# Improving the User Experience (UX) of SAP MII Applications

## Applies to:

SAP Manufacturing Integration and Intelligence (MII).

## Summary

A user's experience with an application can either improve his productivity or add shelf ware in your organization. The key to improving user experience for SAP MII applications is designing interfaces that provide value to the users in their daily objectives. This article presents common usability mistakes for SAP MII applications and provides usability tips for improving SAP MII applications.

**Author:**     Kevin Yurasits

**Company:**  SAP

**Created on:** April, 18, 2011

## Author Bio

Kevin Yurasits is a Field Services Specialist for SAP MII's Regional Implementation Group. He provides knowledge transfer for both customers and partners ensuring MII best practices. Before joining SAP in 2008, Kevin spent several years supporting manufacturing application systems for a leading heavy-duty truck manufacturer. There he gained experience on a wide variety of applications and platforms from mainframe applications to PLM point solutions. He has a bachelor's degree in Computer Information Science from Bloomsburg University. He is also a member of ACM and IEEE Computer Society.

# Table of Contents

## Overview

Have you ever used software and wondered why did they put a button there? Or said to yourself "that's cumbersome to use". Software design flaws can impact users in many ways, especially if it's regarding user interface design. Users will complain feverously about poorly designed user interfaces. Many users will know good design because it just "feels right". Usable software makes end users more productive at their jobs.

Unfortunately, sometimes SAP MII application developers don't always have clear user goals in mind. The outcome is poor user experience (UX); functional but awkward screens slowing down shop floor workers.

## SAP's User Centered Design (UCD) Approach

SAP has an iterative user centered design (UCD) process that can help improve usability in your MII applications. There are five phases; Plan, Research, Design, Adapt, and Measure, as depicted in the diagram. The advice listed in this article focuses on the Research and Design phases. However, all phases should be used in your software development project to deliver the maximum amount of benefits. For more information on the SAP UCD approach, please visit www.sapdesignguild.org.
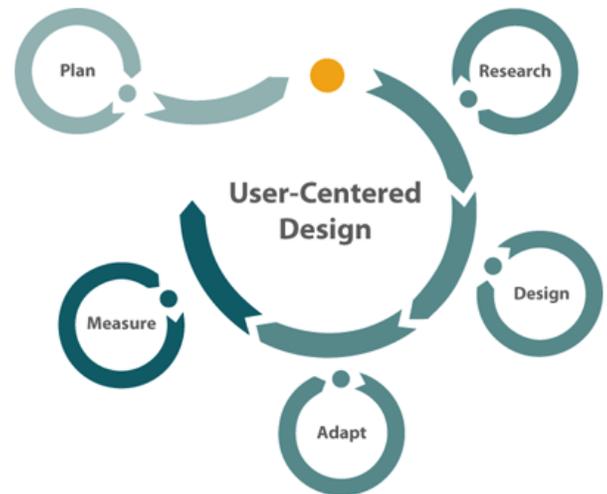
## Common Usability Issues for MII applications

When developers and analysts don't implement user-centered design (UCD) principles, the result can be applications that hinder the user from completing a task. Below are the most common usability issues found for SAP MII applications:
  1) Cluttered pages with too many applets
  2) Unnecessary scrolling
  3) Slow web pages
  4) Poor color schemes
  5) Inconsistent look and feel
  6) Poor choice of data visualization objects
  7) Readability of text in foreign languages
  8) Poorly labeled objects and links
  9) Data driven rather than User driven pages

# Solutions for Common MII Usability Issues

### Cluttered pages with too many applets

**Solution:** Cluttered pages can confuse users and slow down progress of their tasks making your application not intuitive. To help avoid a bad user experience (UX), you should facilitate usability testing on site with the users and watch them progress through their interactions with the system. You may need to reduce the number of applets on the page. Moving applets to another logical page or eliminating unnecessary applets could also be the solution.

### Unnecessary scrolling

**Solution:** Make sure important page objects are "above the fold"; the top half of the page where no scrolling is needed. Vertical scrolling below the fold should be avoided, but if necessary, less important information should be displayed below the fold. Screen resolutions can be determined by survey, site audit or other means. MII applications should be designed for specified resolution unless a mobile audience is intended. HTML table column widths should be addressed accordingly to avoid horizontal scrolling which slows down user's interaction with the intended page objects.

### Slow web pages

**Solution:** Web pages that take long to load can frustrate users and kill application adoption among the user base. Pages should load as fast as possible. Some UX leaders advise applying the 3 second rule, where web site visitors lose interest in a page that doesn't load in 3 seconds or less (although others say 8-10 seconds). Analyzing the page's applet queries along with network traffic can help resolve slow web pages, given that the page isn't cluttered with applets (see above).

### Poor color schemes

**Solution:** Awkward color schemes can make font hard to read. Also, poor color schemes can affect color blind users. Aesthetically pleasing color schemes should be applied to charts consistently as well as pages. A bad choice in color schemes can confuse and annoy users. Picking colors aligned with a company's branding or using predefined color palates can correct the issue.

