

Note

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Development Guide for Public Digital Services v. 2.0

Background

The Danish Development Guide for development of digital services in the Danish public sector was originally developed to support public sector service providers with operational guidelines for those digital services made mandatory-by-law to use online by citizens and businesses in the period 2012-2015. The guideline (check-list) contains a number of basic, but mandatory requirements. Today, the guide for digital services is used in practice as a baseline for user-friendliness and accessibility by all digital service providers – whether a service is mandatory by law to use online or not.

The development guide version 2.0 was updated 31 March 2016 to include a reference to the Guide on Digital-Ready Legislation (latest version May 2018 – only in Danish: https://digst.dk/media/16951/vejledning_om_digitaliseringsklar_lovgivning_maj_2018_tg.pdf). The guide on digital-ready legislation is complemented by specific guides on legislative quality and on impact assessment and can be accessed and downloaded here – in Danish only: <https://digst.dk/afbureaukratisering/digitaliseringsklar-lovgivning/vejledninger-om-at-goere-lovgivning-digitaliseringsklar/>).

The Development Guide for public digital services is currently under revision in order to cover broader aspects of user-friendliness and accessibility including the coherent usage of digital services across organisational boundaries and levels of government.

Requirements: demands and recommendations

The guide covers four key areas for user-friendliness and accessibility and includes 27 specific requirements in total:

- Language (5 requirements).
- Design, flow, and functionality (10 requirements).
- Data, components, and standards (7 requirements).
- Accessibility (4 requirements).

Language

In general, it is a requirement that all text in public self-service solutions are written in a simple, clear, and understandable language adapted to the target group of the solutions. The specific requirements are the following:

- 1.1 *Comply with the guidelines for writing:*
Written content to be used on the Danish citizen portal – *borger.dk* – must comply with the guide for written content of the portal in question; the text must be written for and with the target group of the solution in mind.
- 1.2 *Use a simple and clear language:*
In order to ensure understandability, all written text in the solution need to be short and precise, and with all technical terms fully explained.
- 1.3 *Guide the users:*
Text should help the users step-by-step through the solution, be written in an action-oriented way, and explain to the users how to progress. Therefore it is a requirement that extensive use of explanatory text is used through all steps of the solution.
- 1.4 *Provide meaningful replies on errors:*
Error messages must be understandable to the users. They have to explain what the users must do to correct the error, and continue with the usage of the solution at hand. The error messages need to be understandable with the use of non-technical wording. If a user clicks on a dead link or if the server is overloaded, the error messages have to explain what has happened. An error message need to give the users sufficient information to progress or give an indication of when an error is expected to be corrected and the solution fully up and running again.
- 1.5 *Error messages must to be written in Danish:*
All error messages must to written in Danish and in a easily understandable language with minimum to no use of technical terms. It covers both messages on missing inputs required and system or technical error such as “Error 404”.

Design, flow, and functionality

It is a requirement that the design of the user-interface, the functionality, and the user-journey of the digital solution is logical, consistent, and simple to use. The specific requirements are the following:

- 2.1. *Comply with the design manual:*
Design manuals exist for all common public sector portals. Which manual is relevant, depends on the solution and whether it is targeted at citizens or businesses. The manuals include principles such as the use of colour, icons, structure of the HTML coding, and how the top menu should look and function.
- 2.2. *Prepare the users before they start:*
The users need to know how comprehensive the solution is and what is needed to complete the digital solution, *e.g.* the number of steps. This is

why the requirements state that the size of engagement needs to be explained to the users beforehand. And before the users start using a solution it needs to inform the users which information and data are required to finalise all the steps of the solution, *e.g.* income data, payment possibilities or a lease contract for an apartment used for applications for housing benefits, etc.

2.3. *Create a logical and consistent user-journey:*

A digital solution must be constructed in a logical way. This entails structuring the user-journeys in a meaningful and consistent way *e.g.* by placing the “next”-button in the same place on the webpage throughout the solution. The purpose is to ensure that users keep an overview of the solution, the different tasks to be completed, and the use of it.

2.4. *Provide the users with a summary:*

Provide the users with a summary of the information submitted to the solution before submission of *e.g.* an application.

2.5. *Check and validate information and data before submission:*

The users must not be able to submit information and data if all mandatory fields are not filled and validated.

