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Ver 1.3

Slutrapport projektgenomförande - Tingtun AS

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1 Inledning

Notera att slutrapporten är en leverabel till PTS och den är en redovisning av hur projektet har gått, vilka resultat som uppnåtts och de slutsatser som gjorts. Slutrapporten bör inte överstiga 20 sidor.

Den dokumentation som ni angivit i förstudien att ni ska producera i samband med projektet ska ses som fristående från detta dokument.

2 Allmän information

Företag/ Organisation:	Tingtun AS
Projektnamn:	Public Barrier Tracker (PBT)
Författare av detta dokument:	Mikael Snaprud
Projektets tidplan (från datum - till datum)	01.November 2017 Till 30.juni 2018.

3 Sammanfattning

Ange positiva effekter och därefter övriga erfarenheter av projektets genomförande samt kortfattad sammanfattning av resultatet. Bör vara ca 1-2 sidor långt kapitel.

The project has investigated potential showstoppers that could reduce the impact or prevent the deployment of the PBT approach. We have not found any showstoppers in any of the investigated areas, including:

- Webbtillgänglighetsdirektivet: D1.1 Study of WAD, for support/showstoppers.
- Marknaden för relaterade tjänster: D1.2 Study of market for support/sho
- The Web accessibility directive (WAD)
- Market issues

- Other related feedback mechanisms Privacy concerns and the General Data Protection Regulation (GDPR)
- Technical issues

We have received a lot of valuable input from several of the stakeholders working on the implementation act, its transposition into national law, and also from PTS, W3C, and several other web accessibility experts.

This has been particularly helpful to supplement the WAD study and to get feedback on our technical implementation ideas.

Using all this background research, we have developed a basic demonstrator of how the PBT would work on a website. We have designed it to be easy to use, to collect feedback under the WAD and to comply with consent and disclosure rules under the GDPR. The PBT would allow users to report any barriers and to give both positive and negative feedback.

At this stage of development, we have concluded that there is a gap for most public sector bodies between current feedback mechanisms, if any, and the feedback mechanism required in the WAD. A tool like the PBT, that collects the information and provides a workflow for fixing barriers, could be a useful service to bridge the gap. The PBT can also be used to track progress in reducing accessibility barriers. It could be used to benchmark public sector bodies and compare performance across agencies, publication tools, sectors, geographically and over time.

3.1 Sammanfattning (svensk text)

Webbtillgänglighetsdirektivet ställer tydliga krav att offentliga webbplatser ska vara tillgängliga för alla. För att fånga eventuella återstående hinder kräver direktivet att webbplatserna ska ha en funktion för att återkoppla om tillgänglighetsproblem.

Public Barrier Tracker (PBT) är tänkt som en sådan kommentarfunktion som ska vara enkel att installera och använda på olika webbplatser. Den ska förenkla arbetet för enskilda webbplatsägare att åtgärda fel och dessutom göra det möjligt att sammanställa anonymiserade återkopplingsdata från många webbplatser.

Tillgång till data kan göra det enklare att återanvända erfarenheter och lösningar och att övervaka utvecklingen av tillgänglighet på enskilda webbsidor eller för alla offentliga webbplatser i ett land.

PBT-projektet är en pilotstudie som har undersökt möjliga hinder (showstoppers) som skulle kunna försvåra eller i värsta fall förhindra en implementation eller användning av PBT på offentliga webbplatser.

Vi har analyserat möjliga hinder i fem olika studier och inte funnit något som ser ut att vara ett blockerande hinder. De områden som vi studerat är:

- Webbtillgänglighetsdirektivet: D1.1 Study of WAD, for support/showstoppers.
- Marknaden för relaterade tjänster: D1.2 Study of market for support/showstoppers.
- Dataskyddsförordningen: D1.3 Study of GDPR for showstopper
- Tjänster för felanmälan: D1.4 Desk study of national complaint approaches
- Teknisk analys: D2.1 PBT specification

Vi har fått många kommentarer och nyttiga förslag från representanter för olika grupper som har olika roller i förhållande till direktivet. Det gäller personer som deltagit i utformningen av direktivet, de som omsätter det till nationell lag, och också från PTS, W3C och flera andra med expertkunskaper kring webbtillgänglighet.

