

Systematic Approach to Form Design Can Avoid Iterative Changes and Rework.



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Summary

Functional consultants are involved in designing form for various correspondence sent to business partners (customers, vendors etc). For example, form for Customer Invoice, Customer Statements, Dunning Letters, Purchase Orders, Remittances advice etc. Form could be as simple as single page letter just confirming balance to customer or as complex as Invoice, Purchase Order or Monthly statement showing product details, pricing information etc. There are various aspects and requirements which are missed during data collection, requirement gathering, which result in expensive rework. Iterative changes & rework in form design can be avoided by systematic approach to data collection and requirement gathering and by providing attention to design details.

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Introduction

Functional consultants are involved in designing form for various correspondence sent to business partners (customers, vendors etc). For example, form for Customer Invoice, Customer Statements, Dunning Letters, Purchase Orders, Remittances advice etc. Form could be as simple as single page letter just confirming balance to customer or as complex as Invoice, Purchase Order or Monthly statement showing product details, pricing information, subtotals, payment terms, due dates etc. There are various aspects and requirements which are missed during data collection, requirement gathering, which result in expensive rework. Rework in form design can be avoided by systematic approach to data collection and requirement gathering and by providing attention to design details.

Although data printed on the form is first and foremost important part of form design, there are plenty of other functional aspects which need to be considered while designing the form. This article lists some of the key aspects involved in form design. This article can be used as a check list for data collection, requirement gathering for form design.

There are various add-on or interfacing applications used to development form, for example, Streamserve, Adobe forms. These applications provide flexibility in terms of form layout, special features like email, fax, archive form data etc. While designing forms, one has to take in consideration the functionalities / features available in these applications and how to utilize them to the best extent possible. The design aspects in this article are influenced by features available in Streamserve.

1 Functional Aspects of Form Design

i. Form layout -

Form layout is the most critical part in form design. Creative look of the form, proper space utilization, logically separating data on the form are important form layout design aspects. Create form layout, to the maximum extent possible, to the actual specifications required; that is, correct paper size, orientation, margin, fonts, in different languages etc. There are couple of form design tools available, ranging from simple word document and excel sheet to design packages. The following points related to form layout should be considered.

- i) **Paper size** - Determine paper size to be used for the form. Most of the countries use ISO standard paper size for print correspondence, most commonly used one is A4 size paper (210 mm W x 297 mm H). Letter size paper (8.5 in W x 11 in H) is widely used in North America.
Refer - http://en.wikipedia.org/wiki/Paper_size
- ii) **Orientation** - Determine how the form should be oriented, **Landscape** or **Portrait**. Orientation should be determined based on the information to be printed on the form. Form with multiple columns with less number of lines can be oriented in landscape format, as against forms with fewer columns but multiple lines running over multiple pages can suitably be fitted in Portrait format.
- iii) **Paper source / Stationery** - It is critical to decide whether **preprinted** paper or **plain** paper is to be used for form. This decision is based on factors like complexity of the form, graphics and colors involved, security requirements in case of forms like checks, payment advice with check stubs, watermarked papers etc. Simple form majorly with large text and fewer graphic in grey shades can be printed on plain paper. Cost is another factor to be considered while making this decision as cost is recurring till the form is in use. Volume of printing output can also influence decision.

Perforated paper is yet another paper source used for forms. Forms with the stub should be designed to use perforated paper. Stub can be easily separated and returned back to sender. For example, statement with remittance advices stub or payment remittance advice with cheque stub etc.

- iv) **Margins** - Once the paper size, source and orientation are decided, next thing to decide is margins. Determine top, bottom, left and right margins on the form.
If print house services are used to print form, one of the factors to be considered while deciding margins is space required for OMR marks. Optical Mark Recognition is used by print house for sorting printed documents. Print house may have specific requirements to print OMR marks.
- v) **Company logo** - Company correspondences usually have corporate logo on them. If plain paper is used, logo is part of the form printed. Factors to be considered are, size of the logo to be printed (usually there are corporate standards governing size and ratio aspect i.e. length vs. width ratio),

corporate font and color, font size etc. Determine Position of logo on the form (from top edge and from vertical edge).

