Quick-Silver

Quick-Start Guide

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Overview

What is Quick-Silver?

Quick-Silver is software for use on IBM-PC compatible computers using MS-Windows 95/98/NT. The program interface streamlines data entry and analysis. Quick-Silver does not require any other software for operation.

Quick-Silver, version 5 is a replacement for the earlier DOS version of Quick-Silver.
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Who uses Quick-Silver?

Quick-Silver is for analysts who needs to compare the economic performance of competing projects. Some familiarity with cash flow analysis is recommended. More in-depth knowledge of the specific costs and benefits for each project and the alternatives considered is necessary.

Users include forest managers and planners, resource specialists, project analysts, economists, investors, consultants, students, and landowners.

Analytical methods

Quick-Silver analyzes cost and benefit flows for a wide variety of investments or operations.   Discounted cash flow techniques are used to compute criteria or measures of economic performance for each management investment alternative.

Compatibility

Quick-Silver version 5 is a MS-Windows program that replaces earlier DOS versions. Case files prepared for analysis with the DOS version are not compatible with Quick-Silver version 5. Both programs produce the same analytical results for comparable investment inputs. At this time, a utility program is not available to convert files for the DOS version of Quick-Silver for use with the Windows version.

Who developed Quick-Silver?

Quick-Silver was developed by:

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Economic criteria

Quick-Silver calculates the following economic measures useful for comparing management alternatives:

Present Net Value (PNV) -- the difference between the discounted benefits and costs. If PNV is positive, then discounted benefits exceed discounted costs and the return on the investment is at least the discount rate.

Present Value of Costs (PVC) -- the value of all costs discounted at the specified rate to the beginning of the investment period.

Present Value of Benefits (PVB) -- the value of all benefits discounted at the specified rate to the beginning of the investment period.

Benefit/Cost Ratio (B/C) -- the ratio of the discounted benefits to the discounted costs. A B/C ratio greater than 1.0 indicated that the investment returns more than the discount rate.

Investment Length -- the number of years from the beginning of the investment period until the year when the last cost or benefit occurs.

Annual Equivalent Value (AEV) -- The annual equivalent value is an annual dollar measure spread over the life of the investment that, if discounted at the specified rate, is equal to the present net worth.

Internal Rate of Return (IRR) -- the rate of return of the investment is the rate where the discounted value of all costs is equal to the discounted value of all benefits. The internal rate of return assumes all intermediate revenues are reinvested in identical investments earning the same rate.

Composite Rate of Return (CIRR) -- the rate of return calculated with the assumption that intermediate revenues are reinvested in other investments that earn the specified discount rate. If the discount rate is higher than the IRR then the CIRR is greater than the IRR. The CIRR is also sometimes called the bankers method or the reinvestment rate adjusted rate of return.

What is Quick-Silver good for?

Quick-Silver is useful for analyzing competing management investment alternatives for projects that span multiple years. The program accounts for the time-value of money and is good for determining the economic effects of management strategies where costs are paid and benefits received over many years. It may be used to compare investments in natural capital and improvements that produce long-term natural resource benefits. Below are some typical examples where Quick-Silver can be applied. In each case, the problem is to decide if it is economically feasible to invest or to compare two or more alternative management strategies.

Harvesting strategies

- Cut now or cut later decisions
- Determine the best level of residual stocking
- Compare payoffs from partial cutting or clearcutting
- Determine the optimal rotation age for a forest

Regeneration options

- Evaluation of different species or planting stock
- Compare natural regeneration strategies
- Test economics of seedtree or shelterwood silvics
- Comparison of site preparation options
- Value genetically improved planting stock

Forest protection investments

- Economic effects of spraying or biological control decisions
- Appraise wildlife damage and control strategies
- Estimate hazard reduction treatment costs and benefits
- Compare fencing options for wildlife or livestock control

Valuation of timber damage

- Compare timber salvage options
- Value effects of timber losses

Road construction and access

- Assess road extensions and changes in access
- Compare alternative logging systems
- Test effects of road closure on economic values

Stand cultural treatments
- Compare stocking control treatments
- Evaluate alternative stand improvement cuts
- Decide if precommercial thinning is worth it
- Weigh economic implications of thinning alternatives
- Identify effects of selection harvests on long-term values

Other
- Test opportunity costs of special designations
- Compare different recreation developments and permits
- Test options for wildlife habitat management
- Analyze grazing and range management alternatives
- Consider capital decisions such as buy/lease

System requirements

Quick-Silver requires a PC-compatible computer running MS-Windows 95, 98, or NT. It will not operate under Windows 3.1, MS-DOS, UNIX, or Macintosh operating systems. Approximately 15 Mb of hard disk space and a minimum of 16 Mb of RAM is required.

