

# The ELMER Experience

## A Standard for Government Forms

By Tor Nygaard

### The Problem

The challenges of web form design are probably about the most important and underrated issue in national IT and e-government policies. World wide, government agencies spend huge amounts of money to explain questions on forms to users and to fix the mistakes they make.

Problems become worse when hard-to-understand paper forms are turned into bad web forms that work in an unusual way and fail to make use of the power of interactive dialogue. If people encounter a bad web form, they will continue to prefer the old paper versions which are, at least, familiar. This means that the public sector fails to get the efficiency benefits of web forms and the population continues to be burdened by paper.

A further challenge is that the development of web forms requires help from different professionals who may be uncomfortable working together as a team. The legal expert does not recognize the technical challenges, and the IT professional is not used to working with the text and information specialist. However, web forms not only need to be understood by the computers and back office systems, they also must meet all the requirements of public policy. Above all, they have to be understood by ordinary people.

The typical government form includes a lot of legal text contributed by lawyers, and that can be both excessively hard to understand, and underestimated in form development.

### The ELMER Guidelines

Supported by a tradition of cooperation between government agencies and combined with an internet-skilled population, Norway has succeeded in developing common guidelines for usability in internet forms and getting the government bodies to implement them. This comprehensive set of principles and specifications

is called ELMER (a Norwegian acronym for “easier and more efficient reporting”), and the ELMER specifications are now at Version 2.

Each requirement in ELMER is presented as shown in Figure 1.

The Norwegian Ministry of Trade and Industry has decided that ELMER 2 guidelines will be the standard user interface in public forms for enterprises on the Internet. All Norwegian government forms will have a common look and feel, whether they are developed by the tax authorities or the municipal school administration.

The authorities emphasize that simplification of public forms is important to improve communication between the users and the public sector. The idea is expressed in the preface of the guidelines:

*“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.”*

### Fixed Design?

The example in Figure 2 shows some of the main ideas in ELMER:

- Navigation area to the left, with all relevant pages listed
- Central input area, with specific requirement for presenting groups of fields, tables, and help symbols
- Information area at right for user-requested help and error messages

This constrained layout is frustrating for skilled designers. But innovative, and sometimes more elegant solutions are sacrificed for the benefit of common look-and-feel, at least to some degree. The discussion of how best to resolve this tension between consistency and innovation is at the heart of ELMER and continues to be a key part of our work on developing the next version (ELMER 2.1).

### Irrelevant Questions

A major issue in government forms is the problem of questions that apply to some part of the population but not to every user. When creating a government form, you have to consider different situations for different respondents, but ask questions suitable for them all. Hence, various questions have varying degrees of relevance to different user groups.

One issue that ELMER has is how to lead the user past irrelevant questions. Perhaps the most important simplification achieved with electronic forms is hiding irrelevant questions from users. Doing so, however, requires extensive knowledge about which fields are relevant to each user.

To deal with this, ELMER includes two different techniques: *tracks* and *response-dependent questions*. The track technique presents different pages, based on previous answers. For example, if the user is single, she will never see the pages asking about her spouse. Response-dependent questions will be dimmed but visible until the user activates them through specific answers to previous questions. Only after answering “Do you have children?” with “Yes” will the table for listing their names be activated.

There are several requirements dealing with *when* and *how* to use these techniques, and there are many other techniques described in ELMER to improve the total user experience. (The complete ELMER guidelines in English can be accessed at [www.breg.no/elmer/elmer2-english](http://www.breg.no/elmer/elmer2-english).)

Requirement Section	Mandatory Requirement	Link to other Rule
2.3.8	The choices available for checkboxes, radio buttons and pull-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

Requirement Category      Recommendation      Link to Definition      Link to Clarification

Above: Figure 1. ELMER requirements. Below: Figure 2. Example of ELMER elements.

