



Forecasting End Strength in the U.S. Army Reserve

An Integrated Modeling Concept

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www.rand.org/t/RRA138-1

Personnel and career management are critical to a well-trained U.S. Army Reserve (USAR), and end strength forecasts are an important input to recruiting and retention policy decisions. Currently, no single model is capable of providing such forecasts. The authors examined existing modeling tools and developed an Integrated Modeling Concept—a detailed plan for combining outputs from those tools to enable USAR to forecast 24-month end strength.



RESEARCH QUESTIONS

- What paths do people take into and out of USAR?
- What capabilities for modeling these paths do existing tools provide?
- Where do gaps exist in the modeling landscape?
- How can existing data and modeling tools be combined to generate 24-month forecasts of USAR end strength?



KEY FINDINGS

- RAND has several modeling tools that are capable of predicting flows into and out of USAR, but none can generate 24-month forecasts of USAR end strength because none was designed for that purpose.
- Most of the relevant modeling tools were designed to estimate the effects of policy changes on recruiting and retention outcomes, holding all other factors constant; nevertheless, with appropriate care and caution, the estimates generated by these tools can be combined to construct the desired end strength forecasts.
- The Integrated Modeling Concept (IMC) assigns existing modeling tools to personnel flows based on the capabilities of each tool, with machine learning used to fill as many gaps as possible.

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- The IMC performs best when forecasting total USAR end strength. Because the modeling tools do not predict changes in rank, end strength forecasts for subpopulations, such as enlisted reservists or reservist officers, are likely to be less accurate.



RECOMMENDATIONS

- The IMC, which provides some flexibility in the assignment of modeling tools to personnel flows, should be configured to deliver the outputs and capabilities that best support the Office of the Chief of the Army Reserve's planning processes.
- Any future implementation of the IMC should begin with a careful assessment of how IMC outputs will be used to inform USAR personnel management and resource planning.