Utgående från studierna har vi tagit idén vidare till en demonstrator (<http://epbt.eu/>) som har varit väldigt nyttig för att få ytterligare kommentarer och förbättra lösningen.

Demonstratorn visar att det är möjligt att implementera en lösning för återkoppling som vi menar kan möta de krav som ställs i dataskyddsförordningen och webbtillgänglighetsdirektivet.

Vi kan slå fast att det för närvarande är få, om någon, offentlig webbplats som har en bra jämförbar kommentarfunktion för återkoppling av tillgänglighetsproblem.

PBT är enkel att implementera för webbplatsägare, och kan understödja hela flödet från felanmälan fram till godkänd åtgärd. Lösningen kan också användas som en komponent i ett långsiktigt styr- och uppföljningssystem i funktionshinderspolitiken för att övervaka utvecklingen av webbtillgänglighet.

4 Bakgrund

Redogör kortfattat för bakgrunden till projektet.

Article 7 of the WAD refers to a feedback mechanism to enable any user to report accessibility problems. All of the website owners will

need to include a feedback mechanism in their accessibility statement to conform to WAD.

The Public Sector Bodies can implement this mechanism in several different ways. The simplest options are to add an email address, or a single-button report. These options may formally meet the WAD requirements but will be hard to use to repair barriers in practice. Other options are existing complaint mechanisms, or to develop new ones. These more refined options can work well to repair barriers on one website, but may not be easy to use to monitor the development across many websites, or to share good practices on how to remove the barriers.

Feedback mechanisms can help to document accessibility problems encountered by real users doing real tasks on public websites.

However, different implementations of feedback mechanisms can confuse the users, prevent interoperability, and lead to duplication of efforts for the public sector.

A standardised mechanism can become very helpful to understand barriers, share repair recipes and to monitor progress across the public sector.

To understand more about the viability of the PBT approach we proposed the PBT pilot project to PTS.

5 Syfte och målgrupp

Redogör för syftet med projektet och till vilken målgrupp projektet riktades. Redogör för hur projektet har uppfyllt detta.

The main purpose was to investigate potential showstoppers and to prepare a first technical demonstrator to indicate how the PBT can be implemented.

The target groups for the pilot project are mainly PTS, the PBT partners, accessibility tool developers and others interested in how to implement the WAD. The target groups for a possible follow up project are indicated in section 9.

The project has fully reached its goals and prepared the investigations and an demonstrator as planned. The project results have been distributed to additional target groups both at a MITT meeting and in the the ICCHP conference.

6 Projektets mål

Ange projektets mål (effektmål och resultatmål som specificerade i förstudiematerialet). Lämna redogörelsen i tabellform om det är möjligt.

The following table is mostly copied from the proposal. Two underlined points added to Government (website owners). Member states have been added as a new record.

Målgrupp	Effektmål
Website suppliers	<p>Easier and more accurate identification of barriers on websites</p> <p>Faster fixes of barriers</p> <p>Better record of barriers and fixes</p> <p>Increase ability to deliver and maintain accessible products</p>
Government (website owners)	<p>Easy and efficient mechanism for compliance with WAD requirement</p> <p>Lowering costs through increasing number of transactions carried out online</p> <p><u>Better management of accessibility feedback.</u></p> <p><u>Easier to share accessibility best practice and solutions among public sector bodies, as explicitly requested in the WAD (Article 7, recital 6).</u></p>
Users with disabilities	<p>Better accessibility of public e-services</p> <p>Increased participation in developing the required services (ability to influence how the service is designed to meet individual user needs)</p>
Disability organisations	<p>Ensuring more accessible public e-services</p> <p>Greater influence on the design of public e-services</p>
Policy makers	<p>More accessible web for more citizen participation</p> <p>Better monitoring of the impact of accessibility policies, needs for accessibility in the society, and performance of public websites.</p>
Member states	<p>Article 7 point 5 oblige member states to take the necessary measures to raise awareness ... of the possibility of giving feedback in the case of any failure to comply with the requirements of this Directive. A large scale deployment of PBT can both raise awareness and simplify the use.</p> <p>The PBT would also be useful to meet the obligation of point 6: to facilitate cooperation at Union level between Member States, and between Member States and relevant stakeholders, with a view to the exchange of best practices between them and to review the monitoring methodology, and to understand market and technological developments and progress in accessibility for websites.</p>

7 Redogörelse av projektresultatet

I detta kapitel vill vi att du lägger fokus på själva projektresultatet. Dvs. vad blev slutsatserna av projektet, oavsett om det är ett fälttest, teknisk utveckling, en studie eller något annat som utförts. Lämna gärna rekommendationer som andra projekt kan ha nytta av.