Distribution

Quick-Silver is available on CD-ROM or by Internet download. It is not available on floppy disks. For more information contact Mike Vasievich at 517-355-7740, ext. 26 or by email to:
    mvasie@pilot.msu.edu or mvasievich/nc_el@fs.fed.us

Installing Quick-Silver

Quick-Silver is installed from the distribution CD-ROM or a downloaded set of installation files directly to the hard disk as a standard Windows application program.

Quit all Windows programs before installing. Install Quick-Silver by running Setup.exe from the CD or install files. The program is normally installed in the directory   C:\fsother\qsilver\,
but users can specify any other location for installation at the time of setup.

Uninstalling

Use the Add/Remove programs from the Windows control panel to uninstall Quick-Silver.

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Quick-Silver requires several files for operation. Do not modify these files outside of the Quick-Silver program environment.

Program files

The Quick-Silver program file, Qsilver.exe, is a standard Windows application. Users can establish a link between project files (*.qsp) and the Qsilver.exe program file so that double-clicking on project files will automatically start Quick-Silver and load the selected project file. QSUpdate.exe is a utility program file for updating the QS system file.

Project files

Quick-Silver project files contain all information necessary to run an analysis, regardless of who created the project file. All project files are named PName.QSP where PName is a user-supplied project name. Project files are standard MS-Access data base files. They must be created with Quick-Silver. We do not recommend that users modify project files using Access or any other database software.

System file

Quick-Silver requires a system file that contains information necessary for running the program. This file has the standard file name of QSSilver.QSS. Information contained in the system file includes lists of cost and benefit categories, lists of standard units, a dictionary of cost and benefit items defined by the user, and program parameters. The system file is also stored as a MS-Access data base.

Results files

A data base containing a selected economic analysis results for projects is created each time the Batch Processor is run. This data base (saved with the file extension *.QSR) can be used to compare results for multiple cases.

Other files

Other files required by Quick-Silver include sound files (*.wav), ActiveX controls (*.OCX), dynamic link libraries (*.DLL), report template files (*.RPT), and other data base files. The AboutQS.mdb and Pdeflate.mdb files are support databases needed by Quick-Silver. These files are installed in the Quick-Silver home directory or in the \Windows\System directory.

User interface   User-friendly data entry
Flexible, for many kinds of projects
Use menus/mouse/keyboard to select/enter options
Rapidly calculate economic results
Online help system
Produce a variety of formatted printed reports
Export all reports to other software formats
Customizable database of user-defined costs and benefits
All data are automatically saved in project files
MS-Access is used for all data bases
Batch process multiple cases automatically
Financial & economic analysis:
   Short-term & long-term analysis
   Separate analysis of partners - public or private
   Built-in documentation for sources/assumptions
   Results expressed by 5 evaluation criteria
   PNV results available for discount rates 0%-20%
   Projects price and cost trends into future

Editing standard cost and benefit activities

One important feature of Quick-Silver is a user-defined collection of standard cost and benefit activities. This information includes the category and activity names, units, value, real rate of value change, and the year that the value was current.

These standard activities are stored in a data base and then used to create or edit transactions. When creating transactions, select a category and activity in the Transactions Edit screen. Values stored in the data base are retrieved for the transaction. Activities must be included in the data base before they can be used to enter a transaction.

An initial list of cost and benefit activities are provided with Quick-Silver. Users should customize the cost and benefit data base to meet their particular needs.

Lists of categories for costs and benefits and a list of units are also used by Quick-Silver. These lists provide a consistent set of categories and units throughout the program and can be modified by users.

Editing category and unit lists

You can modify the lists of categories and units by selecting Setup/List Manager from the main menu. The List Manager initially displays a table with units. Use the File menu to display either cost or benefit categories.

