

Cost Range Model (CRM)

Documenting potential future use cases of the application

November 2022

VA



U.S. Department
of Veterans Affairs

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Cost Range Model | Executive Summary

The Cost Range Model (CRM) was developed to provide the U.S. Department of Veterans Affairs (VA) with a tool to provide capital planners, decision makers, and executives rough order of magnitude (ROM) estimates for the cost of infrastructure modernization. The tool includes dynamic assumptions, allowing for multiple scenarios and the ability to define modernization cost spectrums from the station to the enterprise level.

To improve the user experience and to make the CRM a scalable application, the web-based tool has been enhanced with additional service planning considerations, has been updated with current data, and has a new code base to allow for future feature development.

Sources

- VA Capital Asset Inventory (CAI) Database (Building, Floor, Leases, Land, Facility Condition Assessment, Functional, Station)
- Veterans Health Administration (VHA) Chief Strategy Office (CSO) Enrollment and Forecasting, Budget Year 2019 Strategic Planning Category (SPC) Parent Facility Utilization Projections
- The VA Office of Construction and Facilities Management (CFM) VAMC Unit Cost Guide
- VHA Space Calculator - Logic and Assumptions
- VHA Veteran Support Service Center's (VSSC) Veteran Administration Site Tracking (VAST)

Outputs

- Rough order of magnitude cost estimate for augmenting existing infrastructure to better align with derived scenarios, based on CFM cost guidance
- Drill-down reporting, allowing for facility, Market, VISN, and VHA views and a total system roll-up to provide talking points regarding costs to modernize VHA infrastructure and align to a more progressive modernization track

Cost Range Model (CRM) Overview

What is the Cost Range Model?

Value Proposition

The CRM allows users to define facility goals and develop scenarios to estimate required capital investment through space configuration and cost estimation functionality of the tool. The CRM employs an algorithm to determine colocation, consolidation, and reconfiguration of space, as well as other operation efficiencies when evaluating potential future capital requirements.

What does the CRM do?

Provides estimates for the cost of infrastructure modernization including considering workload adjustments, facilities right-sizing, and scenario planning

How has it been used?

Determining ROM estimates for capital requirements to provide decision makers and stakeholders a more comprehensive understanding of costs to achieve modernization

What does the output show?

Generates a break down of space requirements, renovation costs, and cost to construct new, owned, and leased facilities based on workload projections and user defined assumptions

Evolution of the Cost Range Model

Decision Support Tool (March 2022)

- Improved speed and usability
- Advanced to a more robust decision support tool
- Allows for user defined assumptions and initial application of scenario planning
- Generated modernization requirements to validate VA Recommendations against Status Quo and Modernization COA's

CRM 3.0 Scalable Software Platform (Conceptual Future Model)

CRM 2.1 Enhanced Web Tool (Updated Model)

Application Redesign and Service Level Enhancements (November 2022)

- New technology and data model to support a more scalable platform
- Reusability of baseline scenarios
- VHA level scenario planning
- Provides updated network-wide ROM modernization costs

Advanced Software for Planning and Cost Estimation (DATE TBD)

- Multi-phased planning application
- Evolved from a decision support tool to a scalable and flexible software product
- Broad application to market- and facility-level planning across VISN and VAMC planning teams

CRM 2.0 Web-based Tool (Current Model)

CRM 1.0 Excel Model

Budget Narrative Calculator (October 2019)

- Space and cost estimation tool developed to present to leadership magnitude of investment required to bring facilities portfolio to modern standards
- VA needed to model ROM cost estimates for capital requirements to provide decision makers and stakeholders a more comprehensive understanding of costs to achieve modernization

Current Model Applications

CRM 2.0 Core Capabilities – Current State

Capital ROM Cost Estimation

- Develop budget needs to achieve modernization for current facilities portfolio
- Assess impact of potential future projects and quantify space required for service level adjustments
- Provides cost estimates to support pre-planning/business case development

Budget Narrative Support

- Provides limited cost estimates for *capital* requirements to give a more comprehensive understanding of costs to achieve modernization

