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Machine-readable and interoperable  
age classification labels in Europe

**Grant agreement no: 621059**

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## **Implementation Strategy Report**

**Freiwillige Selbstkontrolle Multimedia-Diensteanbieter e.V. (FSM)**

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## Contents

1.	Policy background .....	3
1.1.	About the FSM.....	3
1.2.	Legal background and political context.....	3
1.2.1.	Legal background .....	3
1.2.2.	Political context.....	5
1.2.3.	Criticism.....	6
2.	Technology background.....	7
2.1.	Age-de.xml.....	7
2.2.	Reception and adoption of age-de.xml.....	8
3.	Strategy .....	9
3.1.	Options.....	10
3.1.1.	Extension of the age-de.xml standard .....	10
3.1.2.	Mapping service .....	11
3.1.3.	Combination.....	11
3.2.	Decision and preparation .....	11
3.3.	Making interoperable data available and accessible .....	12
3.3.1.	Prospected outcome.....	12
3.3.2.	Challenges.....	12
3.3.3.	Time plan .....	13

# 1. Policy background

## 1.1. About the FSM

The FSM (*Freiwillige Selbstkontrolle Multimedia-Diensteanbieter* – Voluntary Self-Monitoring of Multimedia Service Providers)<sup>1</sup> is a Berlin-based non-profit association under German law. Founded in 1997, the FSM continues to be dedicated to combat illegal and inappropriate Internet content. In 2005, the FSM received public certification by the responsible state media authority and thus holds certain legal privileges and competencies towards our member. Today, the focus of our work is threefold: advise membership on legal and pedagogical questions regarding child protection, improve media literacy of children and young people, and fight illegal online content as a member of INHOPE<sup>2</sup>.

Together with industry and science experts, the FSM has for years been part of projects that deal with technology and child protection. With the age classification system [www.altersklassifizierung.de](http://www.altersklassifizierung.de) we offer a free-of-charge service to find the correct age rating for Internet content and help generate electronic age labels (age-de.xml).

## 1.2. Legal background and political context

### 1.2.1. Legal background

Most rules for youth protection on the Internet can be found in the “Interstate Treaty on the Protection of Human Dignity and the Protection of Minors in Broadcasting and in Telemedia” (Interstate Treaty on the Protection of Minors - *Jugendmedienschutz-Staatsvertrag*, hereafter referred to as JMStV)<sup>3</sup> from 2003. Responsible legislators in this domain are the federal states (*Länder*). In order to provide for common rules, the Interstate Treaty was agreed on by all states and consequently adopted as state legislation. For changes or amendments, all 16 states have to agree. The JMStV introduces the system of regulated self-regulation where certain powers can be delegated to self-regulatory bodies which have to be officially accredited beforehand. When members of such organisations are involved, public authorities will only very rarely be able and allowed to take measures in case of alleged breaches of JMStV rules (privilege of membership).

As a general rule, providers of Internet content are legally obliged to carefully assess their own content with regard to child protection. They may do this on their own capacity, rely on the advice of a youth protection commissioner (whom they have to appoint if they provide content possibly inappropriate for minors, cf. sect 7 JMStV), or ask a self-regulatory body for a classification. However, there is no obligation for external checks before publishing Internet content.

If services contain material that is harmful or inappropriate for minors, providers must not publish it unless they take the appropriate action as required by law.

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<sup>1</sup> <http://www.fsm.de/en>

<sup>2</sup> <http://www.inhope.org>

<sup>3</sup> [http://www.kjm-online.de/fileadmin/Download\\_KJM/Recht/\\_JMStV\\_Stand\\_13\\_RStV\\_mit\\_Titel\\_english.pdf](http://www.kjm-online.de/fileadmin/Download_KJM/Recht/_JMStV_Stand_13_RStV_mit_Titel_english.pdf)

The JMStV defines a system of problematic contents and provides a set of measures to be taken by a provider accordingly when publishing it:

*Illegal content:* content that must not be published or distributed at all (e.g. sexual abuse of minors, xenophobia, glorification of war or violence - for an exhaustive list cf. sect 4 para 1 JMStV and <http://www.fsm.de/youth-protection/media-content/illegal-content>)

*Harmful content:* content which must not be made available to children but may be accessed by adults (e.g. adult pornography - cf. sect 4 para 2 JMStV) - provider has to establish a closed user group using a two-tiered approach (identification via personal contact, authentication every time the service is used or the content is accessed) (see also <http://www.fsm.de/youth-protection/media-content/content-illegal-for-minors>)

*Inappropriate content:* content which is inappropriate for users of certain age groups because it contains references to sex, violence, extremism etc. (cf. sect 5 JMStV and <http://www.fsm.de/youth-protection/media-content/inappropriate-content>). The age levels most relevant for Internet regulation are 16 and 18, and as an online-peculiarity also 14. In addition, age levels 0, 6 and 12, which were traditionally only used to label games and films on DVD, also play a role in this context.