We have not found any showstoppers. People we have contacted are mostly excited about the potential of the approach. The biggest concerns that were raised deal with

1. spam coming in as feedback.
2. unattractive visual design of the demonstrator.
3. privacy for those who send in and want to track feedback.
4. technical security and stability of a large scale deployment.
5. why would website owners prefer PBT instead of just using an email for feedback or some other existing solution.

We suggest the following responses to the concerns

1. We do not suggest to use a captcha as this can cause accessibility issues and may prevent users to submit reports. We recommend to use one of several open source solutions to deal with spam.
2. Attractive design can be addressed as part of the development of the PBT solution for production deployment. The demonstrator basic functionality and had little focus on visual design.
3. The PBT is designed in line with the GDPR. This directive is in particular taken into account in three ways.
 1. Collect as little private information as possible. A barrier tracker number will enable users to submit and track barriers anonymously.
 2. Ask for consent. The users are asked for consent to include any private information in the barrier reports.
 3. Distribute private information as little as possible. The private information can be encrypted and stored on the public sector body server only. This data will be anonymised before it is presented externally via APIs.
4. The PBT is designed to be a light weight application. To improve scalability we plan to execute computational tasks on the public service body website server, or on the users client

when possible. This approach can also limit the distribution of private information.

5. As opposed to existing solutions the PBT will deliver a combination of the following features.
 1. Accessible user interface for a user interaction designed to collect data to support the repair work.
 2. Automatically collected information from the user to reduce the number of questions asked.
 3. Automated accessibility evaluations to supplement the user feedback.
 4. APIs to connect issue tracking systems used by the public sector body.
 5. APIs to support good practice exchange among website owners.

7.1 Beskriv kortfattat projektets resultat samt leverabler

Här redogör du för projektets resultat. Det kan vara en kortfattat beskrivning t.ex. av hur många personer som har deltagit i en specifik undersökning och resultatet av undersökningen, det kan vara en beskrivning av en teknisk lösning och hur den ska användas etc.

The main results from the project are the investigation reports and the PBT demonstrator.

The project has also helped to establish contacts with stakeholders in the Germany, Ireland, Netherlands, Norway, and Sweden who are interested in a subsequent project for a full scale implementation.

At the ICCHP conference we met with the WADcher¹ project. This is a European initiative to prepare an infrastructure to aggregate test results from different accessibility tools. They would be interested in adding results from the PBT.

In the same conference the Austrian Computer Society indicated interest in the PBT as a component to supplement their certification scheme for web accessibility.

7.2 Viktiga insikter

Nu när projektet har ett resultat så finns det alltid viktiga insikter som gjorts, det kan t.ex. vara att man insett att olika användargrupper har helt skilda behov, något som man kanske inte

¹<http://wadcher.eu/>

insåg från början, att man skulle utvecklat på en annan plattform, etc.

Although the design meets the accessibility requirements we understand that thorough user testing and visual design refinements are yet needed to make sure that the service will work really well for all users.

The prototype development can be used as a good step towards a full scale service. Experience from the prototype development indicate that the proposed functionality to send user feedback is accessible and contains basic needed capabilities.

Another interesting observation is the current management focus on GDPR that seems to take much of the available management attention related to web sites. This may call for some innovative approach to create awareness about the WAD and the window of opportunity currently available for the PBT.

8 Redogörelse av projektets genomförande

I detta kapitel vill vi ha en redogörelse av hur själva genomförandet av projektet har gått (vad har gått bra och vad har gått mindre bra och förslag på hur man kunde ha undvikit de värsta fallgroparna om man skulle göra om projektet - dvs. erfarenheter och insikter).

The open project approach where we have shared documents and the online demonstrator has been very helpful to convey ideas and to obtain helpful comments.

