NÆRINGS- OG HANDELSDEPARTEMENTET

*Norwegian Ministry of Trade and Industry*

Simplified Forms for the Private Sector:

# ELMER 2

## User Interface Guidelines for Governmental Forms on the Internet

This document is a translation of the Norwegian ELMER 2 guidelines
with no special adjustment to an international circle of readers.
In case of discrepancy, the Norwegian version prevails.

## Preface

The Norwegian Ministry of Trade and Industry has decided that Elmer 2 shall be the common guidelines for user interfaces in public forms for enterprises on the Internet. This is a comprehensive set of principles and specifications for the design of Internet-based forms.

Simplification of public forms is important to improve communication between the users and the public sector. The proceeding transition to electronic reporting may be an important simplification measure for the respondents, but only if the Internet-based solutions are felt to be more *user friendly* than the old paper versions. By applying good pedagogical principles, electronic forms may also ensure a better *understanding* of the task, better *control* of the data before submission, and by that even better *response quality* and more *efficient processing* by the relevant authority.

As early as the summer of 2000, an interdisciplinary reference group on electronic reporting initiated **the ELMER Project** – a collaboration project between the Norwegian Ministry of Trade and Industry (NHD), the Confederation of Norwegian Enterprise (NHO) and the Federation of Norwegian Commercial and Service Enterprises (HSH). The Project followed six enterprises over the period of one year in order to map out their reporting duties, and test simple solutions for electronic reporting based on familiar technology.

Among other things, the ELMER Project presented an example for design of a complex web form. First and foremost the example should demonstrate that the use of simple Internet technology opens up for new pedagogical opportunities which may make reporting to governmental authorities a lot easier. At the same time, it could be the start of a template designed to ensure common look and feel to public forms. The ELMER example was rapidly adopted by commercial form developers and public agencies, and has been followed up in a number of governmental forms along with some from the private sector. But there has always been a demand for further development and concretisation, both from the business, organisations and from the agencies themselves.

The ELMER 2 Project has been conducted by Forvaltningsinfo AS in collaboration with NHO. The internal eForm guidelines from the Directorate of Taxes, based on the first ELMER Project, were used as a basis for their work. Business organisations, governmental bodies, usability experts and form developers were invited to submit suggestions and to take part in debates during the process. NHO made the Internet domain elmer.no available and contributed to the maintenance of this website with news, drafts and proposals and discussion forums for use by all interested parties during the development period. Open workshops were held, and a number of authorities and experts have written, read and commented contributions posted on the Internet discussion forum.

The Ministry of Trade and Industry submitted the draft for public hearing in the autumn of 2005. Following this consultative round, a few adjustments were made. These adjustments have also been available for discussion on the Internet forum. The approved ELMER 2 was published in October 2006. Afterwards NHO has contributed in translating the ELMER guidelines into English.

The guidelines are being administered by the Brønnøysund Register Centre, which in accordance with the Business Register Act, is responsible for assisting the inquirer with advice related to reporting obligations.

ELMER 2 has evolved through co-operation between very competent enterprises and experts. All in all, they have brought with them unique experiences from *designing* different forms for several agencies and suppliers, from the *reception and use* of the same forms by the inquirer, and from *usability testing* of ELMER1-based and other electronic forms in varied user groups.

Through these efforts, a good foundation has been laid to ensure that the public sector is well able to meet the opportunities and challenges found in electronic form-based communication in a pedagogical and user friendly way. But ELMER 2 is not the final answer. The users' web experience and behaviour are evolving rapidly, as is technology. And new conventions will replace old truths about how a website should look and behave to communicate with its users. It is therefore extremely important with a continued involvement from public agencies, experts and organisations. Giving feedback on the use of ELMER 2 in practice, exchanging good solutions within the framework of the guidelines, and continuously discuss proposals of changes and further development.

# ELMER 2
## User Interface Guidelines for Governmental Forms on the Internet

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Translated from the original document of October 1, 2006. In case of discrepancy, the Norwegian version prevails.

# Introduction to the ELMER Guidelines

## Delimitation of Scope

The objective of the ELMER Guidelines is to meet the challenges of Internet design and pedagogics that are particular to web forms. There are a number of standards and recommendations which impact user experience in web based communication in general. WCAG requirements (WAI) and W3C conventions have not been baked into the ELMER Guidelines, but they shall not contain recommendations which are incompatible with these. Neither is the obligation of using both official variants of Norwegian, bokmål and nynorsk handled here, since it applies to written communication in general, and by that also to forms.

In other words, ELMER is not *the only* set of guidelines to consider, when designing electronic forms, but the only one that *concentrate* on the form itself.

It is an important principle that the public authorities shall only ask for information

- which they have a statutory right to require ,
- which is relevant to the executive processing in question, and
- which the declarant can be expected to have, or be able to obtain, access to.

This restriction follows partly from the law itself, and partly from political signals. ELMER does not comment on *which* information the authorities should request, only in *how* the questions are presented in the context of a web based form.

Furthermore, principles related to login and search functionality, executive processing and filing procedures, except for those that have been incorporated into the form itself, are not dealt with in these guidelines. Nevertheless, it has been necessary to include borderline functions which lie in-between the form and surrounding systems in cases where these systems greatly influence the user experience when filling in the form.

ELMER has been designed with the enterprises' reporting obligations to the authorities in mind. But the experts in large corporations do not fill in forms. They mainly use professional computer systems. First and foremost ELMER shall safeguard the needs of the many small enterprises, whose employees have the same attitude towards filling in a form as that of a private citizen. An individual's general competence and preferences when it comes to form completion do of course not alter if the form relates to personal life. Rather, a common look and feel across different reporting situations will serve as yet another advantage for the electronic form in competition with the old paper version.

Furthermore, it is of course no disadvantage if ELMER was to gain general acceptance *within* the private sector, in cases involving customer/supplier reporting, as well as reporting between enterprises.

## How to Apply the Guidelines

ELMER 2 shall concretise user quality requirements in web forms

- vis-à-vis inquirers (organisations/agencies that shall receive the replies submitted in the form) from users and political environments
- vis-à-vis suppliers from their contracting inquirer
- vis-à-vis experts in the inquirer's organisation from the management of the organisation/agency

When referring to ELMER 2 in requirement specifications, it is important to be aware of the specific division of labour and responsibility between customers and suppliers. Since it is the inquirer who is responsible for the communication with the respondents, the inquirer will be the one to decide and to be responsible for questions, labels, help texts, validation rules, error messages etc. As a rule, the supplier's influence here is usually quite limited.

A requirement to external suppliers stating that their **system/solution** shall comply with ELMER 2 would mean that:

- a **framework** shall be supplied which will enable the inquirer to adjust content and information structure of the form as described in ELMER.

In cases where external suppliers shall provide **both content and information structure** for the form itself, it would mean that

- a **proposal** relating to content and information structure shall be provided that complies with ELMER.

A requirement for suppliers to comply with the ELMER 2 guidelines must also address the extent to which the "should requirements" must be met in the delivery

ELMER 2 differentiates distinctly between "must", "should" and "may". "**Must**" constitutes a mandatory requirement which shall be met. "**Should"** is a recommendation, but it is up to the individual to weigh these requirements up against other considerations, such as cost-benefit analyses, or suitability in relation to other user needs. "**May**" is mainly used to emphasise that a solution is permitted.

In the clarifications developed for each point, there are some suggestions in relation to text and design. "**Suggestions"** shall be interpreted as being more binding than an example, but less binding than a recommendation.

## Structure of the document

The requirements are presented in varying number of *categories* within four main *sections*. Thus each requirement has a three digit identification number. Permitted alternatives to a requirement are identified with litra a, b, c etc. in addition. Thus, requirement 1.1.4a is a permitted alternative to requirement 1.1.4.

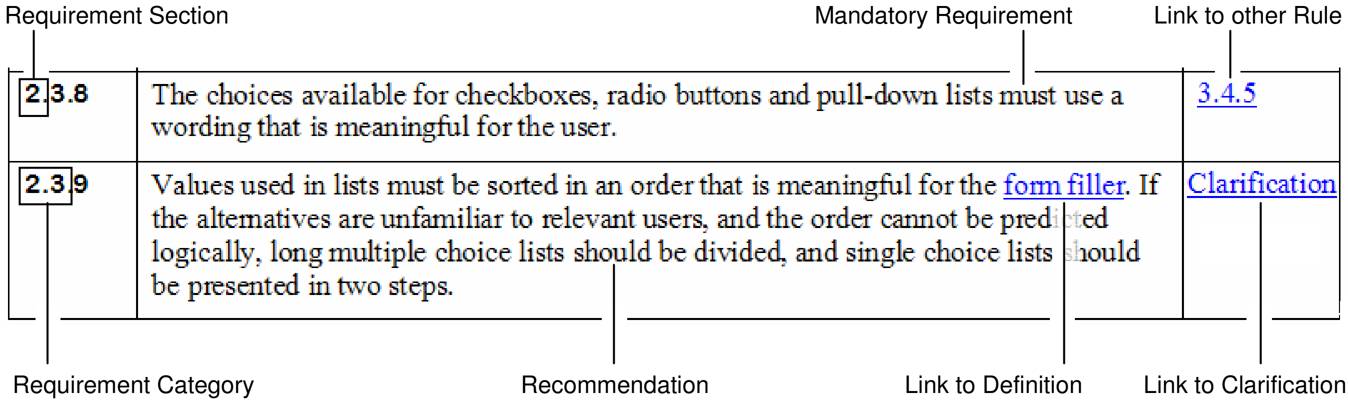
A checklist for design of an ELMER form is also included, as well as a separate chapter on concept definitions.

