# Summative Usability Test

Summative usability testing is a form of validation and occurs during the testing phase of the software development lifecycle. At this point the system or application is significantly developed and attention turns toward usability metrics. The goal of the testing is to establish usability benchmarks for the system, and determine how well the developed product meets its usability objectives.

Summative tests frequently include testing in field environments where they assess the application or system in the context of how it is intended to be used. Each distinct user population carries out the tasks using the intended combination of hardware and software,  either within their current workflow or in an environment in which the workflow is simulated.  Testing must allow for the time and coordination for the system to be used in multiple scenarios.

Summative usability tests generally include measures of task success, time on task, user errors, and user satisfaction. Tests conducted as part of summative usability testing require representatives from every group of user who will be using the system. For example, if the application is to be used by doctors and nurses, both would have to be included in the evaluation.

 Following good engineering practices and including formative testing early and often increases the likelihood that the summative testing will meet the desired usability levels.

## Benefits

* Summative usability testing provides statistical measures of usability (success rate, average time to complete task).The desired levels of usability are established at the beginning of the development lifecycle providing clear criteria for the evaluation.
* The system’s fitness for the existing environment can be assessed.

## Limitations

* The system or application is all but complete at this point; discovering a significant usability problem will likely result in higher cost and delay.
* All user types must be represented in the testing; it may be difficult to recruit sufficient sample of each user type.
* Usability in a laboratory does not guarantee usability in more realistic conditions.
* Can be time and resource intensive to do well.

## Study Execution

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| **​Milestone** | **​Owner** |
| ​Initiate Kick-off Call | ​                                                 HFE |
| ​Create Use Case Scenarios | ​                                          Business Office |
| ​Specify Performance Metrics | ​                                          Business Office |
| ​Provide system access | ​                                          Business Office​ |
| ​Create test data | ​                                          Business Office |
| ​Recruit Participants | ​    Business Office |
| ​Schedule Participants | ​HFE |
| ​Conduct usability assessment | ​                                                  HFE |
| ​Analyze findings, write report | ​                                                  HFE |
| ​[Conduct After Action Review](https://vaww.portal2.va.gov/sites/humanfactors/SitePages/AAR%20Process.aspx) | ​                                                  HFE |

## Outcomes

### User Effectiveness

* Completion rate – the percentage of participants who completely and correctly achieve each task goal.
* Errors – instances where tasks were not completed successfully.
* Assists – when direct procedural help is provided by the test administrator.

### User Efficiency

* Task time – mean times to complete tasks with the range and standard deviation of times across participants.
* Mean time on task – the percentage of users who were successful for each unit of time.

### User Satisfaction

Analysis of standardized measure of user satisfaction with the system.

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| **Phase of Development​** | |
| ​ | ​Planning, Scoping & Definition |
| ​ | ​Requirements Gathering |
|  | ​Early Design |
| **​✔** | **​Detailed Design & Development** |
| **​✔** | **​Field Testing** |
| ​ | ​Deployment |
| ​ | ​Post-Deployment |

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| **​Study Characteristics ​** | |
| ​**Timeframe** | ​6 weeks |
| **​Level of Effort** | High |
| ​**Data Collection** | Behavioral, Attitudinal |
| ​**Data Reporting** | ​Quantitative |

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| **​Related Methods ​** | |
| **Derived from** | ​Formative Usability Testing |
| **​Complimentary Methods** | ​[**Cognitive Walkthrough**](https://vaww.portal2.va.gov/sites/humanfactors/HFBoK/SitePages/Cognitive%20Walkthrough.aspx) |
| **​Similar Methods** | ​[**User Experience Assessment**](https://vaww.portal2.va.gov/sites/humanfactors/HFBoK/SitePages/User%20Experience%20Assessment.aspx) |
| **​Follow-Up** | ​TBD |

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| **Referenced on this page...** | |
| Weber, M. (2011). Summative Usability Testing. In Usability Body of Knowledge. Retrieved February 1, 2014, from ​[**http://www.usabilitybok.org/summative-usability-testing**](http://www.usabilitybok.org/summative-usability-testing) |  |
| Rubin & Chisnell (2008). Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests. Indianapolis, IN: Wiley Publishing. |  |