The work we conducted in this phase also confirmed that there is interest from several public sector bodies for a tool such as the PBT. If we can continue the work to develop a functional service. Given the good response from the PBT pilot project we can expect several public sector bodies to participate in field test for full scale use and as early adopters of a PBT service.

The requirements specification for the demonstrator took longer than expected. This could have been started earlier.

With more resources we would have liked to carry out user testing and to add more dynamic functionality to the demonstrator.

8.1 Genomförandeplan/tidplan

Lämna en kort redogörelse för de aktiviteter som du har genomfört i projektet och när under projektiden de har ägt rum. Jämför med

din ursprungliga projektplan och kommentera avvikelser från planen.

The tasks have been carried out as planned in the first phase resulting in a set of studies and a first outline of a demonstrator design.

The second phase was extended to allow for possible adjustments according to the WAD implementation act and to cover the MITT meeting on 13. June. The extension was also needed for additional development iterations of the demonstrator.

8.2 Projektets budget

Redovisa projektets totala kostnad och hur det har finansierats (belopp uppdelat på finansiärer) och eventuella avvikelser gentemot budget.

The total cost of the project was much in line with the budget for DAKA and for FTB. The deviations are reflected in an increase of the own contribution for both as indicated in table 1.

Tingtun has a larger increase in own contribution due to more time spent on the demonstrator development and cost for two travels instead of one. The first trip was to the Zero conference to meet with the EC for WAD discussions and the second to the ICCHP conference to present the PBT project results.

	DAKA	FTB	TT	sum
Budget				
PTS finansiering	62,343	117,288	252,540	432,171 kr
Egen finansiering	6,927	13,032	28,060	48,019 kr
Sum	69,270 kr	130,320 kr	280,600 kr	480,190 kr
Kostnad				
Löner	57,981 kr	119,116 kr	246,919 kr	424,015 kr
Fasta kostnader	11,320 kr	11,320 kr	45,697 kr	68,337 kr
Total				
Kostnad	69,301 kr	130,436 kr	292,616 kr	492,352 kr
Diff	-31 kr	-116 kr	-12,016 kr	-12,162 kr
Faktisk egenfinans	6,958 kr	13,148 kr	40,076 kr	60,181 kr

Table 1: Overall finance and cost for the project.

The increased actual cost raised the overall project own contribution from 10% to 12.5%.

8.3 Projektets arbetssätt

Redogör för projektorganisation, samarbetsformer och förankring i eventuella partnerskap och intresseorganisationer.

The studies have been carried out as desk research with supplementing interviews, as planned.

We have contacted W3C and received positive feedback on the PBT ideas, and received several helpful comments from the European Commission throughout the project. We have also received very valuable comments from PTS, both on the studies and on the demonstrator. This was very helpful for the design and development process.

The project was invited to be presented at the MITT meeting in Stockholm on 13. June, Stockholm. The presentation was followed by several interested questions from the audience of national public service bodies.

The project idea and results have been presented in several meetings and events. Those include the WAI Tools meeting 17. November 2017 in Brussels, the MITT meetings in October 2017, and in June 2018, and most recently at the International Conference on Computers Helping People (ICCHP) in 11-13. July, Linz, Austria.

The online demo was developed in the second project phase to verify the feasibility and to support dissemination. The demonstrator was developed in agile iterations with feedback from project partners and from related stakeholders.

In addition to the basis in Sweden we have established good contacts with the national public sector bodies dealing with web accessibility in Ireland, Norway and in the Netherlands. Through the collaboration with FTB we also have a good starting point to explore use in Germany.

We have a communication with OsloMet (formerly Oslo University College) about a hackathon and student projects to explore better user interaction and to refine the designs. We would also like to explore similar student collaboration opportunities in Sweden.

9 Vad händer nu?

Redogör för vad som händer nu med resultatet, hur tas det om hand, startas det ett nytt projekt eller blir det en lansering. Beskriv

också hur ni har spridit projektets resultat. Redogör även hur resultatet kan användas av andra som berörs av projektet även efter att projektet har avslutats. Vilka andra kan ha intresse av att ta del av projektresultatet. Dela avslutningsvis med er av tankar och visioner för framtida forskning, utveckling etc.