Each requirement may be supplemented with three different types of references:

- Explanations or clarifications of a rule, such as suggestions for standardised texts in forms.
- Reference to other, related rules
- Explanatory Examples

Clarifications and examples are presented in a separate chapter, divided according to requirement category.

The references are clickable in the electronic version. So are the concepts defined in the concept overview (except when they occur several times in succession).



# 1: Components of the form page

## 1.1: The Navigation Area

**A separate navigation menu shall help the form filler orient himself about the main topics of the form, show where he is, and enable him to move between the different form pages. Carefully considered and standardised use of navigation elements shall ensure easy recognition between forms from different inquirers.**

| No | Requirement | Reference |
|---|---|---|
| 1.1.1 | All ordinary form pages must contain a navigation area on the left side of the screen. | Example 1 |
| 1.1.2 | The navigation area must contain a title for each of the pages of a form. For forms containing track options, only the regular pages shall be shown until a track has been selected. | 2.1.1 |
| 1.1.3 | The page titles in the navigation area must provide an easy-to-understand description of the topic(s) on the page, using as few words as possible. The most important information in the title should be presented first in the text. All page titles within a form must be different from one another. In cases where it is possible to differentiate between different menu options by using easy-to-understand names, numerical codes (numbers used to identify different posts) must be avoided or be placed last. | 2.3.1 |
| 1.1.4 | Each individual page title must be linked to a form page, and allow the form filler to choose the order in which he or she would like to complete, or read, the relevant pages. The representation of the active page must be highlighted. | |
| 1.1.4.a | The page order in forms must be locked where:<br>1) the order is significant with regard to response interpretation and quality, or<br>2) the order will depend on responses given on previous pages. | |
| 1.1.5 | Standardised text, in the navigation area above the first page reference, must indicate whether the completion order can be random or is locked. | Clarification |
| 1.1.6 | In forms with many pages (normally more than 7 - 8 pages), titles for different groups of pages (group titles) should be added above the pointers to the individual pages, or as a super ordinate level in an expanding menu. Collective terms used for the subordinate pages must be easy to understand for the relevant user group. The group titles must be highlighted. | Example 2 |

### 1.2: The Information Area

**A separate area must be set aside for providing the user with optional additional information in addition to the information given by questions, labels, and messages relating to completion-related errors or ambiguities. User-requested help makes it possible to provide new, desired knowledge to unskilled users without having to overburden the professional user with unwanted information. Carefully considered and standardised use of information elements shall ensure recognition and familiarity between forms issued by different inquirers**.

| No. | Requirement | Reference |
|---|---|---|
| 1.2.1 | All ordinary form pages must contain an information area on the right side of the screen. | Example 1 |
| 1.2.2 | In the information area, the user will be presented with a user-requested help and feedback on how to correct errors (error messages and warnings). The text must be presented in its entirety, i.e. not as a tool tip, hint or in another way which require specific positioning of the mouse pointer. | Example 1 |
| 1.2.3 | User-requested help must *appear* when the user clicks on a standardised help icon in connection with a question. The user can make the help text *disappear* from the screen by clicking again on the same symbol, and must be *replaced* by a different text if the user clicks on the icon connected to a different question. | 3.4.1<br>4.2.1 |
| 1.2.4 | Error messages and warnings must appear in the information area if the corresponding field is clicked upon on a separate validation page. | 4.3.2 |
| 1.2.5 | Both the help texts or error messages/warnings and the input field must be visible within one screen. The start of the information should appear automatically on the same line as the question it relates to. | Example 1<br>4.2.4<br>4.3.4 |

### 1.3: Other elements

**In the world of paper, the actual interaction between the inquirer and the form filler is supported by guidance material and a support apparatus. These functions must also be safeguarded in the electronic forms, above and beyond the use of help texts, and in a way that is easily recognisable from form to form. Also navigation between different form pages, saving, validation and the actual submission process must have a common, well thought through methodology.**

| No. | Requirements | Reference |
|---|---|---|
| 1.3.1 | The labels, input fields, help symbols and inline help used in the form must be presented in a separate input area between the navigation area and the information area. | Example 1 |
| 1.3.2 | At the top right hand corner of every ordinary form page, there must be a link entitled "Help". This link must open up a separate page (help page) with access to relevant information about the following topics:<br>• **About completion and use**<br>Brief information stating that a help symbol next to the input fields provides a more detailed explanation, that the system stores data continuously, and that nothing is being submitted before you explicitly tell the system to do so on the last page. | 1.3.6<br>4.2.7 |

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| | • **About sub-forms and enclosures**<br>On how the different forms are interconnected with one another, and the possible need to transfer data and figures between different forms; on how and where to find and download sub-forms, and on how to add an attachment.<br>• **Contact information**<br>About contact person and the relevant authority, telephone number, email address etc for further assistance for both technical and subject-related guidance.<br>• **About the form**<br>General guidance and information about the form which cannot naturally be linked to one specific input field or field group. Including reply deadlines, declarant target group, and in what situations the form is to be used. In addition, legal basis for collecting the information, information about the right of appeal, about penal provisions and about eventual re-use of information.<br>The information may be presented directly in the form or in separate sub-pages, depending on how extensive and detailed the information is. The help page does not have to have a standard page layout. | |
| **1.3.3** | The text under "**About completion and use**" applies to all types of forms and must therefore be standardised. It must also appear automatically in the information area on the first page of the form until another help text has been selected. | 5.2.3 |
| **1.3.4** | The full title of the form (short title, if any, in parentheses) must appear at the top of the input area on all ordinary form pages, in addition to a clearly expressed statement of who the inquirer is. | 3.1.1 |
| **1.3.5** | On the bottom of each ordinary form page, there must be a row of buttons with the at any time relevant options "Previous" (on the left hand side) and "Next" (on the right hand side) in order to go to the next page or return to the previous page. This row shall not contain a "Save" button. | 5.2.9 |
| **1.3.6** | The help menu (including sub-pages, if any) , the "validation page", the "in-depth page" and the "table page" must contain a navigation button entitled "Continue" which will return the user to the previous form page or to the next relevant stage in the completion process. | 5.2.6 |
| **1.3.7** | The "Validate Form" button must in general only appear on the last form page. After the validation has been completed, this button must appear on all form pages. | |
| **1.3.8** | The "Validate Form" function must lead to a complete form validation, and an error index must appear on a separate validation page. The user must be informed on the validation page if there are no errors or irregularities. | 1.3.6 |
| **1.3.9** | The "Submit Form" button must only appear on the validation page, and only if the validation page does not show any absolute errors. | |
| **1.3.9.a** | "Sign and Submit", "Send" "Send to xxx "etc. are acceptable alternatives to "Submit Form" in cases where it is important to signify or differentiate between various procedures. Collective submission of a form set may require specific buttons, functions and interfaces. | |

# 2: Structure and Order

## 2.1: Track options and response-dependent questions

**The various questions presented in a form have a varying degree of relevance to different user groups. Helping large user groups to avoid questions that are not relevant to their situation, is perhaps the most important simplification measure which can be achieved by introducing electronic forms. But this requires extensive knowledge as to which fields are relevant to which user.**

| No | Requirements | Reference |
|---|---|---|
| 2.1.1 | In forms where a significant number of questions are irrelevant for specific form filler groups , or where different form filler groups shall complete significantly different sets of questions, different tracks must be developed. Each individual user shall be directed to the relevant track. Several tracks may consist of identical pages/question sequences. | |
| 2.1.2 | Questions that fall within the scope of a track but still only applies to a small percentage of the declarants (response dependent questions) should be made inaccessible to users which they do not concern.<br><br>A long sequence of rarely relevant questions should rather be established as a separate track. | |
| 2.1.3 | Both labels and input fields for response dependent questions must be greyed on the form pages and only be opened for completion if previous answers indicate that they are relevant. | Example 3 |
| 2.1.4 | In cases where it is necessary for the purpose of selecting the correct track or response dependent question, an additional filtering question may be added. This shall only be done in cases where the collective simplification for the users is greater than the additional work generated by adding the filtering question. | |
| 2.1.5 | Questions which determine track options or response-dependent questions should be presented directly before the relevant track option or response dependent question, unless this conflicts with the logical composition or general division of topics. | 2.3.2 |

## 2.2: Paging and Page order

**When the scope and order of form pages is adjusted to fit the medium and the form filler's situation, it may increase the form filler's understanding of the task at hand, the navigation between different pages, and give him or her a better understanding of how the different parts of the form completion are interlinked.**

| No. | Requirements | Reference |
|---|---|---|
| 2.2.1 | Questions which concern one and the same logical topic should be presented on one page, even if this means that the user will have to scroll vertically. For extensive topics, one should attempt to create logical subcategories and present them on separate pages. A reasonable number of pages is more important than keeping the pages short. | 1.1.6<br><br>3.3.3 |

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| **2.2.2** | Fields/questions (if any) relating to personal identification (the number, name and address of the declarant, form filler or inquirer should all appear on the initial form page. Other questions should be avoided on this page. This page must be entitled **"Introduction."** | 4.1.2 |
| **2.2.3** | When questions presented on different pages are closely related, they should be presented in an order that correspond to the form filler's natural chain of thought, normally moving from premises/ingredients to conclusions/summaries. | 2.3.2 |
| **2.2.4** | If the form will present a summary of completed data across different pages, this summary must be presented on a separate page at the end. This page must be entitled "**Summary**", and the Summary page must indicate clearly that the form has not yet been submitted. | 3.3.6<br>5.1.2<br>Example 5 |
| **2.2.5** | Personal identification information about the declarant must be repeated in the form of text, (not input fields) on the Summary Page. | |
| **2.2.6** | Each individual page should be delimited with a view to avoid an unreasonably long download time. The download time is affected by such factors as graphics use, the amount and type of controls and the number of fields. | 2.2.1 |