Providers of content that may be inappropriate for users under a certain age have to take measures and take care that such content is usually not available to these younger users.

These measures are:

*Time restrictions:* Unless other technical measures are taken, content that might be inappropriate for users or viewers under the age of 16 may only be available between 10 PM and 6 AM CET/CEST, content inappropriate for everyone under the age of 18 may only be made available between 11 PM and 6 AM. Time restrictions are well known from television where there is an additional age level: films or shows unsuitable for viewers under 12 may (usually) only be aired after 8 PM. Since youth protection for broadcast and Internet content is jointly governed in the same law (JMStV), time restrictions are an option for Internet content providers, too. However, only very few websites use this option. Most famous exceptions: the on-demand services of the public-service broadcasting corporations (e.g. <http://mediathek.daserste.de/>, [www.zdf.de/ZDFmediathek](http://www.zdf.de/ZDFmediathek)) rely on time restrictions. As an example, the famous crime show “Tatort”<sup>4</sup> is available online usually only after 8 PM.

*Technical or other means:* Content inappropriate for minors may be made available if the provider implements technical or other means which most probably only adults can negotiate. Verifying the number of an adult’s personal ID (*Personalausweis*) using a script that can validate the check digits is a valid approach in this context. Likewise, PINs can provide a sufficient level of security if handed over to an adult in a secure way. In a traditional understanding, technical means must be in place and active by default and will then have to be deactivated by an authorized person, usually an adult.

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<sup>4</sup> <http://en.wikipedia.org/wiki/Tatort>

*Programming a web service for youth protection software:* Contrary to technical means, services and websites which are programmed for youth protection software (*Jugendschutzprogramm*) remain openly accessible for everybody unless device-specific or local-network-based filters are activated. Programming for youth protection software requires the use of standardized code: website providers attach machine-readable age information to their web pages, and these labels will then be recognized by certain filtering software; for users who do not use such a filter or surf the web with devices on which the filter is deactivated, no limitations are in place. Compared to the use of technical means, programming for youth protection software is clearly less secure unless parents are aware of that option and actively opt for the use of such software. Therefore, programming for youth protection software is only an available option if (1) there is such software which is recognized and accepted by the responsible public authority and (2) content providers use the common standard (age-de.xml) to label their contents accordingly. This system is a concession in order to balance child protection with freedom of speech and information.

### 1.2.2. Political context

Since the current regulation on child protection on the Internet has been in place, the concept of youth protection software has been an option. However, not before 2012 had the competent public authority (Commission for Youth Media Protection - *Kommission für Jugendmedienschutz* - KJM<sup>5</sup>) seen fit to issue the official certificate to one or more programs. Without that accreditation, labelling web content is no valid legal option for a content provider to fulfil their legal obligations in case they provide content possibly inappropriate for younger users. The reasons why that took so long are diverse, and on whom to blame industry and KJM could not disagree more.

The law itself (sect 11 JMStV) remains rather vague on the certification requirements (“allow for differentiated access according to age groups or fulfil their function in a similar manner”) so filter manufacturers had to rely mainly on what KJM and the states’ 14 media authorities were demanding. In their Youth Protection Directives from 2005 they required “effectiveness with regard to the users and their social context” where “acceptance from parents and the public, user friendliness and supporting measures for a sensible use” are important. It is quite obvious that these requirements, neither qualitatively nor quantitatively measurable, are of no help for determining how good filtering software has actually got to be. The law allows for a pilot over a limited time to test filters in real-world contexts and for the use in families. A couple of such pilots were run, among them a German adaption of ICRA<sup>6</sup>, but none of them led to an approval by KJM.