- vi) **Title** - Determine short and meaningful commercial title for the form, font for title, font size for title, position of the title (Top left corner, center of page).
- vii) **Address** - Form contains various addresses, usually, address of recipient and address of sender; depending on the purpose, form may contain additional addresses like address of bank for sending remittance, address of different partners like Ship-to, Sold-to, Payer. Determine different address to be printed on the form.

Format of the address differs from country to country, it is usually governed by postal requirements in a country. SAP allows to maintain multiple lines of address in address database, so determine number of address lines to be printed on the form. If sender and recipient are in different countries, that is, in case of international correspondence, determining correct address format is important, consider adding country in address line.

Position of various addresses on the form needs to be fixed. If window envelop is used, position of the address needs to be fixed based on position of the address window on envelop. Care should be taken for allowance / tolerance on size of envelop and paper size; envelop size is larger than papers inside envelop and there are chances of papers getting offset with respect to address window. Also, if different type of envelops are used (based on number of pages), make sure that the position of address window is same on all envelops. For example, if print output for the form is 2 pages, one may choose to use regular envelop, if print output is more than 5 pages, one may have to go for using full size envelop or catalog envelop, so address position should be fixed in such a way that address is visible through window on both envelops.

There may be country specific postal requirement to print postal bar code below address for automatic sorting used by postal services. The same needs to be taken care. Also, font of the address and font size need to be fixed based on postal requirement.

Address or contact person details for correspondence - Most of the times corporate address is not the one used for return correspondence, company may have dedicated customer service cell or may be serving customers through agents or service agencies. It is good practice to include contact address for return correspondence, contact telephone number (customer service toll free number, if any), email address, fax number, contact person name or agent or service agency name.

- viii) **Date format** - There are various dates printed on form, for example, correspondence date, invoice date, due date etc. Also various countries have different date formats, like dd.mm.yyyy used in Europe, mm/dd/yyyy used in US, yyyy/mm/dd used in Japan.

Determine the date format needed on the form. If date format needs to vary, determine basis on which the date format should be based on, whether it should be based on recipient country date format or sender country date format.

Refer - http://en.wikipedia.org/wiki/Date_and_time_notation_by_country

- ix) **Amount format** - Amount decimal notation and thousand separator notations differ from country to country. In Europe comma is used as decimal notation and period is used as thousand separators, whereas in US period is used as decimal notation and comma is used as thousand separators. Also position of thousand separator may be different for some countries, most of the countries put thousand separator after 3 places, but there are some countries like in India, first thousand separator is after 3 places and there after 2 places.

There are currencies which are without any decimals, like JPY (Japanese Yen). These currencies are stored in SAP tables with decimal places, but when printed, they are printed without any decimal places. Care needs to be taken to correctly format these currencies.

If the form output is in multiple currencies, it is a good practice to write currency characters or symbol along with amount. If single currency is used in the form, put a note specifying currency for amounts displayed.

- x) **Labels on form** - Prepare a list of all labels on the form indicating label font, font size, label style (bold or italics or bold and italics). Assign number to all the labels on the form and specify actual position of the labels on the form layout.

Usually there are fields associated with labels, specify the field against the label. There could be cases where the field associated with label has no value; if field has no value then specify whether label should still be printed or not, for example, there might be a label assigned for Subtotal and there is no subtotal calculated for the specified criteria, just printing label for subtotal does not make any sense.

- xi) **Fields on form** - Prepare a list of all fields on the form indicating font, font size, min length and max length expected for value in the field (for example, Customer Name could be max 50 chars). Cross check field length with respective source field length in SAP.
- xii) **Fixed text** - Form may contain fixed text, for example, letter body, legal text, disclaimers etc. Identify fixed text to be maintained on the form, position of fixed text on form, font to be used and font size, font style (bold or italics), Paragraph break and Paragraph style.