## 2.3: Page Structure

**If the structure and order of questions are adjusted to fit the web medium and the form filler's situation, it may serve to increase overview and understanding of the separate components of the task. This may require great deviation from any paper version of the form.**

| No. | Requirements | Reference |
|---|---|---|
| **2.3.1** | All form pages must have a heading (page title) which clearly describes what is being dealt with on the relevant page. In cases where the page title is not identical to the short title given in the navigation area, the short title must appear in parentheses after the full title. | 1.1.3 |
| **2.3.2** | The order in which the fields appear on a page must follow a natural logic, from the first to the last (e.g. from last year's figures to this year's, from January to December), and from the various components to the end result ( e.g. from price per item to total expenses). | 2.2.3 |
| **2.3.3** | The order in which all the elements appear on a form page must follow the natural direction for reading from left to right and from the top downwards. | |
| **2.3.4** | The elements linked to one and the same field must be presented in the following order : < field number (If any)>, <label>, <help symbol>, <signs (if any)>, < input field>, <descriptive term, format, limit value etc>.<br>On the next line <reference or other instant explanation (inline help text)> | Example 6<br>3.1.2<br>3.1.4 |
| **2.3.5** | In cases where a form contains three or more fields which logically belong together (field category), these fields must be grouped together on the same page and be given a descriptive name. This also applies to additions and subtractions as well as calculations. The category must be marked with outline borders, and all fields belonging to the same group must be kept inside these borders. If the page contains only one category, borders shall not be used. | Example 1 |

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|---|---|---|
| **2.3.5.a** | As an alternative to outline borders, and in order to indicate a weaker connection, additional space between the rows can be used. | |
| **2.3.6** | In cases where a field group will not be visible within one single screen, one should if possible attempt to create logical sub-groups and present them separately. | |
| **2.3.7** | Horizontal scrolling shall not be required. Page elements should be placed vertically, above each other rather than side by side, if necessary to ensure that this requirement is adhered to. | 3.2.3 |
| **2.3.8** | The choices available for checkboxes, radio buttons and drop down lists must use a wording that is meaningful for the user. | 3.4.5 |
| **2.3.9** | Values used in lists must be sorted in an order that is meaningful for the form filler. If the alternatives are unfamiliar to relevant users, and the order cannot be predicted logically, long multiple choice lists should be divided, and single choice lists should be presented in two steps. | Clarification<br>Example 4 |

# 3: Form elements

## 3.1: Identification and labels

**The label constitutes the primary description or definition of the data to enter in each individual field. In addition, an identifying name or number, as well as the label, may serve as a reference in the communication with the user with regard to the relevant field, topic or form. It is a challenge to find short and concise definitions that are meaningful, and easy to grasp, and to use concepts which the user can be expected to understand, still managing to convey the complete meaning of the content.**

| No. | Requirements | Reference |
|---|---|---|
| 3.1.1 | Forms with long complex titles should be given an additional easy-to-understand short title, similar to the short title given to laws. The short version of the form title should appear in parentheses after the formal, full title in the form's title field, so that it can be used as a search concept. | 1.3.4<br>5.2.2 |
| 3.1.2 | Field numbers (often used to identify different posts) are only to be included in the label when they are important for guidance or communication purposes in relation to the field, and must be avoided in cases where they are not required. | 2.3.4 |
| 3.1.3 | For electronic forms that are also published in a paper version, the label assigned to a given field must be identical for both versions, provided the field itself shall have the exactly the same meaning in both versions. | |
| 3.1.4 | In cases where it is important to the form filler's understanding of a particular field, the denomination such as percent (%), limit values such as the maximum deduction permitted, and/or formats, such as date formats, should be described in connection with the actual field and not in user-requested help. | 2.3.4<br>Example 7 |

## 3.2: Tables

**Many forms contain extensive information sets which have to be entered into a table. Traditionally, this involves particular pedagogical and layout-related challenges with regard to electronic forms as well as for their counterparts on paper.**

| No. | Requirements | Reference |
|---|---|---|
| 3.2.1 | If a similar set of data shall be submitted for an unknown and varying number of units, the form should present a dynamic table where new rows can be added if needed. | Example 1 |
| 3.2.2 | If necessary to avoid vertical scrolling, an existing table must be divided into several tables in the web form. The individual parts must be divided logically and be given different easy-to-understand headings. | Example 8 |
| 3.2.2.a | When utilising the full page width is essential to avoid horizontal scrolling, particularly extensive tables must be presented on a separate page (table page) without the standard page layout. | 1.3.6 |
| 3.2.3 | In tables where labels appear **above** cells (column headings), vertical scrolling resulting in labels disappearing from the screen when filling in the bottom fields, should be avoided. | |

## 3.3: Figure Processing in Forms

**Many questions used in forms are meant to serve as an educational tool, guiding the form filler toward the correct answer to complicated calculations based on more familiar figures. A uniform notation and processing of figures will increase the form filler's understanding of an area that is of critical importance to data quality.**

| No | | Reference |
|---|---|---|
| 3.3.1 | A field which receives value(s) **automatically** from (an) other field(s) that are not visible on the screen at the same time as the receiving field, must be equipped with user-requested help explaining where the figure came from. The field or fields from which the figures are being transferred should also be equipped with similar user-requested help explaining the transfer. | 3.3.7<br>4.2.3 |
| 3.3.2 | **Manual** transfer of text, or manual copying or summations of figures from one field to another in the same form, or to a different form, should be avoided. In cases where the form filler still has to manually transfer a value from one field to another, this operation must be explained in inline help, present at the receiving field as well as the sending field. | 4.2.1<br>Clarification |
| 3.3.3 | As long as it does not conflict with logic and topic division in general, figures that are part of summations and calculations should be kept on a single page to reduce the need for calculations and transfer of values across pages. | 2.2.1 |
| 3.3.4 | When a summation has to stretch across several pages, interim sums should appear at the bottom of each page. | |
| 3.3.5 | If there are several interim sums which are not simultaneously visible to the user, a separate summations group should be created at the bottom of the page. If the interim sums are located on different pages, they should be transferred to a summary page. | Example 10 |
| 3.3.6 | In forms with calculations stretching across several pages whose end result is important to the declarant, the results should be added to a summary page. | 2.2.4 |
| 3.3.7 | In cases where it may be particularly unclear as to where a calculated figure originates from, the calculation formula or basis should be described in inline help. Less important formulas may be included as user-requested help. | 4.2.1<br>4.2.3 |

## 3.4: Conventions and Symbol Use

**In time, many experienced users have become familiar with various standard symbols and descriptions on the Internet. Sticking to the conventions will ease the user's understanding of the functionality and usage of the web form.**

| No. | Requirements | Reference |
|---|---|---|
| 3.4.1 | For fields equipped with user-requested help, a clickable symbol, leading to the relevant help text, must be provided. The symbol must be placed directly in front of the relevant input field. Help symbols for groups must be placed directly after the label for the category. | 1.2.3<br>2.3.4 |
| 3.4.2 | The help symbol must alter appearance when activated (clicked on). | |

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| **3.4.3** | Checkboxes must be used where the user is permitted to select more than one out of multiple predefined answers (multiple choice questions), while drop down list or radio buttons must be used where only one answer is permitted (single choice questions). | |
| **3.4.4** | For public forms, pre-selected values should not be provided for checkboxes or radio buttons. In cases where the user is permitted to give an empty answer, "Don't know" or "No reply" (e.g.) shall be a valid and selectable option. | |
| **3.4.5** | Where it may serve to improve the form filler's understanding of the task, check-boxes, radio buttons and drop down lists should be used instead of open input fields. | 2.3.8 |
| **3.4.6** | To save place, drop down list should be preferred to radio buttons when presenting a large number of mutually exclusive response alternatives. For tables, radio buttons are not an option. | 2.3.9 |
| **3.4.7** | For dates, the format dd.mm.yyyy must be used. | |
| **3.4.8** | The following should be the standard order for elements that can receive focus with the help of the tab key on the keyboard: Help symbol (if any) for the first input field→ the input field (or first value from the top of the options list) → forward button to the next form page (or the next natural option) →other elements on the page (if any).<br><br>Greyed fields are skipped in the tab sequence. | |
| **3.4.9** | Fonts, font sizes, colours and other graphic elements, must be used consistently and uniformly in all forms issued by the same inquirer. The forms must differentiate clearly between various types of elements (headings, category headings, labels, error messages and warnings, etc.). As a general rule, sans serif fonts should be used and colours should provide good contrast. | 4.2.9 |
| **3.4.10** | The form must comply with current conventions relating to web accessibility for all, including WAI requirements and general W3C conventions. | |

# 4: Help and Feedback Messages

## 4.1: Prefilling

**Applied correctly, prefilled data can ease the workload for the form filler. But checking prefilled data can also be a time consuming task. And prefilled information which cannot be corrected in the same web form in which it appears, may be more confusing than helpful. Appropriate use of prefilled data requires some general rules of play.**

| No. | Requirements | Reference |
|---|---|---|
| 4.1.1 | Information which the inquirer has access to internally or from other sources, should only be presented in the form if the presentation is relevant to the form filler. | |
| 4.1.2 | When it is necessary to check if registered information is (still) correct, this information should be prefilled in the form. The same applies to deduction rates and other constants which may be useful to the user. | 2.2.2 |
| 4.1.3 | Prefilled information, for example from public registers, which the form filler can not alter, should appear as text, while editable prefilled values must be presented in a field. | Example 10 |
| 4.1.4 | In cases where prefilled register data cannot be altered in the form, information on how to report changes elsewhere, must be provided in inline help. | |