2.6. *Finalise with a receipt:*

Show the users a receipt page when they have completed the user journey. It is a requirement that a service is completed by providing a clearly worded receipt. The receipt shall as a minimum state that the submitted information and data have been received, which authority is responsible, a reference or case file number, when the user can expect to receive an answer, and where the user can ask questions or submit new or changed information and data). A part of the requirements is that the receipt must be layouted in a printer-friendly way.

2.7. *Show the sender:*

The design of the solution must focus on always rendering the responsible authority visible and as a part of the user-interface. The sender information is important to the users because it provides a possibility for the users to assess the trustworthiness of the webpage. It plays an important role for trust-building between the authority and the users regarding where personal information and data are stored and processed. It is important to state where the users can get help and how to change or submit data.

2.8. *Optimise all relevant platforms:*

Consider carefully how the service is to be used on different devices. An optimal digital solution has taken into consideration which platforms the solution might be used on. This will be putting requirements on the visual appearance of the solution (on *e.g.* a tablet or a smartphone). Consider

which information is most important in order to avoid having the user lose their overview of the digital service on a smartphone screen. Make the solution responsive and design it for small displays which can afterwards be enlarged for the use on larger displays. Always test the solution for use on different display sizes.

2.9. *Optimise the browser:*

The design and flow of digital solutions have to work on the most used browsers and versions of browsers. The solution need to be able to function without special technical requirements regarding the user's equipment. It is necessary to ensure that the user is not requested to install specific software, files or plug-ins as a requirement for using the solution.

2.10. *User test:*

It is each public authority's responsibility to ensure that a digital solution has passed the common public sector user test before making it accessible to users. The user test has to demonstrate that different relevant target groups can complete a relevant task provided by the solution with a minimum waste and in a satisfactory manner. The user test is not to be seen as a replacement for user involvement and tests conducted in the development phase. It is recommended that users are continuously involved in testing the solution in the development phase.

In order to comply with the requirement for doing a user test, the solution must pass the standardised common public sector user test:

	Minimum requirements to the solution	Comments
Completion	80 pct. of the test persons must be able to complete the tasks of the solution.	
Minimum of waste	80 pct. of the test persons should not experience a critical error.	A critical error is an error which (a) the test person cannot correct him- or herself, and need to seek help outside the solution. Or (b) a test person completing all tasks of the solution without achieving the aim and purpose of the solution.
User satisfaction	The total user satisfaction must be at a minimum of four on a scale from one to five where five is the highest possible satisfaction level. The satisfaction is calculated as an average of all answers on all questions from the test persons.	After the completion of a self-service solution, the test person is asked to answer a number of pre-defined questions measuring user satisfaction with the solution. The test person answers using an assessment scale from one to five where five is the highest possible satisfaction level. The user satisfaction questions are: <ul style="list-style-type: none"> • To which degree did you experience that you could solve your task? • To which degree did you feel safe during the testing? • To which degree did the solution include relevant information? • To which degree did you experience the language of the solution as understandable? • To which degree did you experience the solution as easy to complete? • To which degree was there the necessary help available in the solution?

	Minimum requirements to the solution	Comments
		The test persons are also given the possibility of answering “don’t know/not relevant”.

The guide includes reference-links to more detailed guidelines on how to use the common public sector user test, an Excel-file with a questionnaire to be filled by the test persons, and an example of how to fill the questionnaire. They can all be downloaded from:

<http://arkitekturguiden.digitaliser.dk/godselybetjening/kravbanken/Design-flow-funktionalitet>.

Data, components and standards

It is a requirement that data, components, and standards must be integrated intelligently across the user-interface of the digital solution. It contributes to increase the efficiency of the organisation of the public authority internally and contributes to the user’s perception of the public sector online. The requirements are the following:

3.1. Use NemLogin – the Danish common public sector single-signon solution:

If a solution requires a login, *NemLogin* must be used. For educational organisations, *UniLogin* and *WAYF* (common single-signon solutions used at higher and further educational institutions) may be used as alternatives.

3.2. Reuse data:

Reuse previously collected data by the organisation as much as possible in order to comply with the *once-only principle* (users should only submit data once to public authorities). Auto-filling of fields contributes to time-saving for users and provide the possibility for a more efficient case processing due to the reuse of existing information and data within authorities or of data fetched from the Datadistributor system of the Danish Basic Data Programme.