Fixed text should be maintained as part of form and not as labels or variables. Making it part of form makes it easy to manage paragraph format, line breaks etc. Avoid combining variable in between fixed text as this may disturb paragraph format or line length in case there is large variation in variable. For example, if remittance address is inserted in between fixed text on dunning letter, due to variation in remittance address variable, the paragraph in letter will be disturbed. Try to keep fixed text and variable text as separate paragraphs.

- xiii) **Tables and grids** - Form contains tables or grids to logically display data on the form. Factors to be considered for tables and grids design are position of grid on the form, outline / border for grid, size of cells / columns to match size of data fields (make sure that the column size is sufficient to fit maximum possible field size), position of text within columns / cells (indent, left justified, top or bottom justified etc), font and font size for text in table. Choose to keep logically separate data in separate tables, for example, keep summary of account in separate table and account item details in separate table.

Check whether there is a possibility of table overflowing on multiple pages. In case the output exceeds one page; specify whether column headings should be repeated on each new page.

If columns used on the form need to have shadings for better appearance, specify the shade to be used, usually the shades are in grey, so specify percentage of grey shade, for example, 5% grey. Make sure that shade and letters in shaded area prints correctly on all outputs (print, fax etc).

- xiv) **Headers & Footers** - There may be a requirement to print certain details on all pages of the form, these details can be marked as header and footer in the form, for example, corporate address, legal text like disclaimers, page numbers with number of pages. Identify if there are any header and footer required, font and font size for the same, check whether header and footer need to be part of top and bottom margins or outside margins.
- xv) **Page breaks** - Mention any specific requirements for page break. For example, in case of customer statement for payer with multiple stores or sold-to parties, business may have a requirement to create statement for payer (listing line items under each store or sold-to separately) with page break after each sold-to.

If tables are used in output and there is a possibility of output overflowing to multiple pages; repeat table headings on each page. Also, in case of page break, specify if the table should be split partially on one page, for example, form contains account summary table at the end of the statement, it does not look good to break summary table with headings on one page and details on another page, in this case moving complete table on next page is better.

ii. Language -

There is always an emphasis to use form in multiple countries in different languages or within same country to cater customers with different language preference. This significantly reduces effort and cost to develop separate form for each language. Applications like Streamserve provide flexibility to maintain forms in different languages.

Determine whether the form needs to be printed in different languages. Following points need to be considered for form in multiple languages

- xvi) Get translation for all labels in all languages the form is to be printed. Length of label may vary from one language to other, make sure that the space provided for labels is sufficient to print label in all languages, insufficient space may result in overlapping of text in some language. If labels are part of table column headings, make sure that the column width is sufficient to fit label in all languages.
- xvii) Special characters may be used in different languages. Make sure that the special characters are correctly copied on form and are printed as expected. Also make sure that printer or fax machine used to print form supports printing these special characters.
- xviii) If there are any fixed texts on the form then get correct translations from language expert. Usually translation service is used to get form translated; translation service may provide literal translation of the text; this translation may not make sense in business terms; so it's always better to get the translation verified from professional services and business users.
- xix) Check whether the data fields passed on to the form need to be translated. Usually data used on the form is independent of language, but if there is any data extracted from standard text, make sure that standard text is maintained in all languages.

iii. Method of Communication -

Forms are sent to business partners by various means of communication, mainly, print, email and fax. There are various technical means to trigger communication of form and different functionalities use different output types to trigger form output. Applications like Streamserve provide various features to send forms to business partners. The primary focus here is to cover functional aspects of means of communication.

a. Print form on local / network printer - Almost all the forms are required to be printed on local printer or network printer connected to user's machine. Output varies from single form output to multiple forms at a time. Determine following parameters for print output

- Printer hardware specifications - this is to help technical team to determine communication settings for printer, driver settings etc.
- Specify sorting sequence for print output. For example, if customer statements are printed, they may be first sorted by accounting clerk, then by customer number, so that the prints can be sorted easily and handed over to account clerks for disposal.
- Specify cover page or separation pages are to be printed. Any summary of print output is to be printed.
- In case of large print jobs printed on multiple printers, determine how to balance or share load among printers available.