## 4.2: Help texts

**In paper-based reporting, providing sufficient information to the unskilled user, without overburdening the expert with unnecessary details, has always been a problem. Correct use of optional (clickable) help texts, in conscious combination with information which all users are exposed to, is a good solution to this dilemma. Optional, clickable information elements at different stages of the completion process, ensure that the information comes at the right time, and only to those who need it.**

| No. | Requirements | Reference |
|---|---|---|
| 4.2.1 | Help texts believed to be necessary to a large percentage of form fillers must be presented briefly in the input area as inline help. Where a more extensive textual presentation is required, this information must be supplemented with a more detailed user-requested help. | 1.2.3<br>3.3.2 |
| 4.2.2 | All fields, which according to experience lead to inquiries from form fillers, must be equipped with explanatory user-requested help. Avoid help texts where it would not provide additional information of relevance to any user group. | 3.1.4 |
| 4.2.3 | Explanations provided in user-requested help must be adapted to fit the needs of the least skilled form fillers who do not make use of professional advisers and do not complete their form through professional systems. | |
| 4.2.4 | One user-requested help text should not exceed the height of one single screen. | 1.2.5 |

| | | |
|---|---|---|
| **4.2.5** | In cases where it is necessary to provide a quite extensive presentation as user-requested help, it should be presented in two layers, so that a basic general description points to a separate in-depth description. The in-depth description must be presented on a separate page (in-depth page) which does not have to follow the standard page layout. | 1.3.6 |
| **4.2.6** | Where it may be useful to the users, the help texts should contain links to other fields, words or phrases found in the form. Links may also be provided to information of special interest, or information which may interest particular user groups, if the text specifies clearly what kind of information the link leads to, and who it concerns. Links to information that is irrelevant to the form completion should be avoided. | |
| **4.2.7** | Vital general information that is not related to individual fields or field groups, must be presented on a separate help page to the form in general. | 1.3.2 |
| **4.2.8** | Considerable effort should be put into tailor-making text for web presentation. In general, the help texts must be shorter, more structured and divided into smaller segments than what would have been acceptable for guidance material produced on paper. | |
| **4.2.9** | The readability of help texts should be increased through use of typographic means. Except for very brief phrases, the texts should be broken into a series of easily readable chunks with highlighted headings and keywords. | 3.4.9 |

## 4.3: Error Messages and Warnings

**In web forms it is possible to give feedback on errors and mistakes before submission. This saves time and effort for both the declarant and the inquirer. Where ever the form filler is halted by automatic validations, it is important to provide clear information on how to correct it.**

| Nr | Requirements | Reference |
|---|---|---|
| **4.3.1** | In cases of **incorrect completion** of individual fields, an error message must appear automatically as soon as possible after the error has occurred. The text must appear in the information area and the relevant field must be clearly marked. Messages presented in a separate window (dialogue boxes or pop-ups) must not be used. | Example 9<br>1.2.5 |
| **4.3.2** | An overview of all cases where mandatory input fields have **been left blank,** and of errors detected by **cross-validation**, must appear in an all-inclusive error summary on a separate validation page prior to signing/submission. The list must also contain cases relating to **incorrect completion** which have not been corrected during completion. | 1.2.4<br>1.3.6<br>1.3.7 |
| **4.3.3** | The error summary should also include warnings relating to unusual, but permitted values or combinations of values, such as improbable deviations (e.g. from the expected date, or known average values) or improbable combinations (e.g. turnover / number of employees, age / number of children). The error summary must indicate clearly which of the errors listed that are absolute errors and which are improbabilities. | |
| **4.3.4** | By clicking on an error in the error summary on the validation page, the user must be directed to the right place in the form, where the relevant field/fields must be clearly marked. And the complete error message and/or warning must appear in the information area. | 1.2.5 |
| **4.3.5** | Once the user has corrected the error or made other changes, the error summary must be updated the next time the validation page is presented. | |

| | | |
|---|---|---|
| **4.3.6** | The purpose of an error message is to help the form filler. The error message shall not primarily tell what is done **wrong**, but must point out how to fill it in **correctly**. (Use "Enter a valid postal code", rather than "the postal code is invalid"). | |
| **4.3.7** | The purpose of a warning is to make the form filler reconsider whether the field has been correctly filled in. The text used in the warning, or on the validation page, must specify clearly that the entered value/combinations will be accepted as valid without alterations. | |
| **4.3.8** | Error messages or warnings relating to a cross-validation must include a standard text explaining that the (possible) error may be found in any and all fields included in the validation. All of the relevant fields must be marked as containing errors/possible errors. | Clarification |
| **4.3.9** | An error message or warning must not exceed the height of one screen. | 1.2.5 |

# 5: The Form Environment

## 5.1: Concluding Messages

**People are often more unsure about whether reports submitted electronically will reach the intended recipient than when they use regular mail. It is therefore important that the recipient returns a clear confirmation that the form has been received, and provide clear information with regard to the further activities – if any – that are expected between the parties.**

| No. | Requirements | Reference |
|---|---|---|
| 5.1.1 | Following submission, a confirmation page must confirm that the form has been received. The confirmation page must identify the inquirer and provide identification information about the declarant. The confirmation page must also provide the user with a reference number to be used in further, future communication between the declarant/form filler and the inquirer. | |
| 5.1.2 | In forms with a summary page, the information on this page must be repeated on the confirmation page, to the extent it could be of value to the user. | 2.2.7 |
| 5.1.3 | The confirmation page should state clearly that new errors may be discovered during the further processing. | Clarification |
| 5.1.4 | On the confirmation page, the user must have the opportunity to print the confirmation page, and to receive it by email. | |
| 5.1.5 | If the reporting is connected to a payment transaction, the amount, the recipient's account number, KID number and other relevant information (if any) must be included on the confirmation page. | |

## 5.2: Other External Functions related to the Form

**Electronic forms are to a varying degree supported by surrounding systems. They may be part of a dedicated form portal and interact closely with this, or they may be free-standing applications. Another difference is that some forms can be submitted openly on the web while others require specific login/ authentification mechanisms. For the user's sake, the access to relevant support functions that are not part of the actual form completion, should appear and behave as uniformly as possible, irrespective of these variations.**

| No. | Requirements | Reference |
|---|---|---|
| 5.2.1 | In the best possible manner the inquirer must facilitate for that external websites, as well as their own websites, are able to deep link to each of the individual forms. I.e. that the link must lead directly to the form and not to a superordinate site or an intermediate page level. For sites with logins, users who have followed the form link must come directly to the relevant form after login. | |
| 5.2.2 | In the best possible manner, the inquirer must facilitate for that both external, as well as internal searches are able to locate all forms, including all parts of a form set, whether the search phrase include elements of the full title of the form, or its short title (if any). | 3.1.1 |

| | | |
|---|---|---|
| **5.2.3** | In the best possible manner, the inquirer must facilitate for that the text presented under **About the Form** is accessible from both external as well as internal form overviews and collections of links, before the actual form is selected. | 1.3.3 |
| **5.2.4** | In forms with required login, the user (form filler) must at all times be informed that he/she is logged in, and have easy access to log out. The username or other identifying information must be presented in the top right hand corner of every page followed by a log-out button directly below. | |
| **5.2.5** | The user experience of forms and form environments, must be approximately the same for all browsers and operating systems that are more than marginally used in the market. | |
| **5.2.6** | It must be possible to print out the entire form or relevant parts of the form, i.e. all labels, response alternatives and entered replies (if any) both before, during, and after completion. In addition, the form must facilitate for separate printouts of the confirmation page, the validation page, help overview and in depth pages (if any). | |
| **5.2.7** | In cases where the form filler will have to select a value from a comprehensive code set, he/she must be given easy access to the alternatives through a built-in search function, or other suitable well constructed dialogue. The selected code should be entered automatically into the relevant field. | 2.3.9 |
| **5.2.8** | Prior to submission of form sets, an overview must be presented, indicating which forms are included in the submission. | |
| **5.2.9** | All entered data in a form must be saved automatically as often as possible during completion. | 1.3.5 |
| **5.2.10** | In order to ensure legal protection and traceability for the declarant, it must be possible to retrieve an authentic representation of all data entered, into the same form version that was used during completion of the form. | |