Scenario Planning

- The tool can help support decision making (e.g., shifting of services, potential consolidation of care)
- Allows site-specific workload allocation

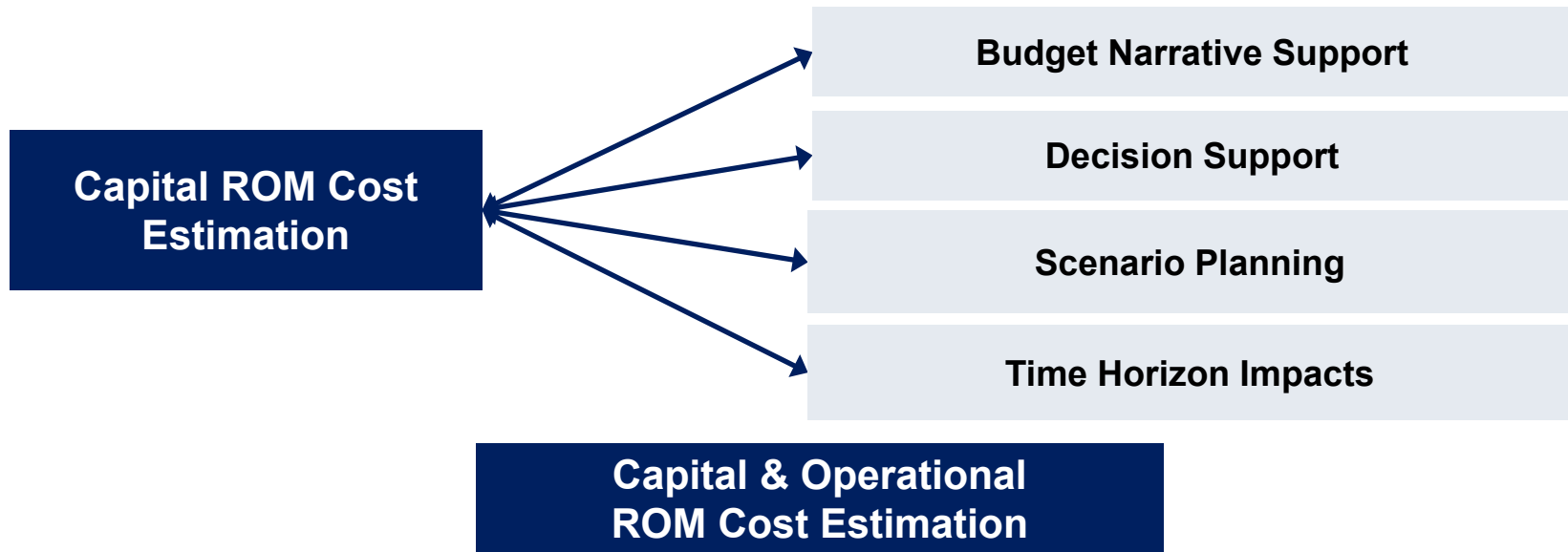
Decision Support

- Analytical framework allows users to validate decisions when conducting strategic market, facilities, service delivery, and or capital planning

Future Model Applications

Outlining the purpose and overall scope of the CRM's intended use

Building on CRM's Core Capabilities



CRM 2.0 (Current Model)