When the JMStV was about to be revised in 2010, it was planned to include more specific requirements directly into the law (state-of-the-art filtering results for both blocking and granting access to websites depending on their age appropriateness, certain configurable features, high reliability with regard to filtering harmful content). Yet the law remained unchanged because not every 16 state parliaments agreed on the new law (which would have been required since as an Interstate Treaty it needed corresponding implementing acts in every state). After that, KJM as the responsible authority published

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<sup>5</sup> <http://www.kjm-online.de/>

<sup>6</sup> [http://en.wikipedia.org/wiki/Internet\\_Content\\_Rating\\_Association](http://en.wikipedia.org/wiki/Internet_Content_Rating_Association)

revised criteria in May, 2011<sup>7</sup>. These requirements echo the provisions from the 2010 JMStV draft and add some details. Based on these requirements, two youth protection filters (JusProg's *Jugendschutzprogramm*<sup>8</sup> and Deutsche Telekom's *Kinderschutzsoftware*<sup>9</sup>) were at last officially approved by KJM in 2012.

Emphasizing the fact that parents' awareness of such filters is a key success factor, the federal government, the states and a considerable number of large industries joined forces in the initiative *sicher-online-gehen* (going online safely)<sup>10</sup>. Among others, a TV clip promoting the use of youth protection software<sup>11</sup> was produced and was then run by major TV stations even during prime time around Christmas 2012 to reach a large number of parents.

The most important effect of the KJM approval of youth protection programs was that from that day programming a web service for youth protection software is now an option for content providers. Prior to the KJM decision, a common standard had to be drafted and approved of by relevant stakeholders. During intense discussions on numerous round tables, representatives of the states, public authorities, public broadcasting, industry and self-regulatory bodies agreed on age-de.xml as the standard to be used by content providers when labelling their content for youth protection programs.

### 1.2.3. Criticism

When web content is labelled electronically so that youth protection programs can identify the appropriate age level, no additional measures have to be taken by the content provider. As an effect, such content remains available for everybody unless a filter is installed and set up accordingly. Compared to time restrictions and - even more - technical means such as handing out PIN codes to verified adults, technical age labels provide less security.

Some stakeholders, foremost the public broadcasting corporations, continue to stress this effect and consequently refrain from using age labels for their contents. Instead, they restrict the availability of their programmes and contents according to the time of day. Critics argue that electronic content labels have no impact if parents don't use filters and that this option does not balance the requirements of child protection with the economic interests of content providers well enough by advantaging the latter.

Some critics also point out that introducing electronic age labels as a national peculiarity means to ignore the characteristics of the WWW as medium without national frontiers.

Supporters of electronic age labels argue that PIN codes and the watershed make it difficult also for adults and older youths to access content they are interested in and legally entitled to see. They further stress that regulating media use of children is primarily the right and duty of parents. If parents decide to let their children access the Internet without filters, that may be perfectly fine for their family situation. They may decide to surf the web together with their children or find other appropriate solutions such as being available for their children to come for help or talk about things their

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<sup>7</sup> [http://www.kjm-online.de/fileadmin/Download\\_KJM/Rundfunk/Informationen-fr-JSP-Anbieter\\_Stand\\_2011-05-11.pdf](http://www.kjm-online.de/fileadmin/Download_KJM/Rundfunk/Informationen-fr-JSP-Anbieter_Stand_2011-05-11.pdf)

<sup>8</sup> <http://www.jugendschutzprogramm.de/>

<sup>9</sup> <http://www.telekom.de/kinderschutz>

<sup>10</sup> <http://www.sicher-online-gehen.de/>

<sup>11</sup> <https://www.youtube.com/watch?v=za8VnGYAXBA>

children come across when online. Additionally, filters are usually only able to restrict access to potentially inappropriate websites and have no effect with respect to harmful behaviour of other users, such as online grooming or bullying.

Most stakeholders, however, agree on the fact that parents' awareness of the availability of filters is crucial: Parents need to be able to make informed decisions. For that reason, the KJM approval of youth protection software was limited during its first year: Only content up to the age level of 16 could be labelled and programmed for youth protection software. Providers of content inappropriate for minors of all ages needed to use other protective means. This limitation was widely discussed concerning its legality because the law makes no distinctions in that context and does therefore not provide the opportunity for such a restriction by KJM. However, a relevant case concerning that matter had not been brought to court so the period of limitation was eventually accepted by industry.

## 2. Technology background

### 2.1. Age-de.xml

The labelling format that was agreed on in 2010 consists of a file named age-de.xml which has to be available in the web root directory of a domain (comparable to the well-established robots.txt which contains instructions for search engines). It is therefore attached directly to the content (or website) it is valid for. There is no common data base or cloud where age labels would be stored.

This file provides general information, e.g. issuing body and modification date, similar to a MIRACLE dataset.