# Definitions

| Term | Explanation |
|---|---|
| **Confirmation page** | Shows a confirmation message when the data has been received after electronic submission of the form(s). This page is not part of the form and does not follow standard page layout. |
| **Cross-validation** | Automatic control of coherence between the content of several fields. |
| **Declarant** | The one that by law or regulation has right or duty to report information and is responsible for reporting, independently of whether this person fills out the form himself or gives others that authority (e.g. bookkeeper, accountant). In our context this can be persons, self-employed tradesmen, organisations, public companies or other legal persons. |
| **Error message** | Description of *what* is wrong within a field or between several fields and *how* the user can rectify the situation. The message is presented close to the relevant field. The offending fields must also be visually accentuated. |
| **Error summary** | Short overview of fields containing (absolute) errors and improbable (but acceptable) values after automatic validation of the form. The error summary is shown on a separate validation page. |
| **Filtering question** | Question whose sole purpose is to give background information for selecting tracks or response-dependant questions. |
| **Form** | A collection of questions and explanations which under one name arranges for declaration of a restricted set of information on behalf of one declarant in one delivery or submission. |
| **Form filler** | The (physical) person that goes through and answers the questions in a form, or prepares data from one or more files in order to submit this to an inquirer. This can be the declarant himself when reporting for a physical person. It can also be an employee of the declarant, or someone at the declarants accountant, bookkeeper, lawyer etc. |
| **Form set** | Collection of forms and attachments that are signed and submitted in one process. In cases where the process requires that one particular form is always included, this is considered a primary form and the rest are considered sub-forms. |
| **Greyed** | A way to indicate that passive options/input fields and their labels are not available. Greyed elements are visualized by making the text and elements lighter in appearance (usually grey) than active text and input fields. |
| **Help overview** | Separate page with access to general information and contact information, either directly or via links to sub-pages. The help overview does not need to follow the standard page layout. |
| **Help symbol** | Clickable symbol that retrieves user-requested help. Once the symbol has been clicked it must indicate so visually. |
| **Improbabilities** | Unusual, but allowed, values or combinations of values. Improbabilities that are uncovered in automatic form validation are presented in the error summary together with absolute errors. |

| | |
|---|---|
| **In-depth page** | A special page with a more thorough presentation of a help topic. This page does not have to follow the standard page layout. |
| **Information area** | Defined area on a given form page for presentation of requested help text, error messages and warnings. |
| **Inline help** | Brief guidance presented inline in the input area. |
| **Input area** | The area between the navigation area and the information area. This is where the forms' labels, input fields, help symbols and inline help is presented. |
| **Input field** | Element where the user puts in information or chooses between suggested values in order to answer the forms' questions (labels). |
| **Inquirer** | The authority or private enterprise that asks the questions and receives and uses the answers from a form. Where one inquirer asks for information that will also be used by others we differentiate between primary and secondary inquirers. |
| **Label** | The actual question to be answered or the primary description of what information to give in the corresponding input field. |
| **Navigation area** | Defined area within the current page with an overview/list over all pages in the form. The current page is visually emphasized and normally the user can freely choose which page to view. |
| **Ordinary form pages** | All pages in a form except "Help overview", "Validation page" and optionally "In-depth page" and "table page". Ordinary form pages follow standard page layout. ("Confirmation page" is not a part of the form as such, and is therefore not included in the term). |
| **Page** | Collection of information elements and input fields which are available from one option in the navigation area or one previous/next button. |
| **Question** | See label |
| **Receiving field** | Data field where the value (usually a sum) is transferred automatically or manually from one or more fields in the same or other forms. |
| **Response-dependant question** | Questions that are enabled only to whom they are relevant according to previously given answers in the same form, or previously registered information. |
| **Screen** | All items visible at the same time without scrolling. In our context calculated from a screen resolution of 1024 x 768 pixels. |
| **Sending field** | A data field where the value (usually a sum) is to be transferred to another field in the same or another form, either manually or automatically. |
| **Sequence** | A collection of elements (pages, questions or groups of questions) that together form a thematic whole. |
| **Standard page layout** | Division of the form page in navigation area, input area and information area. The use of standard page layout requires that the ELMER-guidelines for tab-sequence, buttons, and text and design elements are also followed. |
| **Standardised text** | Identical wording of text for a given purpose for all forms from one given inquirer. |
| **Table page** | Special page designed to present a table that would require horizontal scrolling in standard page layout. |

| | |
|---|---|
| **Track** | Collection of pages that are presented for a particular group of declarants or declarants in a particular situation. The selection of track can be based on previous answers in the current form or on information that is already known. The tracks can partly, but not exclusively, be put together of identical pages. |
| **User-requested help** | Information that can be explicitly requested by the user. |
| **Validation page** | Page that lists the results of automatic form validation. The page contains an error summary or a message declaring that no errors are detected. This page does not follow the standard page layout. |
| **Warning** | Description of *what* seems unlikely or unreasonable in the filling out of a field or between fields. The warning must be shown close to the field. The corresponding field must also be visually emphasized. Contrary to absolute errors, warnings do not hinder the form from being submitted. |

# Checklist for Design of an ELMER compliant Form

This checklist does not replace the guidelines, but is meant to be a helpful guide on how to apply them when creating forms that comply with ELMER guidelines. The points have been divided into three parts. The first part consists of an analysis of the form content. This constitutes an important prerequisite for correct and logical design of the electronic version of the form.

Part two is to structure the information into pages. This gives the electronic form a relevant and logical structure, which helps the user get the best possible overview during completion of the form.

The last part is laying out each individual page. This is important in order to be able to communicate clearly with the user during completion of the individual questions.

In addition to the checklist, we recommend consulting the text book **Skjemavett – Veileder i Datafangst og Skjemabruk** ( "Form Sense – A Guide to Data Capture and Form Use"), published by Kommuneforlaget 2002, which will provide you with helpful tools and tips on how to develop a form. The book has been written by the Brønnøysund Register Centre in collaboration with the Ministry of Trade and Industry. The tips and advice given in the book are regarded as good public service ethics and is a manual for inquirers in their effort to develop and revise forms. Public agencies may order it free of charger from the Brønnøysund Register Centre.

## 1. Analysing the content of a form

Find an answer to the following questions

- What competence does the user have with regard to the content of this particular form? Where does the user have the most problems/make the most mistakes when filling in the form? Are there statistics available describing the various error categories?
  (*Terms and language, labels, help texts).*
- Do you have definable segments/groups filling in the form? Which groups use which parts, and what differentiates these parts from each other? Try to formulate questions which only will be answered by a given group where applicable. Are there statistics available describing the usage of the form?
  *(Tracks, response-dependent questions)*
- How is the gathered information from the form being processed and used? What is the result of a form? (*Assess the real need for information, generate a summary)*
- Is it possible to make simplifications/generalisations? *(Several, almost identical questions may be generalised and rephrased into one question)*
- Which inter-connections exist within the form, and what inter-connections are there to other form? *(Grouping, structure, summaries)?*
- Can some parts of the form be prefilled? Which information is already accessible?
  *(Prefilling of information)*

## 2. Planning a form

Use the information from part one to plan the structure and design of your electronic form.

- Consider whether or not more pre-conditions should be added in order to create tracks and response-dependent questions. Pre-conditions may include options such as using questions with pre-filled alternatives or limit values.
- Consider which questions that logically belong together, and give these a short descriptive and easily understandable name. If you find that selecting an appropriate name is difficult, it is probably because the group contains too many elements or the elements in the group are not homogenous.

- Plan paging and order
- Define what the main result derived from the form is, and enter this as summary. If necessary you may also include intermediate results in your summary.
- Dependencies to other forms are best included in the summary.
- Consider alternative ways of designing tables for your form. Is it possible to simplify or shorten your tables? What is the most common number of completed rows? Is the receiving system able to receive an unlimited number of rows?
- Draw the form pages (including groups used) as named boxes. Draw arrows where calculations/transfers are being made between different pages and groups. All arrows should point in the same direction.

## 3. Defining a Form

Once the overriding structure has been laid down, the content for each individual form page may be defined in detail.

- Use the guidelines when grouping or selecting form elements.
- Long labels maybe divided into label and help text in cases where compact lay-out is needed.
- Define presentation format, permitted values and limit values. Formulate appropriate error messages to the form elements, which inform the user what he or she should do once an error has occurred
- Define help-texts based on the user's needs when completing the electronic form. Put the most important information first! Test the help texts on representatives for the user groups.
- Draw outlines of the different form pages on paper as a basis for specifications before development and implementation.
- Follow the guidelines when implementing the form.
- User testing of completed form proposals is required in order to discover where the users' perception of concepts, texts and functions differ from what you intend to communicate.

# Clarifications and Examples

## Clarifications

### Clarification 1.1.5

**Suggested standardised text where the user is permitted to select pages at random:**
Click in the menu to select a page.

**Suggested Standardised text for forms with fixed page order:**
In this form, you may not select pages by clicking in the menu.

### Clarification 2.3.9

Two-step lists may for instance first present a list of counties, followed by the relevant municipality list. "Unknown options" may be categories like industry groups. Another example is how tdifferent forms choose to present separate age groups, but here the order can be predicted logically (from a low age to a higher age), and one list is acceptable.

Two step-lists may be designed in different ways, hierarchically, or for example by displaying the common categories as step one, while the more unusual categories can by accessed by choosing a radio button entitled "other."

### Clarification 3.3.2

Manual transfer of field values is first and foremost relevant to transfers between different forms.

