IntrNet and SUDAAN into an efficient web application that satisfied the client specifications

Prototype Development

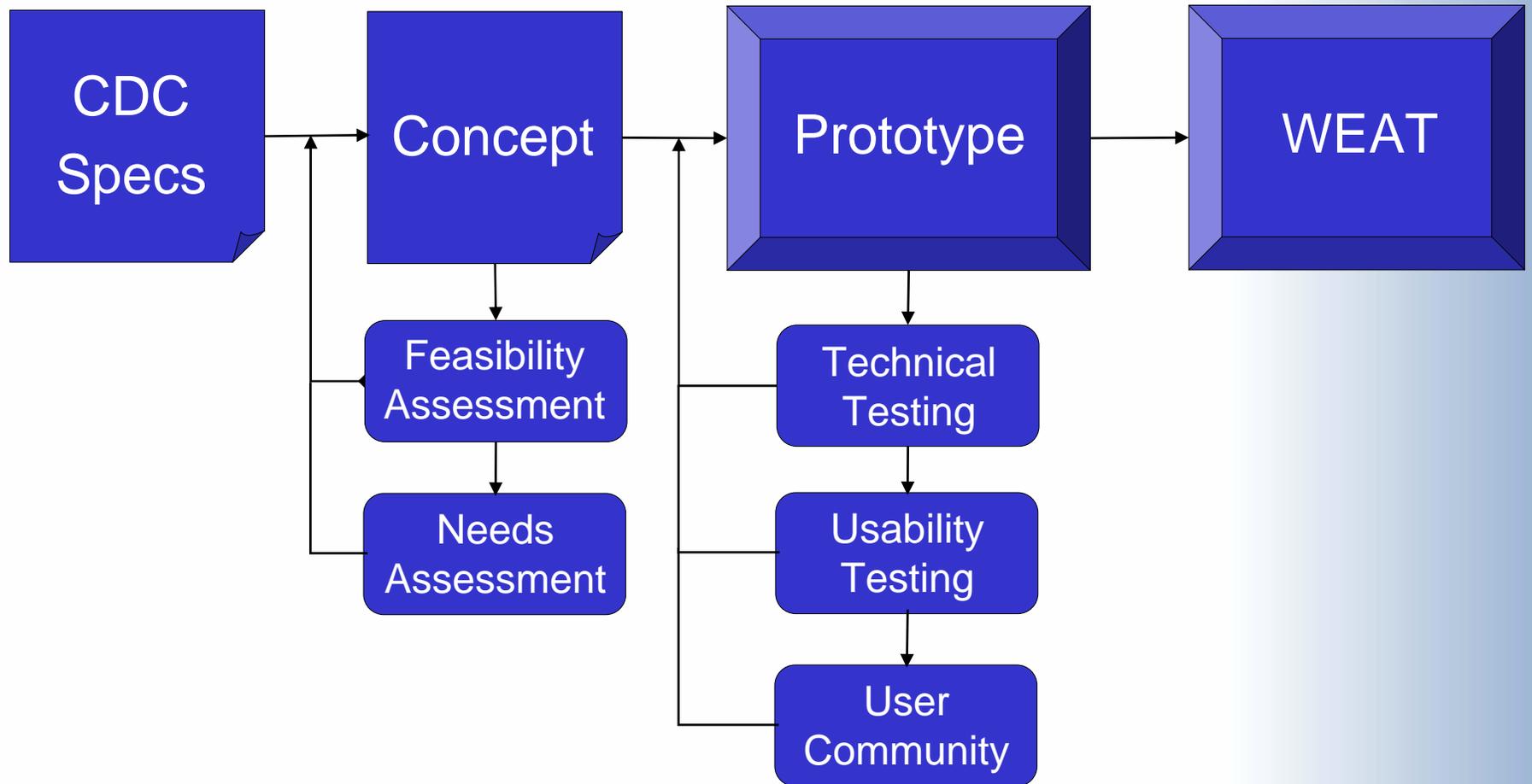
- Technical testing (internal)
- Usability testing – 2 rounds
 - ◆ Round 1 evaluated the prototype
 - ◆ Round 2 will validate changes made as a result of Round 1
- End-user community input
 - ◆ BRFSS conference presentation and demonstration at RTI booth

Demonstration

- Cross Tabulations
- Logistic Regression

WEAT DEMO (BRFSS)

Development Process



Scalability and Extensibility

- Additional statistical techniques and functions
 - ◆ Differences of means
 - ◆ Regression with continuous dependent variables
 - ◆ Data management options (user initiated recodes, interaction terms, etc.)
 - ◆ Small area estimation
 - ◆ GIS and other graphical reporting

Scalability and Extensibility

- Additional data series
 - ◆ Pool multiple years of data into an analysis file
 - ◆ Expand the current analysis file (recodes, etc.)
 - ◆ Include data from state modules
- Additional end user input
 - ◆ IT 'Health Check' survey to assess IT needs of end users
 - State and local public health
 - hardware and software capabilities
 - ◆ Continuing feedback from end users as they use the tool

PHIN Standards and the WEAT

- Potential value for WEAT reporting using PHIN standards and requirements
 - ◆ Internet based interface
 - ◆ Role-enabled, allowing public or restricted access from single data source
 - ◆ Dynamic, data-driven, real-time reporting
 - ◆ Hardware and software independent
 - ◆ Easily incorporates standardized tables and codes

PHIN Standards and the WEAT

- WEAT provides flexible analytics
 - ◆ Uses SUDAAN, SAS, or other statistical analysis package
 - ◆ Concentration on data and models rather than programming
- SAS-based interface ensures compatibility with NEDSS
- Capitalizes on flexible SAS outputs

Contact Information

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