b. Print at Print house - Companies use service provided by print house or external vendor to print large volume of prints. Print house provides services like printing, sorting of outputs, folding and putting prints in envelop, mailing letters etc. Large print houses usually have automated processes to handle large volume of prints and hence have special requirement to get input files in specific format. The functional design for print house largely depends on the requirements of the print house and has to be worked out along with print house selected. Some of the design aspects to be considered are

- Output format to be used for print house. For example, Advanced Function Printing (AFP) format or PDF format.
- Print house may have requirement to include reconciliation data or file along with print data/file. This reconciliation file is to reconcile number of forms included in the print file, total number of pages in output, summary of file content on key parameters used for printing. For example, if there is a specific requirement to include return envelop or marketing material along with form prints, then count for envelops or marketing material pages is included in reconciliation file, count for any specific delivery preferences like express delivery, overnight delivery etc are also included.
- There may be specific postal delivery requirement from business, like sending mail delivery by express mail, overnight delivery and normal delivery. These specific requirements need to be collected and drivers for the same need to be determined and passed on to print house.
- Print house using automated processes use Optical Mark Recognition (OMR Marks) for sorting prints. These specific requirements need to be considered, the space for these marks need to be provided on form layout.
- Means of transmission of print file to print house need to be determined. Usually print files are large in size and print houses have specific requirements to get these files. Determine file size limitations, if splitting of file is required; file naming convention to be followed etc. How the file should be sent to print house, over FTP or on CD / DVD? Frequency of files to be sent to print house, for example, every week on Thursday, every 10th day of the month etc. Follow on communication to be sent to print house to authorize them to start printing file.

c. Email - Companies these days are going for paper less communication and prefer to send correspondence to business partners over emails. Email allows to send communication to business partners at much faster pace. Streamserve has functionality to send correspondence over email using the email services available. The following points should be considered while designing email output.

- **Email attachment** - the form is usually sent as an attachment to the email. Consider limitations for the file size sent as an email attachment, there may be limitation on attachment size. Determine naming convention for email attachment. Determine file format for email attachment, usually email attachments are in PDF file format.
- **Sender email ID** - Determine sender email ID to be used. Usually special email IDs, like customer support email ID, are created to send such mass communications. If output generated has single output for multiple organizations then sender email ID may be different based on organization element, so specify determination of email ID based on organization element.
- **Recipient Email ID** - Determine source of recipient email ID. For example, email ID maintained in customer master general view should be used or email ID maintained for contact person for specific function in customer master (contact person data) should be used. Check whether multiple email IDs can be handled by supporting application, if so, determine where to get email ID and how these email IDs should be separated (by comma or semicolon).
- **Email subject line** - Specify short and meaningful subject line for email. If output is in multiple languages based on business partner's language choice, then specify translation for subject line in all languages used.
- **Email body** - Determine contents of email body. If output is in multiple languages, then translations for the same should to be provided. There may be a requirement to include disclaimers etc in email body, get text for the same.

- **Failed email notifications** - In case the recipient email IDs are not valid, email will not be delivered to recipient. Determine how failed email notification will be provided to users so that corrective action can be taken. Usually sender email ID will get any failures. But if sender is set up not to receive any emails and only send emails then failures will not come to sender email ID, so determine along with email administrator how to get failed email notifications.

d. Fax - Fax is one of the communication methods used for faster communications. Streamserve has capability to send output to fax machine using fax server or communication links available. The following functional aspects should be considered for fax output.

- **Recipient fax number** - Determined where to get recipient fax number. For example, fax number maintained in customer master general view or fax number maintained for contact person for specific function in customer master (contact person data).
- **Sender Fax number** - Fax is sent using fax server or communication link available, determine sender fax number to be used.
- **Country dialing code** - There may be different dialing requirements by fax server for dialing fax within local area, within country and for outside country. Also, fax server may be based in one country and output may be required to be sent to business partners in different countries. Determine any specific dialing requirements and where to get the prefix or suffix required. For example, for international dialing from US there is a need to put prefix 9011; 9 is for opening outside line, 011 for international dialing.
- **Cover Page for fax** - Fax may need to have cover page. Specify any specific cover page to be included in fax output.
- **Failure notification** - There may be communication failure while sending fax, determine how failure is handled by fax server, whether repeat dialing is possible, if so, how many attempts. Determine how these failures should be communicated to end user to take action in terms of sending correspondence by other means.

e. Mailing preferences for printed forms - Printed forms are sent to business partners by post. If print house or external vendor service is used, then they need to be informed about the mailing preference for each letter and same may be part of data sent to them.