**Suggested inline text to be used next to sending fields:**
Transfer to <field (or form) description>.

**Suggested inline text to be used next to receiving fields**
Enter value from < field (or form) description>.

### Clarification 4.3.8

**Suggested standardised text to conclude a message following a cross validation:**

**In error messages:**
Please check all the marked fields to find out where an error has occurred.

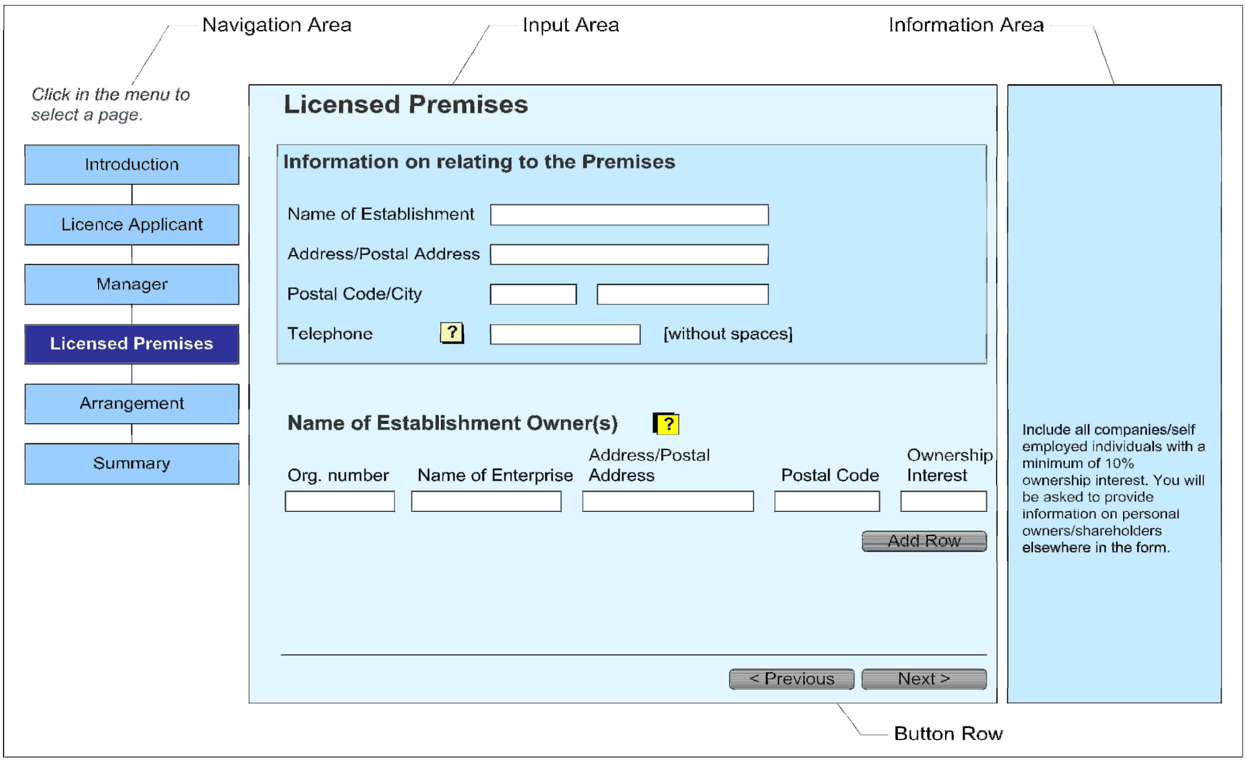
**In warnings:**
Please consider whether or not some of the marked fields should be altered before submission.

### Clarification 5.1.3

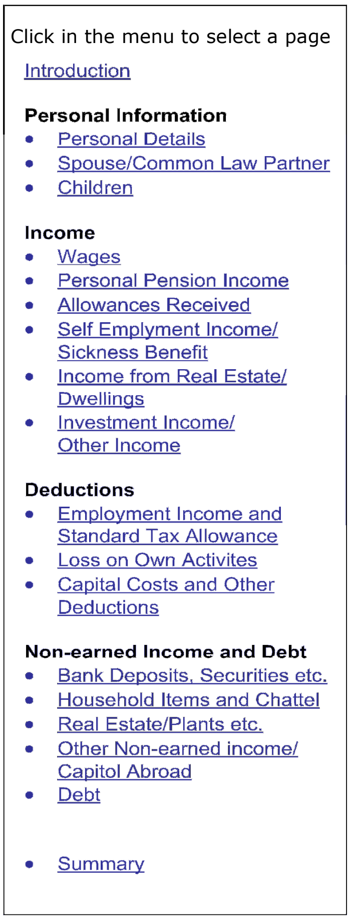
**Suggested standardised text:**
This form has been through an automated check during completion, It is nonetheless possible that errors will be discovered during processing, and that additional documentation may be required. If you wish to contact us regarding this matter, please refer to your organisation number and reference number. Thank you for your cooperation.

# Examples

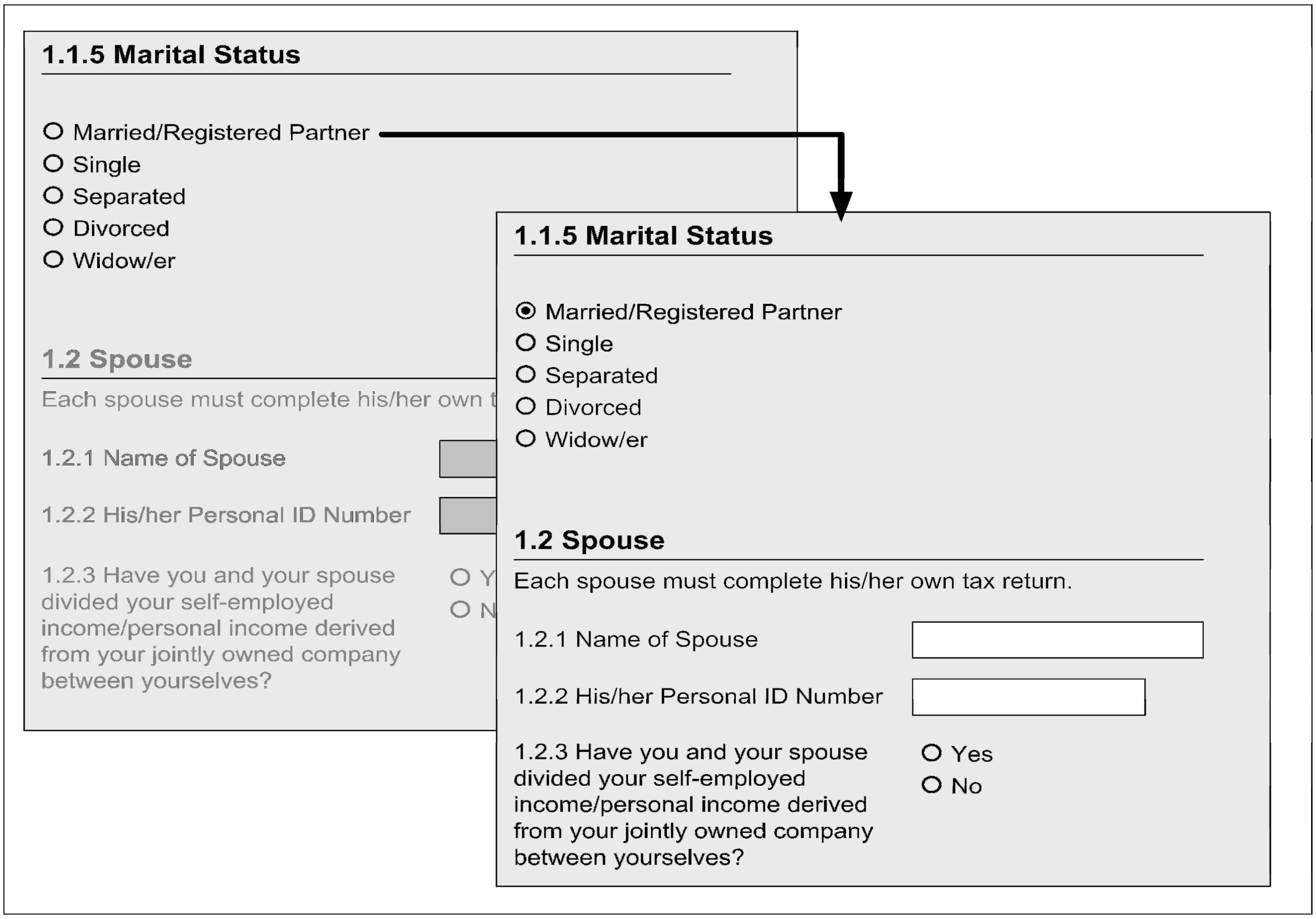
## Example 1 Overview (All Areas)