These lists are edited by simply typing in the table to change an existing entry. To add a new item to the list, type it in the last line of the table (marked by a * in the row selector column on the left side of the table.)

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Setting up costs and benefits

1. The standard cost and benefit activities should be checked and modified, if necessary, before creating the first prjoect.
2. Select Setup/Define Costs or /Define Benefits from the main menu. This will take you to the screens that display the cost and benefit activities stored in the data base. The screens for costs and benefits are identical but show either costs or benefits.
3. Review the existing lists of costs and benefits on the screen or by printing a summary report of the existing lists.
4. Buttons and menu items available on this screen allow you to add or delete an activity, duplicate an activity so that it can be modified, and to sort or filter the list. Filtering the list allows you to select a subset of all defined activities.
5. If you want to edit an existing activity, select it in the table and either double click or click on the Edit button.
6. When adding or editing an activity, another form appears that allows changes. Complete the data entry fields in the form. First select a category, then type in a name for the activity. You can also add any descriptive information about the activity in the Notes field.   The category and units fields provide a drop-down list from which to select. The values in the list must be already be included in the lists of categories and units. Enter a number for the per-unit value, select the year when that value was current, and enter the rate for the that the value a value and rate and .
7. When you have completed all data entries, click on the Keep button. If you would like to abandon these entries, click on the Cancel button. Adding a new activity works the same way and creates a new record in the data base.
8. Deleting a record will permanently remove the selected activities from the data base. You can select multiple records in the table by clicking in the row-selector column on the left side of the table for the first item to select. If you hold down the shift key and click on another record, all activities between the two are selected. Also, you can hold down the control key and click on records in the data base that are not next to each other. Selected records are highlighted in green. When you have selected records to delete, then press the delete key, click on the Delete button, or use the Edit/Delete menu item. You will be asked to confirm the deletion.

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What is an analysis project?

A project is a set of management investment alternatives organized with Quick-Silver for analysis. Each project has information that describes the project itself and a collection of transactions that describe the costs and benefits for each alternative.

How to create a new project

1. Before creating your first project, be sure to review and customize the lists of standard costs and benefits. These are needed for entering transactions.

2. Create a new project with the following steps:

3. Plan the project by first deciding what alternatives to consider, what costs and benefits make up each alternative, and who are investment partners. While preparation before starting Quick-Silver is helpful, Quick-Silver is responsive enough to do this interactively.

4. Create a new project file by selecting File/New from the main menu.

5. Open the Project Description screen and enter the project title, description, analyst name and forest name. Define and enter alternatives and partners. Finally, set the economic parameters such as the project start year and discount rate. All components of the Project Description screen must be completed before moving onto the next step.

6. Open the Transactions Edit screen and create cost and benefit transaction records to define the project alternatives. Set the alternative and partner for each transaction.

7. Review the list of transactions and cash flows to be sure that all relevant costs and benefits have been included.

8. When all project transactions are defined, select the Analysis/Base Analysis menu to calculate the economic results. Review the results and correct any deficiencies by editing transactions as necessary to assure a complete and comprehensive set of costs and benefits.

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Investment partners

Projects may have multiple investment participants. In some cases, these may represent a collection of partners. Partners may also be defined for costs or benefits that accrue to someone other than the primary investor. Define the partners with the Project Description screen <u>before</u> entering project transactions.

Multiple alternatives

Each project can have multiple alternatives or competing investment options. Alternatives are usually defined as mutually exclusive decision options. For example, alternatives may be defined as different treatments for the same area, different levels of investment, or different sets of assumptions (such as price or cost) for one investment strategy.

One of the first tasks in defining a project is to define the alternatives. Projects must have at least one alternative and may have as many as are necessary to cover all options. By default, an alternative called "Control" is defined when new project is created. In many cases, this is the option of doing nothing or "no action".

Each alternative should be assigned a short name and longer description <u>before</u> entering project transactions.

Batch processor

The Batch Processor is especially useful if there are many projects to analyze and compare. This feature allows users to select and analyze one or more projects automatically. Options are available to recalculate each project and print selected reports. When the Batch Processor is used, selected economic results for each case are written to a single data base. Results for all cases can be compared by examining the table of results. Summary tables produced by the Batch Processor are automatically given the file extension *.QSR.