- Overnight delivery or express delivery for critical correspondence. Any delivery confirmations required. Delivery tracking numbers to be captured and made available to end users and business partners to track delivery.
- Normal delivery for regular correspondence.
- Sorting of mails based on delivery preference or carrier preference etc.
- Choice of envelopes for sending printed material. Pre-printed envelop or plain envelop, specify envelop standard sizes to be used.
- International mails - Determine if there are any specific requirements for international post, like, content list or declarations for customs etc.
- Specify if any return envelopes or marketing materials are to be included in envelop along with print forms.

iv. Archiving form output -

Forms sent to business partners are archived for future reference. There may be a possibility of generating repeat output from originating application for reference, but it might not be always good to create output every time someone needs to refer to the same. It may not also be feasible to generate output multiple times; maintaining archive is always better alternative. Usually business partners are asked to contact back customer service representatives in case of any queries and customer service representatives may need to access correspondence sent to customers. In such a case it is faster to access correspondence maintained in archive.

- Determine whether the output needs to be archived or not. What archive functionalities are available with the supported application?
- Format - Determine the format in which output needs to be archived. Whether the data is archived and same is retrieved when required or whether form image is archived. Usually forms are archived in PDF formats.
- Identification - In order to differentiate between the actual form print and the archive print; archive copies may need to have identification marks. Water mark "Copy" or "Duplicate" are inserted on forms to identify archive copy. For example, there may be a legal requirement to print only one copy of Invoice form, in order to prevent multiple copies being printed, the archive copy needs to have water mark "Duplicate" or with letter "Duplicate" printed on top corner. Specify any such special requirements.
- Index - Indexes are maintained to retrieve data from archive. Determine the index to be used to retrieve data. Index may include, account number, name on account, address parameters like city and zip code, correspondence date, reference number (for example, invoice number), organizational elements like company code, sales organization etc. Index should be determined in a way that it should result in specific form being retrieved from the archive.
- Authorizations - Multiple users in the organization may need to have access to archive data or forms. There may be a need to restrict access to specific archive forms to specific users. In such a case archive should be split into different folders to restrict access. For example, invoice and statement for 3rd party customers should be separate from the ones for intercompany customers; to restrict customer service representatives' access to only 3rd party customer data. Specify any such special requirements.

v. Volumetric Data -

It's important to collect volumetric information for the form. Couple of design aspects are based on expected output volume, for example, whether to use external print house to print forms or whether to print forms in-house. Following points should be considered.

- **Frequency of output** - Determine whether the output is expected daily, weekly, fortnightly or monthly. Whether output is expected on any specify day in a month, for example, 2nd day of every month after month closure. What if it's a holiday, whether it should be sent a day before or a day after?
- **Output Volume** - Specify expected output volume. Specify volume expected per instance, per month and volume per annum. This information is important in terms of selection of hardware for printing. For example, if there is a requirement to print forms in house; speed of printer and number of printers required needs to be determined based on volume.
- **Annual increment in volume** - Specify expected growth or decrease in print output. Expected mix of print, email and fax output.

2 Testing considerations

Testing form is a critical activity, complex the form requirements and additional functionalities like email, fax, archiving, more are testing efforts. Lot of changes happens in form layout during testing and most of the times it is an iterative process. Systematic approach to design and testing can avoid rework and frequent design changes in the form.

- a. **Form layout** - Make sure that all design aspects in form layout are tested. During testing, print form on the correct paper size and using printers which will be used for production or similar configuration (make & model) printers. Getting correct printers for testing is important, the form printed correctly on one printer may not necessarily print in the same way on another printer.