Valid age levels are 0, 6, 12, 16 or 18 years in accordance with the Protection of Young Persons Act (*Jugendschutzgesetz* - JuSchG). The 2010 JMStV reform (which did not become effective) also considered these age levels, and current reform discussions again mention them. With age-de.xml, the content provider can either provide a label for an entire domain or subdomain, which is the most common usage, or they can label different areas (folders) or even individual pages with different age levels.

As labelling of individual pages by listing all of them in a central file is not manageable on large dynamic websites, the age-de.xml standard allows alternative age labelling methods in html Meta tags or http headers. The central xml file then only holds a reference to the method used and a default age level that would be applied in case the individual label is missing (e.g. an individual content file is provided without a valid meta tag) or cannot be read (bad syntax).

Additionally, the xml file contains information on how long the data is valid, so that filter programs that use caching do not need to fetch the file again within a given time. There is also an option to indicate an alternate URL to which the user shall be redirected in case the originally requested resource is not suitable for the age indicated by the software's configuration.

There are four label generators available from JuSProg<sup>12</sup>, USK<sup>13</sup>, FSK<sup>14</sup> and FSM<sup>15</sup>. The latter allows fine-grained labelling with different age levels for several parts of a website

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<sup>12</sup> <http://www.jugendschutzprogramm.de/label-generator.php>

<sup>13</sup> <http://www.usk.de/extramenue/login/publisher/weitere-leistungen/labelgenerator/>

<sup>14</sup> [www.fsk.de/labelgenerator](http://www.fsk.de/labelgenerator)

and offers a questionnaire, too, which helps to find the appropriate age rating, while the former three are restricted to simple labels covering complete websites (domains or subdomains as smallest possible units).

Age-de.xml is an open standard and may be used freely by anybody. Age labels that have been uploaded by webmasters can be accessed by anybody by simply adding “/age-de.xml” to a domain name. It is not possible to hide this file because filtering software need to be allowed to access it without authentication or following other safety precautions.

## 2.2. Reception and adoption of age-de.xml

None of the four label generators mentioned above provides public information on how many labels have been generated with them.

In order to investigate how many sites are currently labelled with age-de.xml, we generated a list of 500,000 domains plus 50,000 non-www-subdomains from the following sources:

- Alexa Top 1 Million. Websites - international<sup>16</sup>
- ODP/DMOZ - international<sup>17</sup>
- German Wikipedia<sup>18</sup>

As the first two sources are international, we focussed on domains with the top level domain .de assuming these would be more likely to be relevant for the German market than international top level domains and thus be more likely to carry age-de.xml labels.

As the vast majority is likely not to have any content that is possibly harmful for minors, we additionally investigated about 9,000 domains which were subject to reports received by the FSM Hotline<sup>19</sup> in the last ten years (excluding reports on child abuse material).

The lists had been pre-processed (normalization of protocols to http, normalization of missing subdomain to www, conversion of IDN domains) in order to detect duplicates.

### Results:

#### **2 % DNS Error**

Samples of these have been checked manually to find that they are usually not registered/connected. Therefore, these domains are regarded invalid and have been excluded from the total number.

#### **79 % Not Found (Error 404)**

These sites currently do not have any age-de.xml, at least not in the correct location.

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<sup>15</sup> <https://www.altersklassifizierung.de/en>

<sup>16</sup> <http://s3.amazonaws.com/alexa-static/top-1m.csv.zip>

<sup>17</sup> <http://rdf.dmoz.org/rdf/content.rdf.u8.gz>

<sup>18</sup> <http://download.wikimedia.org/dewiki/latest/dewiki-latest-externallinks.sql.gz>

<sup>19</sup> <http://www.fsm.de/hotline>



### **14.6 % Redirection**

These responses may be subject to further investigation on where the redirection is pointing to. It is possible that this may turn up some more valid labels because for instance the host is configured to force https (as of now filter programmes are not able to deal with this, though), or force being called without subdomain.

### **4.4 % OK (Status 200)**

These cases needed further investigation, as most of them did either return an error document without proper error code or the start page instead of an age-de.xml file.

### **0.1 % Existing age-de.xml files**

While this cannot be interpreted as a widespread usage, it is notable that among subsets of the data, e.g. those listed at IVW (a German institution that certifies and audits the circulations of major publications)<sup>20</sup> which cover a lot of large and prominent websites, 6.5 % of the websites are labelled. Similarly, among the domains extracted from the FSM Hotline, which are more likely to contain relevant material, 2.2 % of the websites are labelled.