Data views

Quick-Silver has several screens for entering and editing data. The Project Description form is used to enter data that applies to the entire project. The Transaction Edit form is used to create and edit transactions that describe individual costs and benefits. The Transaction Edit form has the Table and Form views. The data included for each form are shown below.

Project description form

This form has the following variables:

Project title - a title for the project
Project description - a detailed description of the project
Analyst - the name of the analyst
Forest - the name of the forest
Alternative name - a short name for each alternative
Alternative description - a longer description
Partner name - a short name for each partner
Partner description - a longer description
Discount rate - discount rate for the investment, in percent
Inflation rate - inflation rate for the investment period, in percent
Project start year - first year of the project, (usually called year 0)

Transaction edit form

This form has the following variables:
Cost or benefit category - a category for grouping activities
Activity name - name for treatment cost or benefit
Alternative - the name of the alternative for this activity
Partner - the name of the investment partner
Quantity - the number of units
Units - the units used to measure this activity
Value - the unit value (cost or benefit) for the activity
Rate of change - the annual rate of change in value independent of inflation (also called the real rate of change)
Frequency - indicates if the activity occurs one time, annually or periodically (every n years).
First Year - the first (or only) year of the activity
Last Year - The last year of the activity
Step Year - the number of years between
Notes - descriptive notes for the activity
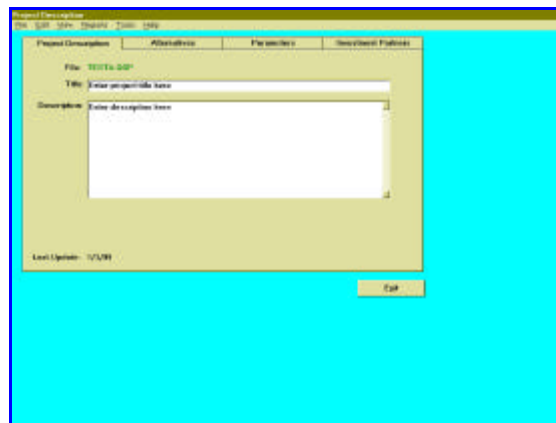
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Main screen

This is the home screen that appears when Quick-Silver is started. All the major functions are available from this screen.

Project description form

The project description form is used to enter basic information for each project. Four tabs are available to enter the project title and description, define investment alternatives and partners, and specify economic analysis parameters such as the discount rate.

Transaction data form - table view
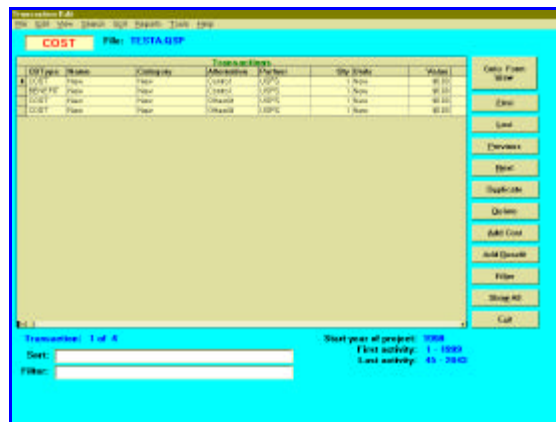
This data form shows all transaction records in a spreadsheet or grid. Menu items allow the user to view, sort, and filter these records. Many editing functions are also available from buttons along the right side of the form. Entering and editing transactions is done with the form view shown below.

Transaction data form - form view

This form shows a single transaction record in data boxes that allow editing. Buttons along the right side of the form are for navigating through the data base, adding or deleting transaction records, filtering and duplicating transactions. This form is used for editing all transactions.

Results form

This form shows the results of an analysis. Menu options provide options to display transactions, cash flows, and analysis results in different formats or to produce printed reports.