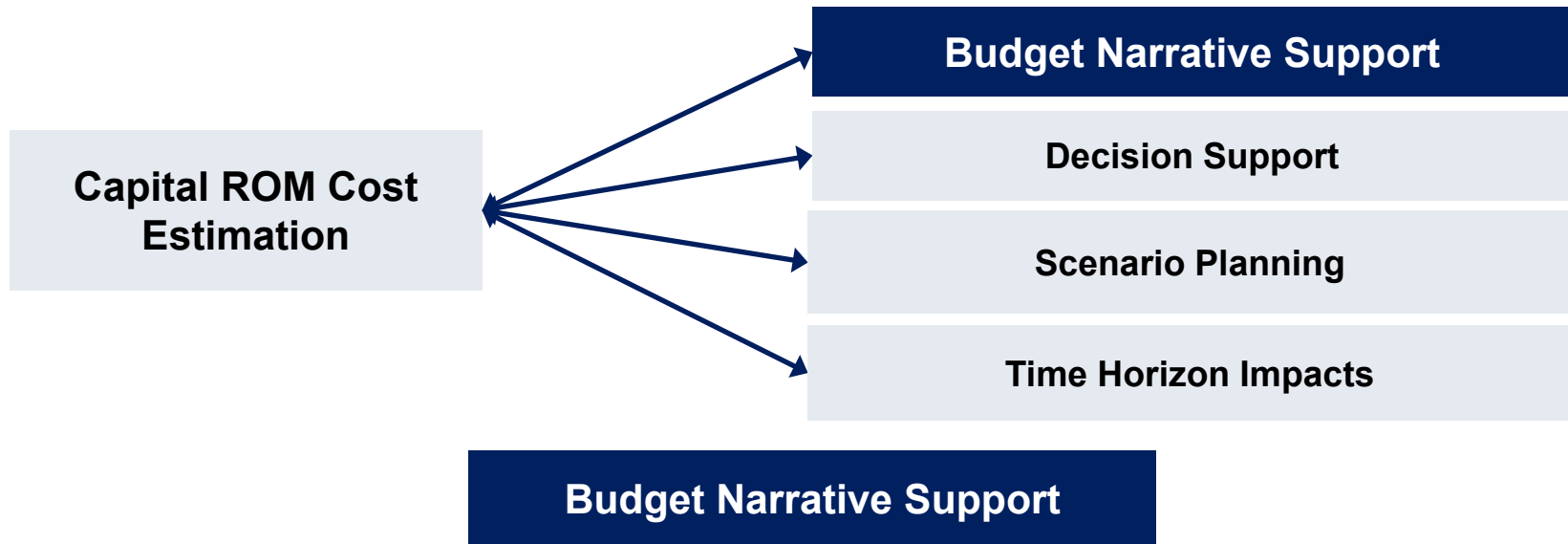
- Develop budget needs for *capital costs* to achieve modernization of current facilities portfolio
- Assess impact of potential future projects and quantify space required for service level adjustments
- Provides cost estimates to support pre-planning/business case development



CRM 3.0 (Conceptual Model)

- Estimate healthcare delivery costs in addition to capital costs. Obtaining and implementing VA and non-VA healthcare unit costs in the CRM, would make this the first singular VA tool to be able to plan from workload, to space, to cost

Building on CRM's Core Capabilities, cont.



CRM 2.0 (Current Model)