Furthermore, we found that

- the vast majority of the files are technically valid xml
- 11.9 % are not valid against the xsd definition, which is largely due to issues with the order of xml elements
- all different age labelling methods (xml file, Meta tags, http headers) are in use
- 9.8 % of the websites with a label use at least two different age levels for different pages (IVW: 36.1 %)
- all age levels are covered, “18” being most prevalent (33.5 %), “6” least often (6.8 %).

## **3. Strategy**

In this project, the FSM acts in a scenario where there is an operational system of electronic labels, attached to the respective web content. Furthermore, the age-de standard, having been agreed on by a large number of stakeholders, enjoys an official backing since content providers can fulfil certain legal obligations by using it.

The MIRACLE data model allows to provide classification data in a simple XML structure, just like age-de. Both standards also share some of the data fields, such as information about the issuer of a label (who provides the age classification?), the age level (for persons of what age is that content suitable?) and the scope of the individual label (for which content is this label valid?).

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<sup>20</sup> <http://www.ivw.eu/>

### 3.1. Options

For the MIRACLE project, FSM's task is to make existing age-de labels interoperable using the MIRACLE data model. It is therefore necessary to enable instances (e.g. filters) which understand MIRACLE to interpret age-de.xml files correctly. It is, however, not necessary to provide the translation also the other way round. When MIRACLE labels will exist in the future, it seems reasonable to assume that filtering software available in Germany will be able to understand MIRACLE directly rather than requiring a translation into age-de beforehand. This notion is supported by the fact that today there are only a few filters available which can interpret age-de labels, among them the software of MIRACLE project partner JusProg, and they are tasked with the development of full MIRACLE capability.

In order to provide compatibility of age-de with MIRACLE, there are three options:

#### 3.1.1. Extension of the age-de.xml standard

From the nature of the age-de standard, its syntax could basically be extended or rather be adapted to MIRACLE. The MIRACLE data model contains several data fields which are not part of the age-de standard, namely content descriptors, feature descriptors and short texts. These would need to be added to age-de.

Even though these categories of information are not yet commonly used in the German youth protection landscape, there are indeed tendencies that in the future especially the professional content classifiers will include such information into their labels. The FSF<sup>21</sup>, self-regulatory body for the German private TV sector, recently started to add content descriptors to their classifications. The FSK<sup>22</sup>, responsible for DVD and cinema ratings, includes a short reasoning from their decisions in their new mobile app. Customers have become used to small icons indicating relevant categories of inappropriate content on computer games boxes, too, usually from PEGI<sup>23</sup>.

However, with all these fields available in MIRACLE, a standard to be used across Europe, it seems reasonable to assume that this kind of more detailed content classification will be carried out using the original MIRACLE format since these labels could then also be used across Europe, for instance within multi-national companies.

Even more since the larger content providers, such as TV broadcasters, say they would openly welcome the concept of MIRACLE, the implementation of the new data model by them seems to be more than likely.

Apart from these practical indicators, changing or even amending the existing age-de standard would also require the consultation of the public authorities as well as the industry and public broadcasters. Everybody who had a say in the original age-de standardization would now most probably want a word in every alteration, too. Considering the experiences from the drafting process of age-de, any new discussions will be difficult and time-consuming.

Since the data fields already shared by age-de and MIRACLE mostly carry different names, a simple integration of the additional features of MIRACLE would still not render translation instances unnecessary. The age-de feature of an optional labelling using

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<sup>21</sup> <http://en.fsf.de/the-fsf/>

<sup>22</sup> <http://www.fsk.de/?seitid=480&tid=480>

<sup>23</sup> <http://www.pegi.info/en/>

meta tags or http headers instead of using the xml file, also makes it necessary to provide for a translation since these options are, as of now, not part of the MIRACLE data model.

Similar to the in fact valuable influences the experiences with age-de.xml had on the development of the MIRACLE data model, we expect the experiences of working with MIRACLE in practice will have an equally valuable effect on age-de.xml. Considering these influences and the potential uptake, adjustments to age-de.xml should rather be discussed at a later time.

### **3.1.2. Mapping service**

MIRACLE's mission is to provide interoperable data. This of course includes the point that existing labels may easily be translated into the MIRACLE format.

Age-de, in its standard form, consists of an XML file with only a few lines of code. MIRACLE data can also be provided in XML. Since most of the components of age-de are also available in MIRACLE, labels using the age-de standard can rather easily be translated into the MIRACLE data format.