### Inconsistent look and feel

**Solution:** Web applications that change format from page to page can confuse users and slow down their performance. User productivity will decrease as a result. MII development teams should perform an observation study and product audit in the beginning of the project to see how users interact with their existing applications and adopt a similar look and feel. Themes can be applied in the Navigation Services pane of MII (versions 12.0 & 12.1) to achieve this. Having a consistent look and feel can benefit users in low learning curves, increased productivity, and higher application adoption rates.

### Poor choice of data visualization objects

**Solution:** A picture is worth a thousand words, however if the wrong picture is shown the thousand words are meaningless. If data is shown it should not confuse the meaning, but provide valuable information to the users. MII display templates should have appropriate titles, readable font sizes, and meaningful labels. Display template types should be selected appropriately: line charts for historical data, bar charts for comparison of categories, and pie charts for comparing part of the data to its whole. Emphasis on researching the users' existing experience through interviews, observation studies, and product audits is highly recommended.

### Readability of text in foreign languages

**Solution:** Global MII applications that have no text displayed in native country format can impact end users. Usability analysts for MII applications should take into account whether or not the application can be scaled up to meet cross country needs. If so, measures should be taken to utilize the MII localization features in the web pages. One technique that could be applied is a focus group to review the pages.

### Poorly labeled objects and links

**Solution:** Screen layout should be well aligned. Important links should be at the top of the page with indexes on the right hand side (this is standard layout with MII navigation). Content inventory from a card sorting exercise gives order and priority to indexes in MII navigation. You can also use the squint test to view UI contrast on elements and their grouping. This is done by squinting at the screen and making sure important sections stand out more than less important sections. Users should be able to quickly identify focal points and distinguish proximity of the related elements. Section headings should be clearly labeled. Even though there may be user role overlap, design each interface for a single primary persona, or target user, in mind. The user will know which page object and link pertains to the users' goals.

### Data driven rather than User driven pages

**Solution:** Users should be able to select which parameters they want to be loaded into the applets. Turning off initial updates for the applets is one way of letting the user drive applets rather than being pre-loaded with assumed data. Using session properties and custom attributes can also filter data based on the intended user. When data is loaded and then reloaded based on users' selections, it can increase page waiting time, decrease user efficiency, and cause lower application adoption rates.

## Tips for conducting site audits

Site audits are a very powerful and crucial way to solicit user feedback, such as formal use cases. Usability testing done onsite can be expensive due to travel costs, but if done correctly, can yield substantial gains. On-site audits for usability usually involve three or more people. The first and most important person is the user. He or she will be giving the others critical information towards use cases. A usability workshop would normally consist of a number of potential users from various business areas with ranging software proficiencies. Meeting with about five users individually with the team members should generate good results. The second person involved will be the facilitator, which will ask questions pertaining to system tasks and business processes. The third person can be an observer or note taker and will not ask any questions. Having an extra person available to take notes or video record the session allows for the facilitator to ask more questions of the targeted user. Here are some extra tips for site audits:

- Plan for the visit
- Let the users do most of the talking, just observe and listen
- Have a team member act as a note taker in addition to a video recorder
- Person leading discussion should ask a lot of "why's"
- Ask users to do their normal process and not in a different order than normal
- Actions speak louder than words, document only what is observed
- Question the users on the purpose of the application, ease of use, functionality, navigation

## Other Usability Tips

You can use these extra tips and tricks to solve some of the most common MII applications issues.

- Start the usability aspect of testing and gathering requirements early in the System Development Life Cycle (SDLC).

- Meet with different end users and watch them use their current software. This will give you more information on their norms and gauge their user level.

- User input into web page design is very important so the users should be involved throughout the project. Users' goals and tasks should be prioritized.

- Personas for users should be created to help link roles with goals.

- For navigation links, try to have no more than five tabs or main links at the top and strive to let the user get to the necessary data within three clicks.

- Try to apply either an empirical or predictive modeling Human-Computer Interaction (HCI) design approach to your MII application (or you can use both).

## Related Content

[MII 12.X Best Practice Guide](MII 12.X Best Practice Guide)

[http://www.sapdesignguild.org/index.asp](http://www.sapdesignguild.org/index.asp)

[http://www.stcsig.org/usability/resources/toolkit/toolkit.html](http://www.stcsig.org/usability/resources/toolkit/toolkit.html)

[http://ist.mit.edu/services/consulting/usability/guidelines](http://ist.mit.edu/services/consulting/usability/guidelines)

[http://www.upassoc.org/usability_resources/index.html](http://www.upassoc.org/usability_resources/index.html)

[http://www.infodesign.com.au/usabilityresources](http://www.infodesign.com.au/usabilityresources)

[http://www.useit.com/](http://www.useit.com/)

# Copyright