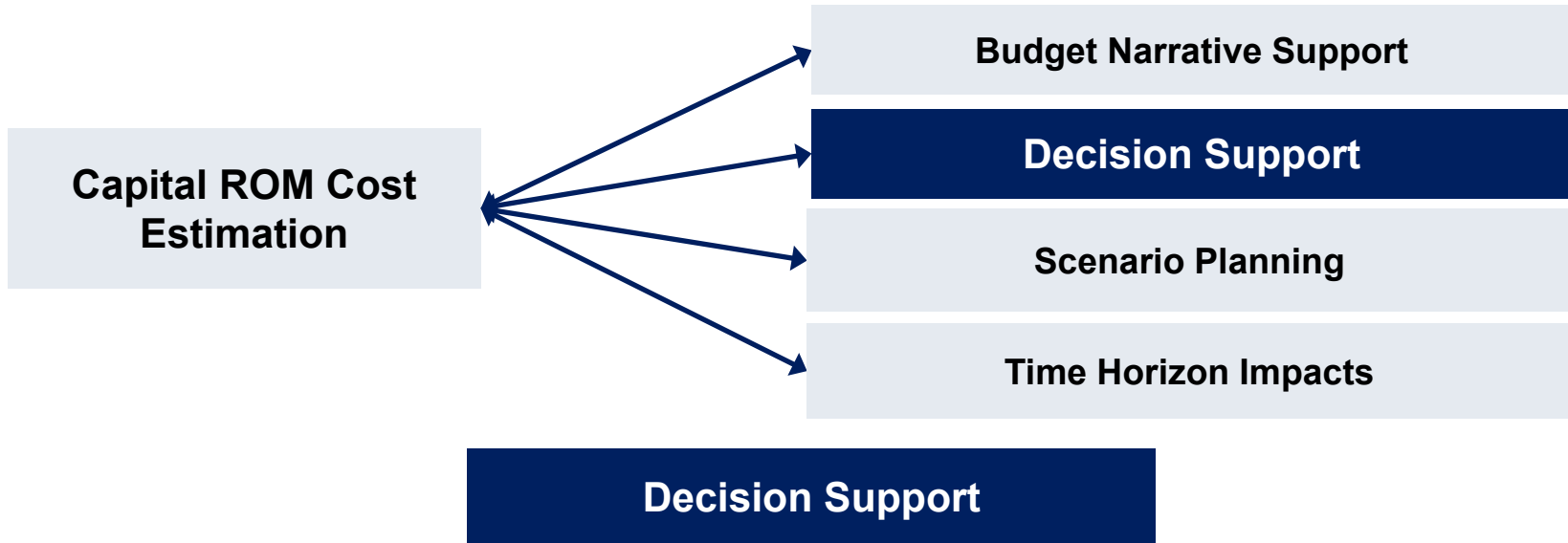
- Provides limited cost estimates for *capital* requirements to give a more comprehensive understanding of costs to achieve modernization



CRM 3.0 (Conceptual Model)

- Can support pre-planning and business case development by measuring timeline and facility life cycle variations
- Can measure opportunity costs of not moving forward with capital investment or service delivery projects

Building on CRM's Core Capabilities, cont.



CRM 2.0 (Current Model)

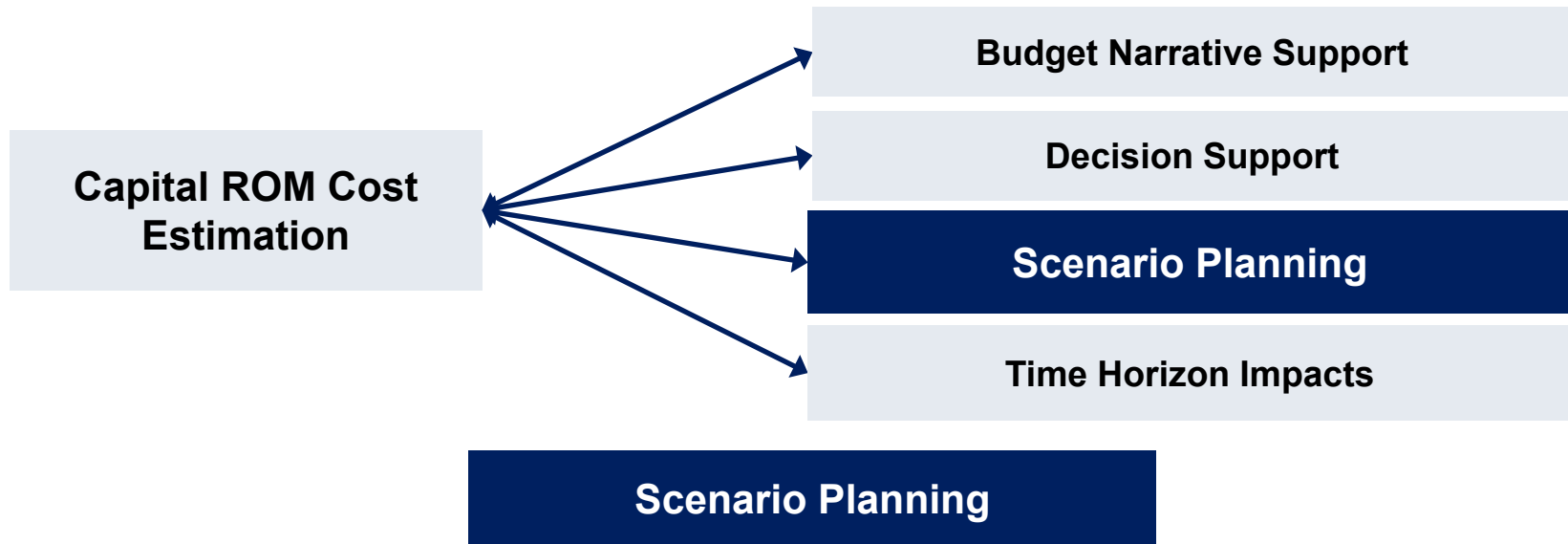
- Analytical framework allows users to validate decisions when conducting strategic market, facilities, service delivery, and or capital planning