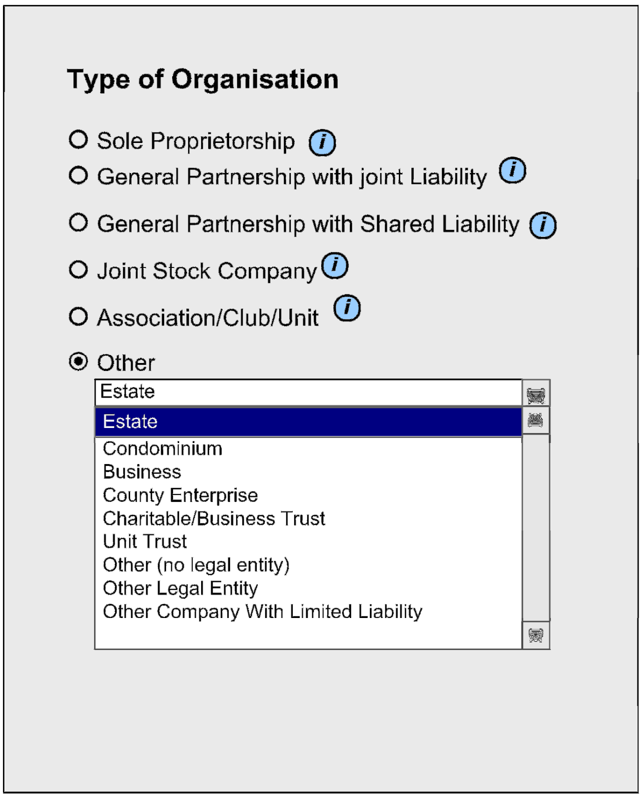

## Example 2 Grouping of Pages (The Navigation Area)



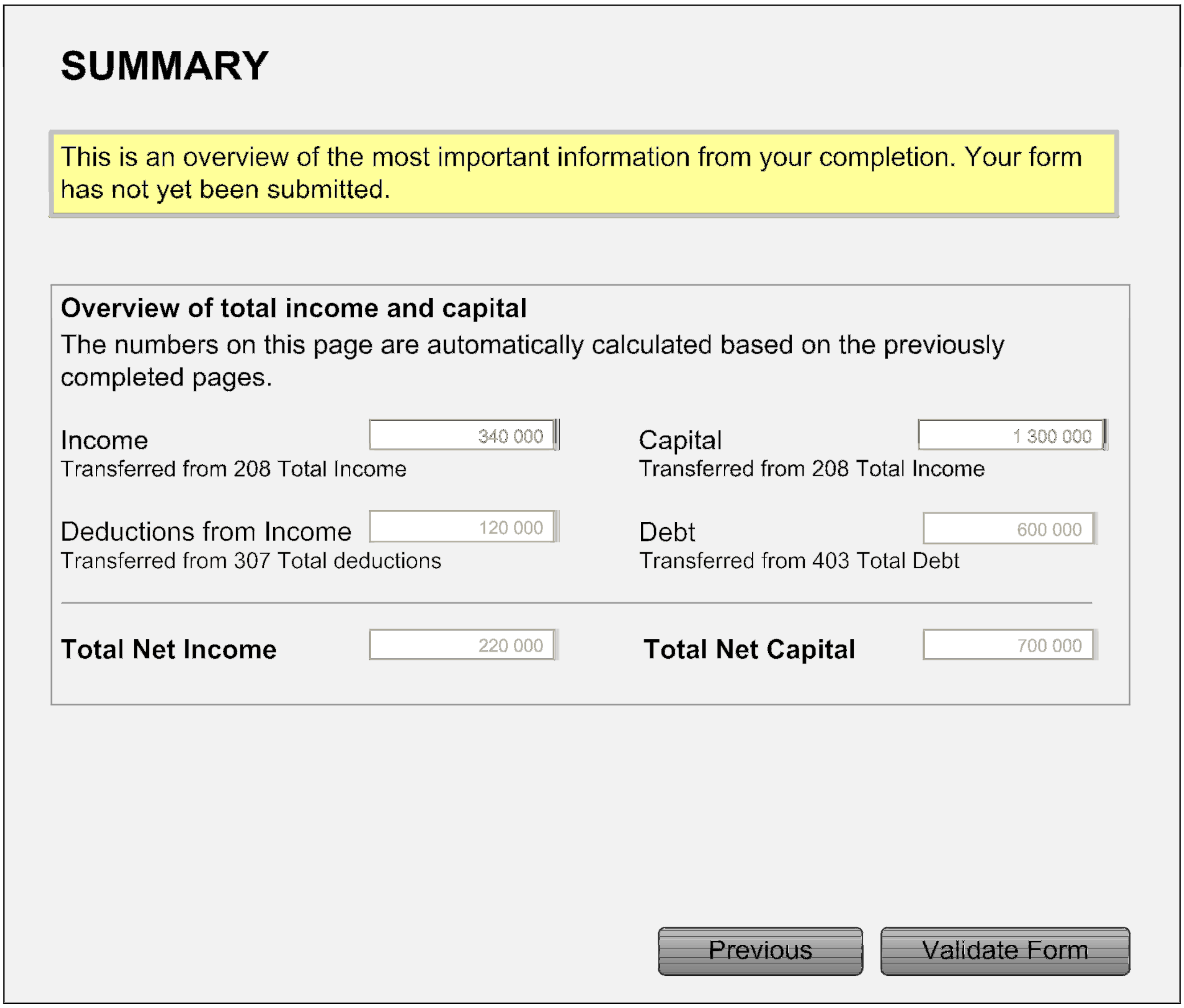
**Example 3 Response-dependent Questions** (The Input Area)




**Example 4 Single Choice List in Two Steps** (The Input Area)



**Example 5 Summary Page** (The Input Area)



SUMMARY

This is an overview of the most important information from your completion. Your form has not yet been submitted.

**Overview of total income and capital**

The numbers on this page are automatically calculated based on the previously completed pages.

Income 340 000
Transferred from 208 Total Income

Capital 1 300 000
Transferred from 208 Total Income

Deductions from Income 120 000
Transferred from 307 Total deductions

Debt 600 000
Transferred from 403 Total Debt

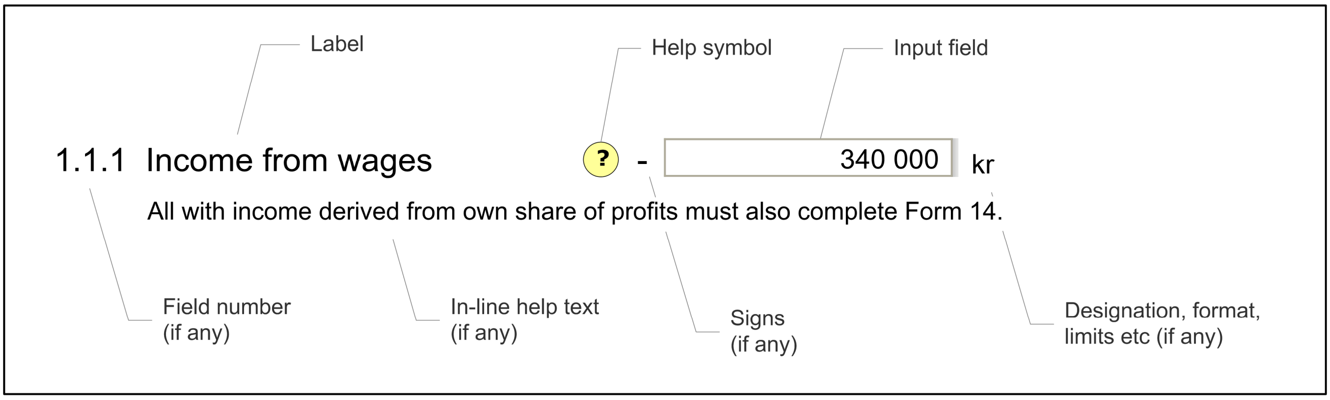
**Total Net Income** 220 000

**Total Net Capital** 700 000

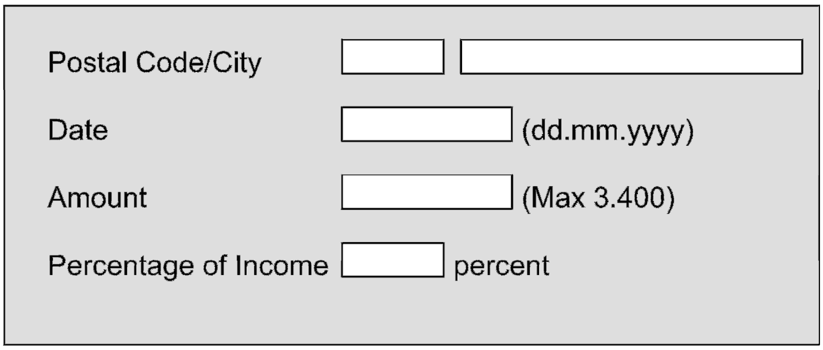
Previous

Validate Form

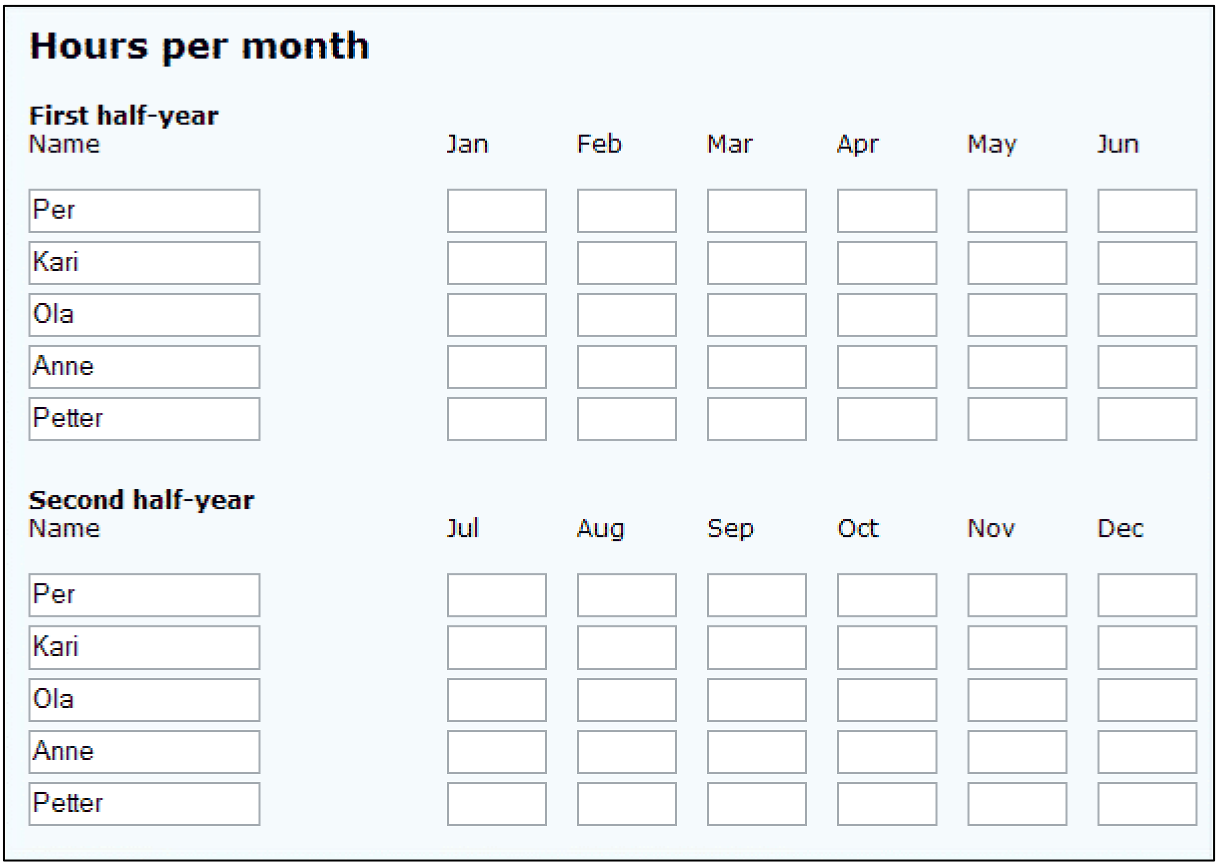
**Example 6 The Order of Field Elements** (The Input Area)



