Instructions

Set Strategic Preferences

Users can:

- **Select “Set My Strategic Preferences”** to instruct the algorithm to rebalance the budget by prioritizing (or de-prioritizing) different elements of US national security strategy—mission, force composition, and posture.

  - **If users choose to set their strategic preferences,** they have seven levers to adjust.
    - Moving the strategic preference sliders to the right places relatively more emphasis on a particular element in the strategy. Moving them to the left places relatively less emphasis on that element.
    - Leaving the sliders unchanged indicates that the current level of emphasis is about right. These sliders are relative to each other, so if they are all shifted in the same amount and direction—positive or negative—the user is indicating no change in relative strategic preferences.
    - If a user moves a slider to a different relative position, the simulator will look for changes in spending that reflect these preferences (after setting the budget below).

  - **To complete this step,** users can select “Submit My Preferences” at the bottom of the page or “Start Over” to go back to the landing page.

- **Alternatively, users can select “Skip to Budget Preferences”** to bypass the strategic sliders and alter the budget without changing current strategic preferences.

- **Users can also select “Skip to Dashboard”** to see an unmodified budget that allows them to alter specific programs without input from the simulator’s algorithm.
Instructions continued

Set Budget Preferences
Next, users can set their budget preferences.

- In the upper right-hand corner of the page, users can find the “Total change over five years” dashboard. This dashboard includes total planned defense spending for the next five years (the “Baseline”), any change by the user (the “Delta”), and total spending after those changes are factored in (the “New budget”).
  - **Moving the sliders** to the right increases the budget for that year relative to the baseline while moving them to the left decreases the budget.
  - Users can move the sliders or **use the “+” and “-” buttons** to choose their exact preferred budget each year.
  - Separately, users can **type their intended delta values** into the “Change from baseline” fields to the right.

Budget numbers reflect the change from the current baseline plan in billions of dollars, so if the sliders are kept neutral, the budget will remain at the current planned spending levels for the next five years. The results from the algorithm may not exactly match user inputs but will be as close as possible given various constraints.

Users should select “Submit Budget” at the bottom of the page when ready or press “Go Back” to return to the strategic preferences page or “Start Over” to return to the landing page.

Recalculating Budget
Please be patient as the Defense Futures Simulator recalculates. Users can choose to stay on this page and wait until the simulator is done recalculating or **enter their email address to receive a notification email** when their new budget is ready, along with a reminder of their inputs.

Alter Specific Programs
Users can alter specific programs manually.

- At the top left of the page, users can find the “Total change over five years” dashboard with the same information as the budget preferences page.

The force structure counts for each service are displayed at the top right of the page. These show each service’s key attributes at the end of the five-year planning period. The number in bold is the new count with the changes currently selected in the simulator; while the number displayed in the red box is the relative change from the current baseline.
Instructions continued

- The Defense Futures Simulator measures the end strength of each service differently. The force structure count for the Army includes only active brigade combat teams. Similarly, the Marine Corps’ count includes active battalions. The Navy force structure count is a summary of battle force ships. The Air Force count displays the total active inventory for aircraft, while the Space Force count is for the number of active satellites. Lastly, the Defense Wide count shows what percentage defense-wide spending accounts for in the total Department of Defense (DoD) budget in bold and the change in funding from the baseline on all included defense-wide programs, rounded to the nearest billion in the red box.

For more detail, users can use the “Budget Breakdown” menu by clicking on the down arrow.

<table>
<thead>
<tr>
<th>Budget Breakdown</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$715 B</td>
</tr>
<tr>
<td>Target</td>
<td>+$2.8 B</td>
</tr>
<tr>
<td>Delta</td>
<td>-60.62 B</td>
</tr>
<tr>
<td>New Budget</td>
<td>$715.62 B</td>
</tr>
</tbody>
</table>

- Green indicates an increase in spending, while red indicates a reduction. Changes over $1 billion are darker in color and accompanied with doublearrows rather than single ones.

On this page, users can edit specific platforms.

- Select a service, category, and subcategory to find platforms, units, or investments available for modification.
  - Once on the page for an individual option, users can click the blue “i” to see a picture and description of that platform, unit, or investment.
  - Users can move the sliders and use the “+” and “−” buttons to choose values between the sliders’ tick marks.

The Defense Futures Simulator includes nine ways to potentially modify programs in the defense budget. However, specific programs only have subsets of options available. For example, users cannot retire platforms that do not yet exist because the program is in the research and development phase. The nine options include:

- **Buy More.** This option allows users to buy additional units of a platform or investment that the United States already procures. This is in addition to the number of platforms or units the DoD already plans to buy in a given year. If a user chooses to buy more of a platform, the system will add the procurement costs in the year the selection is made and the operation and support costs per unit in the year the platform or unit enters service. The system takes into account delays between when something is procured and when it enters service, if applicable. The limit for this option only allows users to, at most, double procurement each year (unless otherwise limited).
  - There are certain platforms that users only need to buy once in order to have them for future years and other platforms that will need to be purchased annually. This depends on the type of money involved. For example, if a user buys a brigade combat team in fiscal year 2022, operation and support costs will be added for all future years and users will retain that team. On the other hand, readiness and research money will need to be bought each year. Users can see this happening as they save their changes to specific platforms and take note of the budget impacts in each year. This is also true for the buy less option.
Instructions continued

- **Buy Less.** This option allows users to buy fewer units of a platform or investment that the United States already procures. This is a reduction relative to what the DoD already planned to procure in a given year. If a user chooses to buy less of a platform, the system subtracts procurement costs in the year the selection is made and subtracts operation and support costs per unit in the year these platforms or units would have entered service, taking into account delays between when something is procured and when it enters service. The limit for this option is the current planned procurement for that platform in that year. This allows users to reduce procurement to zero in some cases (i.e., the full quantity planned), depending on minimum sustainable levels, which are discussed below.