CRM 3.0 (Conceptual Model)

- Conduct make vs. buy analyses to determine the appropriate mix of VA provided vs. Community Care based on operational costs and infrastructure capabilities

Building on CRM's Core Capabilities, cont.



CRM 2.0 (Current Model)

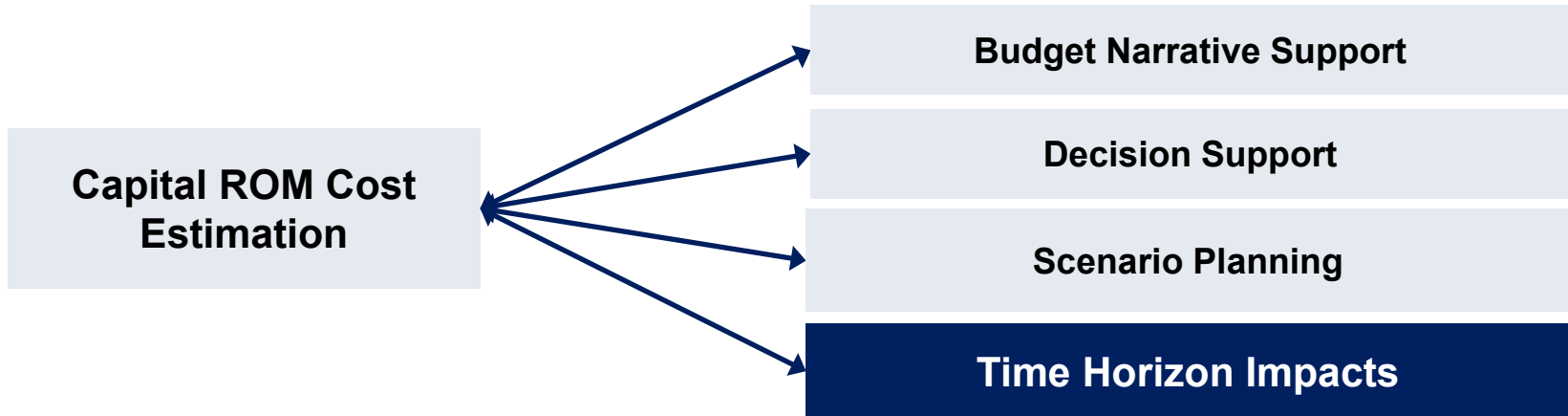
- The tool can help make decisions on the consolidation of care
- Allows site-specific workload allocation



CRM 3.0 (Conceptual Model)

- Model can apply thresholds for service delivery planning
- Model can help stakeholders make decisions on the consolidation of care by measuring impact of pulling in workload from community

Building on CRM's Core Capabilities, cont.