The demonstrator and the public reports from the investigations are available at www.epbt.eu

Provided we can organise for further financial support we will also publish the PBT source code on the same website. Open source can be helpful for collaboration to improve the service and to speed up the deployment across the public sector.

The PBT project was designed to pave the way for a subsequent full scale project to develop a solution for production.

In Sweden an expert group is appointed to propose how to apply universal design and ways to monitor development and to assign responsibilities to public sector bodies.²

The PBT service can become a core component to monitor the impact of e-inclusion policies.

The PBT functionality can also be adapted to collect additional user information as needed, e.g. about gender, age or geo-location.

In the following we indicate the main tasks we propose to carry out to prepare a PBT service for wider deployment. The tasks are ordered alphabetically.

No	Task
1	Audit security Carry out a thorough security audit with external experts.
2	Build API to connect to issue tracking systems Many website owners already have helpdesk systems or other applications to track issues. This API can connect PBT feedback to existing issue tracking systems.
3	Build API to export anonymised PBT data To aggregate user feedback as Open Government Data. This can be used by anyone to prepare data aggregations. This should be designed to use open standards e.g. W3C.
4	Build database solution for local installation A database solution is needed to store the PBT data for the installation hosted on the public sector body server. The demo

²<http://www.sou.gov.se/stuff/>

	has a database, but need refinement.
5	<p>Build database solution for wider installation</p> <p>A database solution is needed to store the PBT data from multiple websites. This can be used for a cloud service provided to the public sector bodies and also for anonymised data retrieved from the local installation APIs.</p>
6	<p>Develop dynamic functionality in the user interface</p> <p>Dynamic functionality can capture accessibility problems in additional ways. Examples can be a screencast with steps leading up to the problem, a voice recording, or a user interaction to enable the user to point to an accessibility problem on a page.</p> <p>The basic functionality should still work without Javascript</p>
7	<p>Documentation</p> <p>For end users: Help texts on how to use the PBT and how it works.</p> <p>For website owners: Technical documentation for public sector bodies who want to integrate the PBT-service in their web site.</p>
8	<p>Improve Design</p> <p>Design is important to make sure that the PBT looks attractive and can fit well into any website. This task will deal with UI design as well as more support for UI configuration.</p> <p>We propose to engage an external designer for this task.</p> <p>Students can help to shape innovative design. Interest from possible Swedish partner.</p>
9	<p>Introduce the PBT to the market</p> <ul style="list-style-type: none"> - Prepare Website to enable prospect users to test, order and manage the service. This should be developed in collaboration with a group of demanding expert users. - Develop a branding scheme - Establish strategic alliances to reach the market. <p>Wider PBT use is essential to give richer feedback aggregations and practice exchange.</p>
10	<p>Prepare local Installation package</p> <p>A local installation can operate separately with no communication to a PBT cloud service. This is useful to meet stronger privacy requirements and for scalability. This task will deliver an installation package for the distribution.</p> <p>Like the demo this will be designed to work for any Content management system</p>
11	Prepare spam filter

	<p>Identify and integrate a suitable open source spam filter library to use. Essential to assure performance and ability to adapt to individual websites needs.</p>
12	<p>Provide statistics presentations Statistics can cover topics like:</p> <ul style="list-style-type: none"> - Accessibility problems reported most often. - Pages on a website with the most problems - Average time to fix problems for website - Accessibility development over time - Comparisons of websites and publication tools <p>The API to export anonymised PBT data should allow anyone to prepare their own statistics.</p> <p>Attractive statistics presentations can motivate people to use the PBT.</p>
13	<p>Test technical aspects These tests should cover performance, scalability, integration, and local installation.</p> <p>Emulate many users to submit reports. Integrate with apps. Test installation HowTo.</p> <p>We propose to engage an external tester for this task.</p>
14	<p>Test usability and accessibility User testing is crucial for quality assurance and also to involve prospect customers. Parts of this work may be carried out as students projects. Interest from OsloMet.</p> <p>We propose to engage an external tester for this task.</p>
15	<p>Verify that all GDPR requirements are met To make sure all GDPR criteria are met.</p> <p>External verification missing</p>

The overall cost to carry out these tasks is estimated to 2-2.5 MSEK. A detailed estimate of the tasks above and their subtasks can be provided for a full scale project description.