Color shades or grey shades may vary from printer to printer, test printing form with grey shades and check text in shaded area to make sure text is visible.

If any special fonts are used, make sure fonts are printed correctly on printer. If multiple languages are used, pay special attention to language specific characters, they may not print correctly on printer which is not set up to handle different languages.

Print forms with maximum possible field lengths. For example, if customer name in address is expected to be 55 characters long, create test data with maximum field length for customer name field and test print output. Make sure that maximum field length specified is not overflowing space provided or is not overlapping any adjacent fields.

If the form contains label which needs to be suppressed incase corresponding field has no value, create test data with no value in the field to make sure that label is also not printed.

Check form layout to make sure the address appears in address window on envelop correctly. Check it for all types of envelops used and for different number of pages.

- b. **Combine multiple languages** - If the form output is expected in multiple languages, make sure that output is tested with multiple languages combined in one output spool. This is to make sure that the print program is correctly fetching labels or translations in correct language, there are no program variable refresh issues.
- c. **Multiple pages printing** - Make sure that output containing multiple form pages is triggered for testing. For example, if different cover pages are to be printed based on some logic, create single output which includes form for each type of cover page. Also, print output with forms flowing over to multiple pages. Verify page numbers are assigned correctly to each page, total number of pages is correct. Page number restarts for each new form and is not continuing from earlier form.
If there are any specific requirements for page break, create test data which should trigger page break. Make sure that the page break is correctly done and page numbers are correctly assigned to each page.
- d. **Combine multiple outputs** - If form output is expected to be sent by email, print, fax etc then combine all types of outputs in one spool and make sure that outputs are separated and sent correctly for different communications methods.
- e. **Full load testing** - If high volume printing is required to be done in house or if new printers are procured for specific requirements of printing volume, perform full load printing to make sure printers are able to handle expected volume. Make sure printer speed is sufficient to finish printing in expected timeline.
Also test that prints are in specific sequence or outputs are sorted in correct sequence with correct cover page or separators.
- f. **Test email output** - Special care needs to be taken while testing forms which are to be sent over email. Usually in test system email outputs are not sent to external email IDs; to avoid test documents getting sent to business partners, resulting in confusion. Dummy recipient email IDs are used to test sending form over email.

Make sure email IDs, sender and recipient, are correctly picked based on logic specified. Email subject line is populated, email body content is correct as specified. Form attached to email is

correct, test printing the form from email attachment and compare it with print output for the same. If output is to be sent to multiple email IDs, create test data containing multiple email IDs.

- g. **Test fax output** - Special care needs to be taken for fax also, to make sure fax is not sent to business partner from test system. Create dummy fax numbers or use internal fax. If testing is performed using only internal fax number, it may not identify issues involved in dialing fax number for different locations. Test sending fax to different locations, which need to have different dialing procedure.

Check whether correct cover page is inserted, fax layout matches with printed form for same data or output. Check printing of grey shades & text in grey shades on fax machine. Check printing of special characters in different languages.

- h. **Test archives** - If forms are to be archived after printing, test that archiving works correctly. Make sure that all archive indexes are populated correctly in archive data base. Archives are stored in correct directory from access restriction point of view. Also make sure that the archive matches with print output, check that multiple forms are not getting added in one archive document, they are separate as expected. Check that water marks, like "Copy" or "Duplicate" are correctly inserted in archive documents.
- i. **Print house or Printing at external vendor** - Testing printing at print house is critical as it usually involves high volume of print outputs. Create test files with different possible output combinations, especially to cover testing the reconciliation requirements and key parameters passed on to the print house. Test transmission of files to print house. If print house is also involved in sorting prints, putting prints in envelop, adding return envelop and marketing materials; send output to print house and ask them to complete job and send envelops to testing team. This is to make sure correct prints are in correct envelop and correct accompanying material is inserted.

Related Content

Streamserve integration with SAP- <http://www.streamserve.com/partners/Partner-Profiles/SAP/>

For more information, visit the [Enterprise Resource Planning homepage](#).

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