Time Horizon Impacts

CRM 2.0 (Current Model)

- New core capabilities proposed for conceptual model



CRM 3.0 (Conceptual Model)

- Illustrate how estimates for modernization would grow based on cost escalation by parent station
- Illustrate how the balance between VA delivery, VA facility investment, and Community Care costs might shift over time
- Include projections of full costs of ownership including:
 - Initial capital investment
 - Projected lifetime operational and maintenance costs
 - Reinvestments and rehabilitation
 - Disposal and residual value

CRM Use Cases by Office/Level

Stakeholders	Key Value Drivers	Usage
VISN/VAMC Planners/ Leadership	<ul style="list-style-type: none"> Provides a dynamic tool to use to support strategic, market, facility planning Allows planners and field level leadership to conduct scenario planning and support decision making Provides a platform for more accurate planning capital and operational costs 	<ul style="list-style-type: none"> Daily
Facilities (CFM, OAEM, OCAMES)	<ul style="list-style-type: none"> Supports business case development associated with SCIP project development, implementation planning and annual budget Provides platform for facility life cycle planning Portfolio budgeting tool to calculate modernization based on age and usability Can provide ongoing sustainment and modernization costs in addition to overall get-well costs 	<ul style="list-style-type: none"> As needed basis Integration with SCIP and annual budget process
Finance	<ul style="list-style-type: none"> Supports annual budget narrative development Supports decision making on the balance of care between VA and community Provides context for modernization costs 	<ul style="list-style-type: none"> As needed basis Integration with annual budget process
VA/VHA Central Office/Senior Leadership	<ul style="list-style-type: none"> Provides real-time estimates of potential modernization costs including drill-down to region, VISN, parent facility level Can serve as a flexible scenario planning and decision support tool 	<ul style="list-style-type: none"> As needed basis Support budget development
CSO	<ul style="list-style-type: none"> Can support a prioritization model concept into analyzing future potential projects Provides platform for make vs. buy analyses Supports the ability to monitor operational and space efficiencies using a nearly real time dashboard 	<ul style="list-style-type: none"> Integration with SCIP, implementation planning, and strategic prioritization

Strengths Weaknesses Opportunities Threats (SWOT) Analysis

CRM SWOT Analysis - Overview

A Strengths Weaknesses Opportunities Threats (SWOT) analysis of the CRM was developed

The following key themes were identified:

- **Adopt enterprise standards for managing portfolio** to enable:
 - Corporate planning based on enterprise principles and guidelines
 - Proactive maintenance and reinvestment based on replacement schedules
 - Management and tracking to remediate existing and emergent issues
 - Development of more uniform budget requirements
- **Budget more holistically** – centrally consider all life-cycle costs: acquisition (major, minor, leases, Non-Recurring Maintenance, NRM), activation, sustainment, and disposal

CRM SWOT Analysis

Strengths

- Provides decision support capabilities through a dynamic, data-driven planning tool
- Allows for scenario planning across several detail levels, from as small as a treating facility up to the entire portfolio
- Allows understanding of potential costs and opportunity costs for executing a strategic plan
- Aligns well with strategic, market, facilities, service delivery, and/or capital planning

Weaknesses

- Not currently integrated with other planning tools and VA processes – current version of application built with CBA analysts in mind
- Lacking operational cost estimation
- May not be fully intuitive to new CRM users which may delay ability to integrate within daily
- Varied planning processes and skill sets of users may impede broad application of CRM

Opportunities

- If executed fully, this would be the first tool that VA would be able to use for planning from workload, to space, to cost
- Integrate planning processes within annual budget cycles and SCIP development process
- Develop project champion to expand application and potential usage, including building business case for leveraging CRM, other tools
- Align and/or integrate with other planning tools including HSPA, Space Planning Tool

Threats

- Potential inability to establish a project champion, and implement CRM across field planning teams
- Siloed planning processes within each VISN, VAMC that may not align well with CRM capabilities