- **Retire.** This option allows users to retire platforms or units of force structure currently in the force. For each unit or platform retired, the system subtracts operating and support (O&S) costs in the year the selection is made and all years thereafter. If a user chooses to retire over half the total inventory of a platform (or a different threshold if otherwise specified), the system also eliminates all future procurement; research, development, testing, and evaluation (RDT&E); and military construction (MILCON) costs. A user cannot retire more platforms or units of a given type than are in the current force.

- **Extend.** This option allows users to stop the planned retirement of a platform and extend its time in the force. If a user chooses to extend a platform or unit, the simulator adds O&S costs per unit in the year the selection is made and all years thereafter. The limit for the extend option is the planned retirement of a platform or unit over the next five years, so users can extend only the number of platforms that would have been retired.

- **Accelerate.** This option allows users to speed up a program’s development. If a user chooses to accelerate a program, the system will shift all future procurement, RDT&E, and MILCON costs for that program to one year earlier. When accelerating a program, users will typically spend more in the year in which they accelerate but could spend more or less in the following years depending on the trajectory of that program’s funding.

- **Delay.** This option allows users to slow a program’s development. If a user chooses to delay a program, the system shifts all future procurement, RDT&E, and MILCON costs one year into the future. When delaying a program, users will usually spend less in the year in which they delay but could spend more or less in the following years depending on the trajectory of that program’s funding.

- **Terminate.** This option allows users to cancel a program. If a user chooses to terminate a program, the system subtracts all future procurement, RDT&E, MILCON, and O&S costs from the year in which the program is terminated and all future years.

- **Develop.** This option allows users to start developing a new program that is not currently planned. If a user chooses to develop a program, the system adds the appropriate RDT&E costs in the year the selection is made and in subsequent years.

- **Procure.** This option allows users to start procurement of a platform that is not currently planned. If a user chooses to procure a new platform, the simulator adds procurement costs for each unit in the year the selection is made and O&S costs per unit in the year the platforms enter service and all years thereafter, taking into account delays between when something is procured and when it enters service. Any required development costs are included in the cost of procuring that platform.

Once users have modified a specific program to their liking, they can select “Save” at the bottom of the page to see the budget and force structure impacts of their choices.
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There are limitations on some choices users can make.

- **Users cannot make contradictory choices** in the same year. For example, users cannot buy more of a platform and retire that platform in the same year.

- **Users also cannot retire more units than a service currently has in its inventory.**
  A warning in red will appear, explaining that the save button has been disabled because the user is attempting to retire more platforms than are in the force structure.

The Defense Futures Simulator also has minimum sustainable levels used to replicate the realities of the defense industrial base.

- Some platforms with “Buy Less” as an option have **limitations that force users to terminate the entire program.** This happens if the user tries to cut so many platforms that the production line of that platform would not be sustainable.

- **Users can click the blue “i” next to “Buy Less”** to find the minimum sustainable level for the platform they are editing. Conversely, the system also forces users to buy a certain number of units when procuring a new platform to start a new production line.

If users select “Download Results” at the bottom of the results page, they can **download an Excel document detailing the choices they made.**

- Tabs at the bottom allow users to toggle between viewing the budget change in each service per year, change in force structure counts in each service per year, and detailed programmatic changes each year.

- The latter pages show the option chosen for each platform, the quantity of change within that option, the cost of that change, and whether that platform is included in the summary counts for its service. Lastly, the “Perform Action” column shows whether an option was chosen, with “true” meaning that the option was selected by either the algorithm or the user and “false” meaning that the option was not selected.

**Save Your Work**

Each simulation a user runs on the Defense Futures Simulator has a unique ID that allows users to save their work. If **users save their URL locally,** they can resume their simulation wherever they left off by reloading the link.

This simulation ID also allows the Defense Futures Simulator team to review and track simulations. As the team is constantly working to improve the simulator, we ask that if users encounter any problems, they send us feedback to **defensefutures@aei.org** and include their URL so we can pinpoint what may have gone wrong and where it happened.
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Terms

Accelerate: Move a platform’s research and procurement up by one year
Buy Less: Decrease the number of units being acquired (relative to what is already planned)
Buy More: Increase the number of units being acquired (relative to what is already planned)
Delay: Shift a platform’s research and procurement into the future by one year
Extend: Keep platforms that are currently planned for retirement
Fielding Delay: The number of years between when procurement funding is appropriated and when a platform or unit enters service
Force Structure: The number and composition of the units retained by DOD
MILCON: Military construction costs to build and improve military facilities
Minimum Sustainable Level: The minimum number of units that must be procured each year to keep production lines open
Noncore Functions: Items in the DOD’s budget that might be more appropriate for other departments, such as schools and cancer research
O&S: Operation and support costs. These sustain a platform or unit throughout its useful life, including the costs of military and civilian personnel and operation and maintenance
Platform: A unit of something that a program produces (a ship, an aircraft, or research) that can also refer to a unit of force structure (brigade, battalion, etc.)
Procurement: The cost of building a platform
RDT&E: Research, development, test, and evaluation. These are the costs used to research and develop new platforms or new technologies and components that can enable future platforms
Retirement: Decrease the number of units in the force by taking platforms out of service
Terminate: End all procurement and development of a certain platform

Notes

1 The topline for the Marine Corps was determined by allocating the same percentage of the Navy budget as was allocated in previous years.
2 There is a known quirk in the simulator’s interface where sliders can show more units available for modification than there actually are. This happens most often when a small number of units are available to buy less of or retire in a given year. The simulator will not allow users to modify these extra units, so this problem does not affect the functionality of the simulator. This will be fixed as soon as possible, and your patience is appreciated.