Management activities and costs
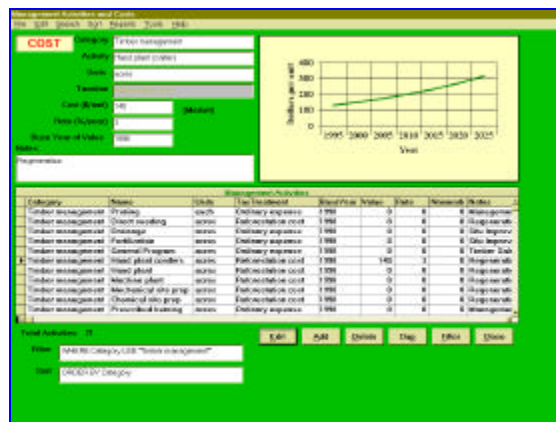
Users can define standard management activities (costs) with this screen. A similar screen is for defining standard outputs or benefits. These standard activities are grouped by category and available when creating cost or benefit transactions.

List manager

Quick-Silver uses lists of categories for cost and benefit activities and also lists of standard units for measuring activities. The List Manager screen is used to update these standard lists.

Options and default values

Standard values are used by Quick-Silver as defaults for new projects. This screen allows the user to set standard options for the program, including discount and inflation rates, report headers, names for the analyst and forest, and other similar information.

Batch processor

One useful feature of Quick-Silver is the Batch Processor. This screen allows selection and processing of multiple cases in a group. Each case is recalculated and selected reports are printed without additional user actions.

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Project documentation

Quick-Silver automatically generates and stores a history of each project in a project documentation table. This table shows each time the project was opened and processed as well as notes on calculations and any problems encountered.

Price deflator

The price deflator is a useful tool for adjusting past costs or prices for inflation. Any past value can be adjusted for inflation with the GDP implicit price deflator or the Consumers or Producers Price Indexes. This screen also calculates the annual rate of inflation between any two years.
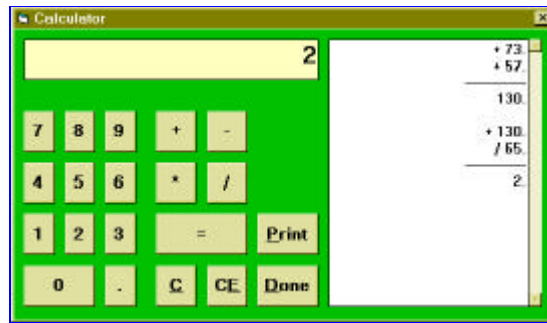
Financial calculator

The financial calculator is a tool for calculating standard compounding and discounting formulas such as present and future values and annuities.

Calculator

A simple calculator is available for users who need to tally up a few numbers. It comes with a data tape to track and print entries.

Report manager

Seventeen different reports are available for users. Reports can be printed from individual screens or with the report manager. Here, the user can select all the reports desired and print them with a single action.

Project manager
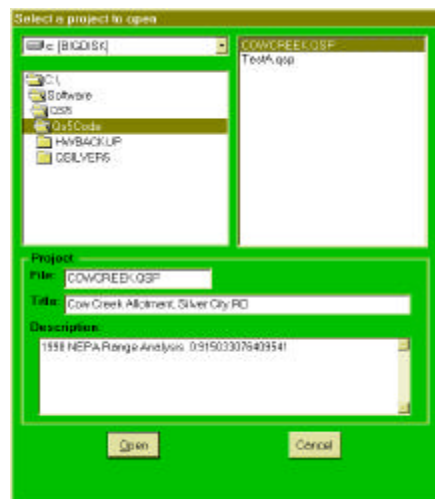
The Project Manager form is used to create, open, and copy project files. Projects can be stored on any disk drive or in any directory. The project description is automatically displayed when files are selected in the file selection box. All project files have the file extension ".qsp".

Types of reports

Output from Quick-Silver is produced in a form suitable for any printer supported by MS Windows on the user's computer. Three types of reports are available:

System reports show information contained in the system file and used for all projects.

Project reports show information for a particular project, including input data and results.

Other reports are available as forms to submit suggestions, report problems, and to register to receive the latest information.