User Stories and Business Requirements

User Stories – Application Redesign

User Stories	Acceptance Criteria
<p>As a user, I want to have one central place in the application for transitioning workload</p>	<ul style="list-style-type: none"> • The clinical inventory page will be replaced by a SPCAT Override page • After reviewing the facilities in scope, the user will be presented with the wizard to review workload projections and the opportunity to send Clinical Categories to Community or Exit workload totally • The changes made on the Clinical Category wizard will be reflected in the workload allocation wizard
<p>As a user, I want to track how the changes I have made for my analysis are impacting workload projections</p>	<ul style="list-style-type: none"> • There will be a page in the define cost wizard that displays the four different cost categories that make up Community Care costs aggregated at the treating facility level • The user should be able to adjust the unit costs for in-model use
<p>As a user, I want to be able to override capacity calculations and view the impact it has on my space calculations</p>	<ul style="list-style-type: none"> • The user can enter beds, PACT teams, or clinic stops per planning category per facility • Any user provided capacity will override the workload projections • The tool will not build space beyond the capacity set by the user
<p>As a user, I want to be able to modify operational assumptions at any point in the model</p>	<ul style="list-style-type: none"> • The operational assumptions will be in a pop out model • The user can edit the operational assumptions at any point in the model • If the user edits the operational assumptions after space has already been calculated, the model will calculate space requirements again with new user input

User Stories – Application Redesign, cont.

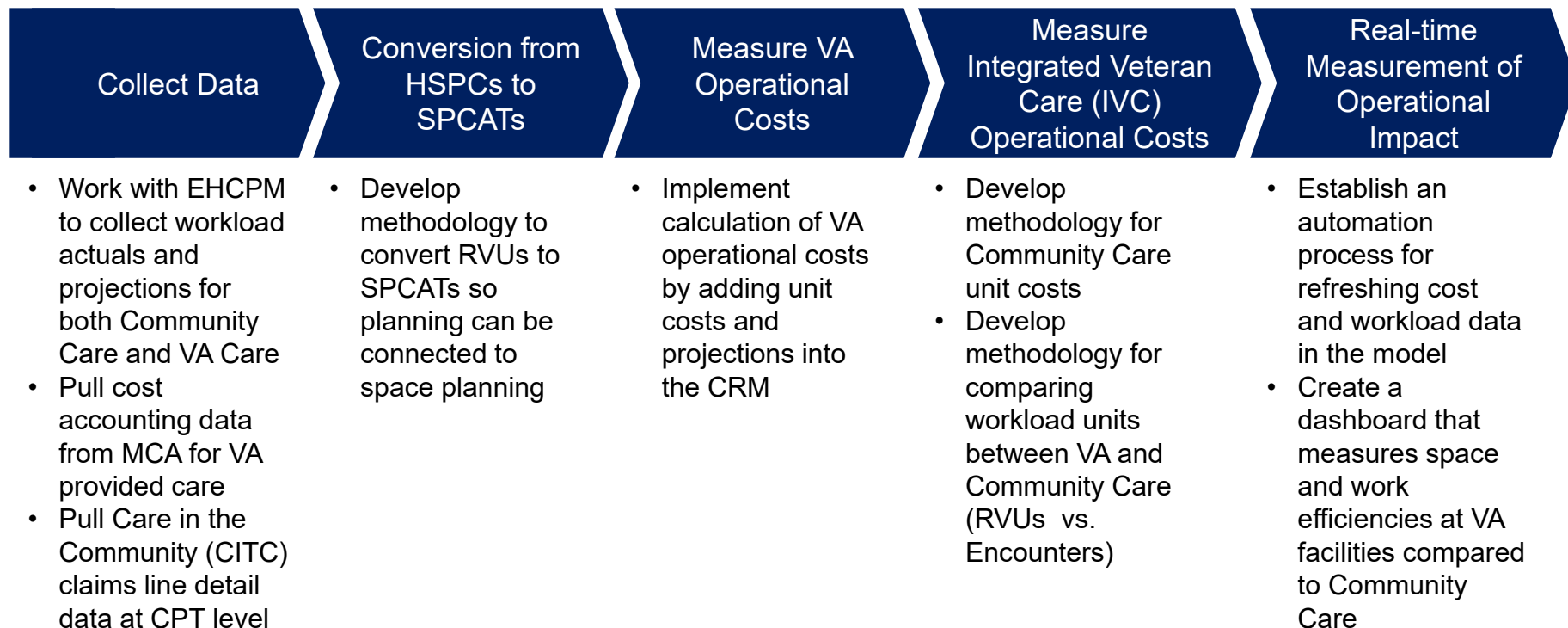
User Stories	Acceptance Criteria
<p>As a user, I want to be able to modify my costing assumptions and unit costs at any points in the model</p>	<ul style="list-style-type: none"> • The facilities costing assumptions and unit costs will be in separate pop out modals • The user can edit the costing assumptions or unit costs at any point in the model • If the user edits the cost assumptions or unit costs after matching has already been done, the model will recalculate final space requirements and costs with the new user input
<p>As a user, I want my inputs to be dynamic, so that I can adjust the model without having to start over</p>	<ul style="list-style-type: none"> • I can go back and make changes at any point in the model • The model should recalculate any space requirements, capacity requirements, and cost based on any changes made • I should be warned if any of my modified inputs conflict with previously entered data
<p>As a user, I want to be able to revisit saved scenarios and modify them without losing any work</p>	<ul style="list-style-type: none"> • Baseline scenarios can be saved for market, VISN, VHA, or station level • Users can build upon baseline scenarios with new assumptions so they can compare outputs
<p>As a user, I want to be able to share results from saved scenarios with my team</p>	<ul style="list-style-type: none"> • Results from analyses will be saved in a central repository • Users can set permissions on who can view or edit a scenario based on role type • Users can share inputs to the model and build upon existing scenarios