The screenshot shows a web form for 'Licensed Premises'. On the left is a 'Navigation Area' with a menu: Introduction, Licence Applicant, Manager, Licensed Premises (highlighted), Arrangement, and Summary. The main 'Input Area' contains fields for 'Name of Establishment', 'Address/Postal Address', 'Postal Code/City', and 'Telephone'. Below this is a table for 'Name of Establishment Owner(s)' with columns for 'Org. number', 'Name of Enterprise', 'Address/Postal Address', 'Postal Code', and 'Ownership Interest'. An 'Add Row' button is below the table. The 'Information Area' on the right contains a note: 'Include all companies/self employed individuals with a minimum of 10% ownership interest. You will be asked to provide information on personal owners/shareholders elsewhere in the form.' At the bottom are '< Previous' and 'Next >' buttons.

## Connecting People

ELMER constitutes a unique area for discussion, presenting both technical and pedagogical requirements, and challenging different experts to find common solutions as they develop web forms that support a professional, user-friendly dialogue.

When ELMER wants an error message to appear automatically “as soon as possible in cases of incorrect completion of individual fields” and specifies where to place it, that will be the technician’s responsibility. But ELMER also says: “The error message shall say not only what is done wrong, but must point out how to fill it in correctly,” which brings in the information specialist. They have to work together.

ELMER says that user-requested help “must be presented in its entirety, i.e. not as a tool tip, hint, or in any other way that requires specific positioning of the mouse pointer.” This is system engineering. But then you might need your information specialist to ensure that “explanations provided in user-requested help must be adapted to fit the needs of the least skilled form fillers.” And afterwards, perhaps the legal expert must ensure that the text has not been overly simplified and fails to deal with legitimate complications.

If you are not creating forms for the public

sector in Norway, it is still a good idea to bring up a discussion about every ELMER clause in your project environment. These discussions make for better solutions. Team members will understand each other better, and they will find that developing forms can be an enjoyable and educational experience.

## Progress and Results

The ELMER guidelines are being developed as a tool for Norwegian trade and industry, but are not used in business forms alone. People who fill in forms are the same whether they do tax forms for a small company or apply for a kindergarten place for their children.

The Norwegian Association of Local and Regional Authorities recommends the use of ELMER in all municipal forms, for citizens as well as businesses. The NHO (Confederation of Norwegian Enterprise) has been involved in developing the guidelines and also keeps an eye on the use of ELMER.

Often we find that IT-based form developers suffer from a lack of pedagogical expertise; they do not find the usability and instructional aspects of form-based communication very interesting. Project participants must be motivated to see the

importance of the technical specifications, such as common rules for functionality and information layout. They sometimes find the instructional rules in ELMER, which are very important for users with varying cognitive ability, hard to understand.

We have worked hard to explain and market ELMER in the public sector, and we are now finding that more Norwegian government agencies are learning to involve their information experts in form development. Those who were already doing so now seem to have a better understanding of how to deal with the instructional challenges.

Today we have some 2,000 web forms following ELMER in Norwegian agencies. More than 90 percent of important business-related forms are submitted through the Web, even though paper-based alternatives are still available.

A few Norwegian software companies use dedicated form tools to ensure ELMER-based screen layout and functionality. But Norway is a small country, and form development tools created for bigger markets may pose problems in years to come. They may be cheaper and will likely influence usability conventions all over the world. They may not be less concerned with the user than ELMER, but they certainly have other approaches to usability.

## And Now ELMER 2.1

ELMER 2 is not the final answer. Users’ web behavior is evolving rapidly, as is technology. New conventions will replace old truths about how a website should look and behave. Today, for instance, ELMER 2 does not allow popup windows or expanding pages, a problem when users do not see error messages in the right-hand information area. Allowing a newer technology, such as light boxes, might solve the problem.

ELMER will change in small and predictable steps. Today we are preparing workshops and web discussions to provide information for the development of Version 2.1. About ninety experts in our network, representing agencies, usability companies, developers, and user organizations, are ready to bring ELMER to the next level. **UK**

## About the Author



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