System reports

CATEGORIES ....List of cost and benefit categories
UNITS.................List of all standard units
OPTIONS ....Quick-Silver program options
COSTS ....List of all management activities
OUTPUTS ....List of all outputs or benefit activities

Project reports

CASE..................Project parameter settings
CASEDOC..........Project notes
CFLOWS............List of cash flows
CFSUM2.............Cash flow summary by category
CFSUM...............Cash flow summary
RESULTS...........Economic returns by partner and alternative
RESULTS1.........Economic returns cross-tab
TRANSPART......List of transactions, sorted by partner
TRANS2 ....List of transactions, sorted by alternative
TRANSSUM ....Detailed list of transactions

Other reports

BUGREPORT.....Form to report a problem
REGISTER ....Form to be notified of updates

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Previewing and printing

All reports can be previewed on the screen and appear exactly as they would be printed (WYSIWYG - What You See Is What You Get). Options on the preview screen allow users to select the printer, page through the entire report, check pages, zoom in on specific sections, and export the report to a file.

Exporting reports

All reports can be exported to a file that can be used with most word processors, spreadsheet programs, or other programs using several standard output file formats. Available formats include:

- text (ASCII, tab delimited, and comma separated value),
- spreadsheets (Excel, Lotus),
- word processing (MS-Word, rich text format), and
- other formats (data bases and HTML.)

Exporting reports as MS-Word (*.doc) or rich text format (*.rtf) works for importing to the USDA-Forest Service Applix software.

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Quick-Silver has several tools to help users with common problems.

Calculator

This is a simple four-function calculator with a data tape that works just like a printing calculator.

Price deflator

This tool is for adjusting prices from one year to another by applying an implicit price deflator. Three price indexes are available: the Gross Domestic Product Implicit Price Deflator, the Consumer Price Index, and the Producer Price Index. Enter a value and the year it was current, then the tool produces a table showing the value adjusted for inflation for all years available for the selected index. The CPI and PPI have indexes for 1913 to 1997. The GDP deflator is available from 1929 to 1997. The price deflator also figures the compound rate of inflation for selected multi-year periods based on any of the three indexes.

Financial calculator

The financial calculator performs standard discounting and compounding calculations. It will calculate present value of a future value or annual payment, future value of a present value or annual payment, annual value of a present or future value, and the value of a perpetual annual payment. The calculator also figures the effective interest rate for any of the above combinations.

Project documen- tation

Quick-Silver automatically generates and saves a table of notes that document analysis activities for each project. These notes, each with a date and time, provide a running history of each project.

System file update utility

Because Quick-Silver continues to be improved, a utility program, called QSUpdate.exe is available to scan and update the Quick-Silver system file (QSSystem.QSS). This program modifies the system files so that they are fully compatible with the most recent release. No changes are made to user-defined information.

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Getting technical support

We hope you don't have problems running Quick-Silver, but if you do, we're ready to help. Contact us if you are having a problem. A BugReport form is provided from the Help/BugReport menu on the main screen. Also, answers to common questions will be posted on the Quick-Silver web site. Technical support may also be available from others, such as Forest Service regional economists.

Registering

We encourage you to register Quick-Silver by sending us your name and contact information. This is the only way we have to let you know when we've made improvements. To register, print out the registration form from the Help/Registration form menu. Then send or FAX it to us. You can also register by sending email with your name, address, phone, and email to mvasie@pilot.msu.edu

Quick-Silver web site

One source for technical support for Quick-Silver is provided as a web site on the internet. A menu item is available on main screen (under Help) to connect users directly to the web site to download the latest information.   You can connect to the web site at:
http://econ.usfs.msu.edu/qsilver

Email for technical support

Another route for support is by email. Quick-Silver has a menu item (under Help) to send a message for technical support. This automatically starts up the user's standard mail program and starts a message to be sent to technical support. This works only on systems with a standard MAPI (Messaging Application Programmers Interface) client installed for processing email.

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This revision of Quick-Silver was specifically designed to meet an important need within the USDA-Forest Service. A primary goal is to provide an analytical tool to conduct economic analyses of on-the-ground resource management projects.

Quick-Silver has a proven track record (since 1982) with earlier versions in use by forest products industry, universities, the Canadian FS, USDA-Forest Service, consulting foresters, and others.
The program operates on virtually any PC, has an easy-to-use user interface, and powerful analytical features.

Quick-Silver provides:

- more consistent analyses of similar projects through sharing of project files.
- faster completion of Gates 1 & 2, TSPIRS Report 2, and other analysis opportunities or requirements.
- a tool and results that can be shared with anyone to keep Forest Service project plans and analyses open and reviewable by partners, supporters, and critics alike.