User Stories – Application Redesign, cont.

User Stories	Acceptance Criteria
<p>As a user, I want to be able to automatically generate a modernization estimate for the entire VHA</p>	<ul style="list-style-type: none">• Space and cost calculation should be generated for each treating facility with the click of one button• The use does not need to step through the entire model to get an output for modernization estimates• Modernization assumes building facilities to workload projections• Modernization assumes a complete rebuild of facilities older than 50 years• A single report will give the total capital costs for modernization and will break down capital costs required for each treating facility

User Stories – Operational Cost Enhancement

The chart below describes notional implementation steps required to bring a full health care delivery estimation capability into the CRM application. This can be used as a high-level playbook for feature development in future development cycles.



User Stories – Operational Cost Enhancement, cont.

User Stories	Acceptance Criteria
<p>As a user, I want to view and adjust the unit costs for VA in-house care</p>	<ul style="list-style-type: none"> • There will be a page in the define cost wizard that displays the seven different cost categories that make up In-House VA costs aggregated at the treating facility level • The user should be able to adjust the unit costs for in-model use
<p>As a user, I want to view and adjust the unit costs for Community Care</p>	<ul style="list-style-type: none"> • There will be a page in the define cost wizard that displays the four different cost categories that make up Community Care costs aggregated at the treating facility level • The user should be able to adjust the unit costs for in-model use
<p>As a business owner, I want the CRM to be updated frequently with the most current unit costs data</p>	<ul style="list-style-type: none"> • The most current BY Operational Unit Costs Data produced by E&F should be incorporated as an additional data source to the CRM Model
<p>As a user, I want to see the cost of providing care at the treating facility level based on my workload projections</p>	<ul style="list-style-type: none"> • When workload is allocated to a facility, the user should see the total estimated cost of providing each unit of work at that facility • The user should see the estimations dynamically, so they can continue adjusting workload until they arrive at a desired scenario or cost estimate • The user should see the comparison of VA and Community Care costs in a pie chart

User Stories – Operational Cost Enhancement, cont.

User Stories	Acceptance Criteria
<p>As a user, I want to be able to modify the placement of care so that I can compare the capital and operational cost of delivering care at VA vs. Community</p>	<ul style="list-style-type: none">• I should be able to drag and drop strategic planning categories between VA buckets and Community Care buckets on the interface• The application will display the total workload projections between VA and Community Care• The application will display the ROM estimated operating cost based on each user defined adjustment to workload
<p>As a user, I want to see an output that breaks down space requirements and staffing requirements at each treating facility based on user defined adjustments to workload and assumptions</p>	<ul style="list-style-type: none">• A final output of the tool will include an operational cost component• A final output of the tool will include a capital cost component• A final output will combine the two numbers to provide a total required investment• A final output will be saved to the cloud DB for easy retrieval and comparison between user defined scenarios