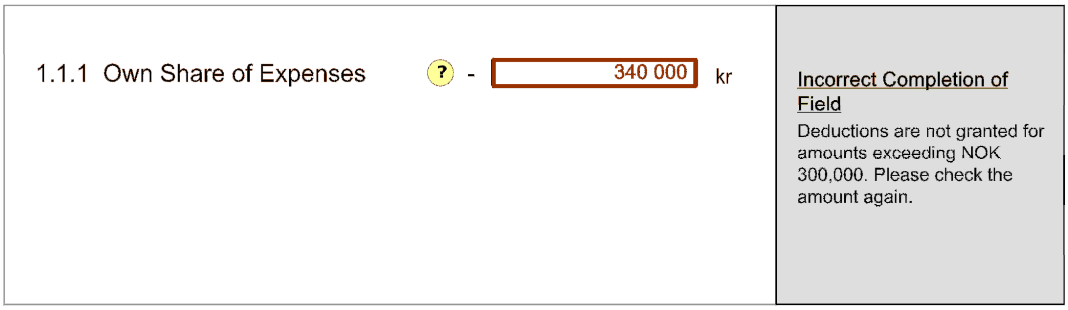
**Example 7 Field Designations** (The Input Area)



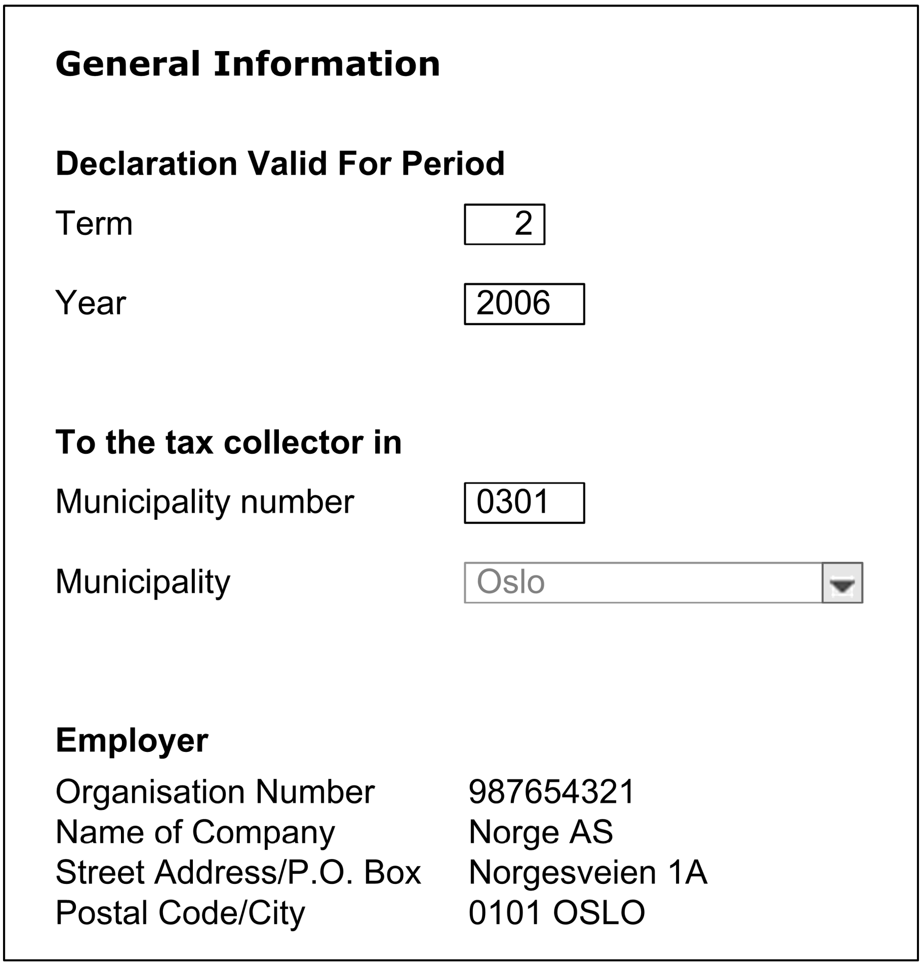

**Example 8 Portion of Table (**The Input Area)



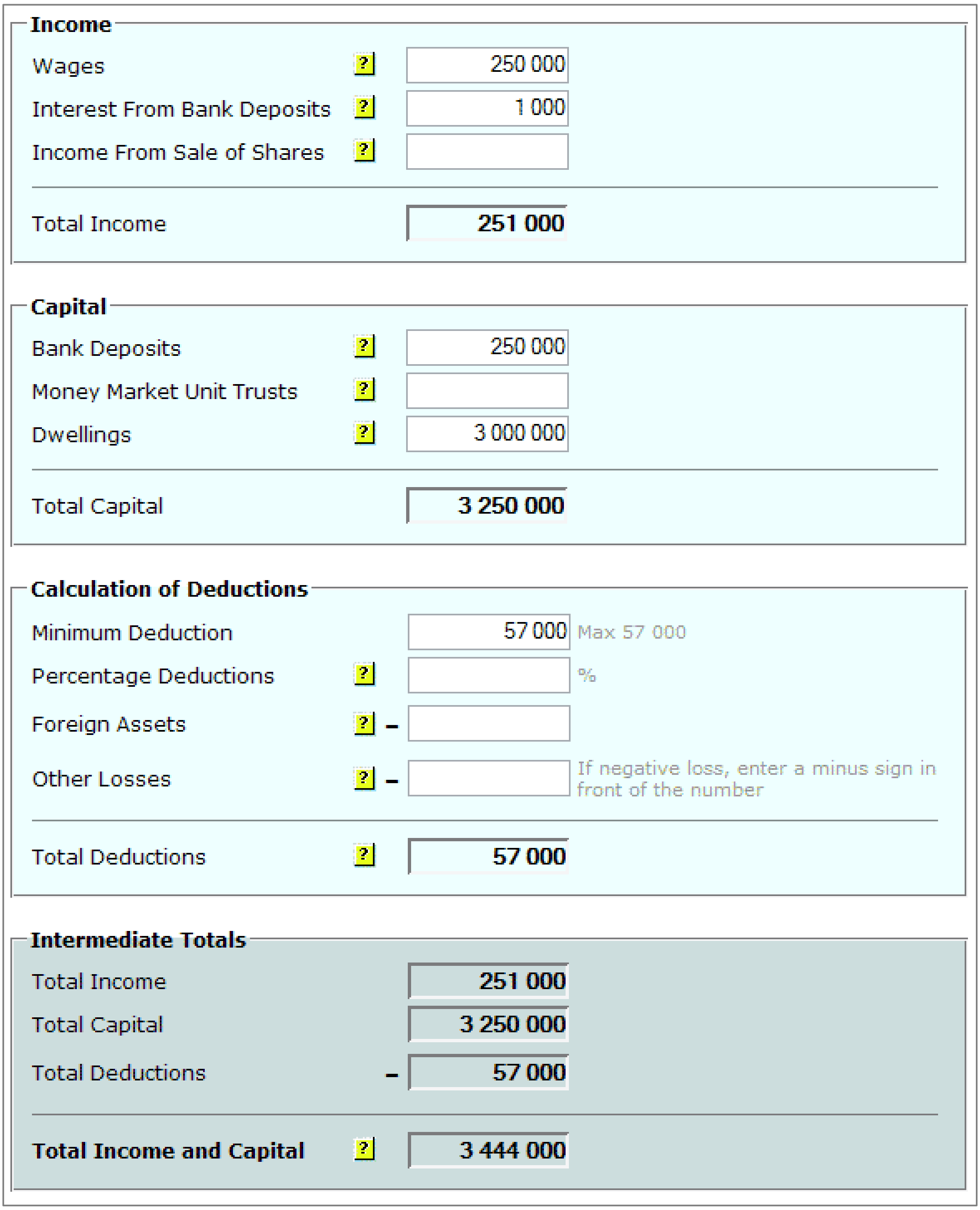
**<u>Example 9 Error Message indicating Incorrect Completion of Individual Field</u>**
<u>(The Input and Information Area)</u>




**<u>Example 10 Prefilled Information which cannot be Altered</u>** <u>(The Input Area)</u>



**Example 11 Page with Intermediate Sums with Scrolling** (The Input Area)



**Income**

| | | |
|---|---|---|
| Wages | ? | 250 000 |
| Interest From Bank Deposits | ? | 1 000 |
| Income From Sale of Shares | ? | |
| Total Income | | **251 000** |

**Capital**

| | | |
|---|---|---|
| Bank Deposits | ? | 250 000 |
| Money Market Unit Trusts | ? | |
| Dwellings | ? | 3 000 000 |
| Total Capital | | **3 250 000** |

**Calculation of Deductions**

| | | | |
|---|---|---|---|
| Minimum Deduction | | 57 000 | Max 57 000 |
| Percentage Deductions | ? | | % |
| Foreign Assets | ? – | | |
| Other Losses | ? – | | If negative loss, enter a minus sign in front of the number |
| Total Deductions | ? | **57 000** | |

**Intermediate Totals**

| | | |
|---|---|---|
| Total Income | | **251 000** |
| Total Capital | | **3 250 000** |
| Total Deductions | – | **57 000** |
| **Total Income and Capital** | ? | **3 444 000** |