3.3. Reuse components:

Previously developed components should be reused to a great extent in order to enhance smooth integration with other common public sector solutions. Examples are “My page” components on the Danish citizen portal – *borger.dk*, and the national business portal – *virke.dk*, or the “power-of-attorney” component currently used in several solutions.

3.4. Use the common public sector, international, and open standards:

Use existing standards, such as OIO and open standards. The use of existing standards in the digital solutions ensures that the solutions can function with existing and future user-interfaces, solutions and specialised administrative systems. The use of open standards and architectures is pivotal for the possibility of further development of the solution and the possibility of integrating the solution with other solutions. The common public

sector architectural framework described in a White paper on architecture and standards (<https://en.digst.dk/data-and-it-architecture/it-architecture/white-paper-on-a-common-public-sector-digital-architecture/>) provide a mandatory common public sector architectural framework for the implementation of the common Public Sector Digitisation Strategy for the period 2016-2020.

3.5. *Adjust according to answered questions:*

The solution should adjust the subsequent questions to the data already submitted. If a user in an early phase has answered that the marital status of the user is single, the solution should not at a later phase ask for information and data of a possible spouse's income. The solution should aim for sufficient flexibility in order to continuously adjust to the information and data already submitted by the users. The use of personas and user segmentation could be an advantage.

3.6. *Save information securely:*

The solution must comply with the data protection legislation, ePrivacy legislation, and ensure that sensitive and personal data collected are stored securely. Today, this means that the solution must be in full compliance with the the General Data Protection Regulation, the ePrivacy directive and the Directive on Security of Net and Information Systems (the NIS directive), including considerations regarding security on mobile devices. (A separate guide on the development of services for mobile devices exists and can be accessed here – only in Danish): <http://mobileservices.digitaliser.dk/>.

3.7. *Use a counting script:*

A counting script to be integrated into solutions is still a requirement for services accessible through the Danish business portal *virke.dk*. A similar requirement has been in effect until 26 May 2017 for services on the Danish citizen portal *borger.dk*. This is currently not in effect as a new methodological approach is under preparation as part of the common Public Sector Digital Strategy for the period 2016-2020. The reason for suspending the counting script requirement for services accessible through *borger.dk* is that the counting script approach does not give sufficiently precise information on the usage of citizen-oriented services.

Accessibility

In 2007, it was decided between all parties in the public sector that all public sector websites must comply with specific standards on accessibility. With the adoption of the law 8 June 2018 (Law no. 692 of 08/06/18) with the national transposition of the Directive on the accessibility of the websites and mobile applications of public sector bodies (2016/1148(EU)), the EU has created a legal framework for accessibility requirements that includes the EU requirements on the use of a European Harmonised Standard based on the principle so WCAG 2.0.

The specific requirements are the following:

4.1. *Make the solution perceivable:*

The information must be presented and structured in a way on the user-interface of the solution which can be understood and perceived by the users and their assistive technological solutions. This includes requirements on navigation, the possibility of disabling the time limitations used on certain webpages, avoidance of blinking, and making it possible to navigate within the solution according to the European harmonised accessibility standards.

4.2. *Make the solution usable:*

Navigation and the elements in the user-interface must be usable for most people. It is thus not enough to ensure interaction with the use of a mouse. The solution must ensure i.e. that it is possible to navigate through-out the solution with the use of a keyboard; that time limitations can be disabled; that the design ensures that moving elements do not cause epileptic seizures; and that the solution is easy to navigate and help the user through meaningful titles and sufficient descriptions of links inserted in the content.

4.3. *Make the solution resilient:*

The coding of the solution must to be written in a way which allows different technologies (e.g. browsers and screen readers) to read and interpret the content. This is done by fulfilling requirements in the accessibility standards.

4.4. *Make the solution understandable:*

Both the content of the solution and the interaction with the solution must be understandable by the user. This includes the use of sufficient explanatory text where necessary, the use of different languages, and that the solution is predictable – meaning that sudden changes of the webpage does not happen unless the user initiates it. Furthermore, the solution must help the user to avoid and correct errors when the user is filling fields or forms. If incorrect information is written, the user should be guided on how to correct the error.