Age-de labels are used for labelling web content, which is why mainly youth protecting filters process these labels and use them to decide whether or not to grant access to the respective content, depending on the configuration of the local machine or filter.

Being a German standard, there is no tool available to an international audience which can interpret age-de.xml. In fact, only some German filtering tools are able to read and understand these labels.

### **3.1.3. Combination**

As a third option one could also consider a combination of the extension of age-de.xml to fit to the MIRACLE data model and of a mapping service. This would, however, lead to a cumulation of individual challenges and is therefore not regarded as a preferable way forward, at least not at the moment. After a careful assessment of the experiences to be made with MIRACLE, adjustments of age-de.xml may prove to be a valuable step ahead. Careful harmonisation of both age-de.xml and the MIRACLE data model may be beneficial, especially concerning the performance of translation APIs and the level of complexity, but might prompt new challenges with regard to existing age-de.xml labels.

## **3.2. Decision and preparation**

Taking these options carefully into account, we asked members of the FSM about their opinion. We paid special attention to companies already using age-de.xml, many of whom also use structured labels and/or age declarations in meta tags or http headers. Our conversations involved child protection specialists as well as technical experts, editorial staff and management of media companies large and small. It became clear that, as simple and well-structured as age-de.xml may be, companies are quite happy with now having successfully taken care of the issue of age labelling and seem to be rather reluctant towards changing their labels only because of an updated standard or syntax. These concerns need to be observed in order not to jeopardize industry's readiness to use technical age labels in the first place.

It was therefore decided not to try and alter age-de.xml now in order to make it fit better to the MIRACLE data model. Such a process would have involved many stakeholders and may have taken a lot of time, too. We rather opted for an automated mapping service that offers the capability of fetching the file age-de.xml of a website, if present, find out the age rating of an individual web page and provide that information to, for instance, filtering software, using the MIRACLE data model.

In order to put this idea into practice and since the FSM has no substantial IT resources, we discussed possible infrastructures with the contractor which also realised the FSM age classification system<sup>24</sup> and is therefore well aware of the age-de.xml syntax and also the legal and technological requirements of technical age labels. Consequently, we tasked them to provide the appropriate API.

### **3.3. Making interoperable data available and accessible**

#### **3.3.1. Prospected outcome**

On [www.altersklassifizierung.de](http://www.altersklassifizierung.de) we will offer an interface that will accept transmissions of a single URL per request and answer them with a dataset in MIRACLE xml format.

Each response will not only contain the age level (0, 6, 12, 16 or 18) but also indicate whether this applies to the entire domain, or only to the specific URL in case a website is labelled with different age levels. While in the first case it would be appropriate if the filter program reuses the information without any subsequent requests e.g. within the same session, it is crucial that otherwise the filter program sends a new request for any URL within that domain.

Http header and html Meta tags will be considered to determine the age level if the use of these methods is indicated in the age-de.xml file.

The interface should only be used when a filter program has detected an age-de.xml file. Validation by the filter program is not required, and because of that in many cases there will not be a valid xml file which could be translated into MIRACLE format (see above section 2.2: “OK (Status 200)”). In these cases, the interface will return http status code 204 (No Content) instead of a MIRACLE dataset.

The interface is accessible to MIRACLE project partners who offer child protection / web filtering tools and do not support the German age-de rating system directly, i.e. Optenet. Other interested parties are requested to contact the FSM in order to evaluate the possibility of future collaborations.

#### **3.3.2. Challenges**

For the purpose of this pilot project, the access numbers of the FSM MIRACLE service will most likely be rather small.

Therefore, scalability is of no primary concern today. Should the scenario of filtering software querying the FSM service for individual age information, however, prove to be useful for many users in the future, we will need to provide enough computing power and bandwidth in order to guarantee an appropriate user experience. To foresee this development we would also have to take into account the uptake of age-de.xml in the

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<sup>24</sup> <https://www.altersklassifizierung.de/en>

future and the attractiveness of German age-de.xml-labelled websites for users outside of Germany. Since this does not seem to be possible we actively opted for a small solution during this pilot project, even though we agreed with our contractor that additional resources would be available within short notice.

General performance is an important factor, too. Devices with filtering software will take longer until displaying web content than devices without such software, especially if a website provides an electronic age label. Upon receiving the - then unknown - age-de.xml label, the filter now has to refer the information gathered to a third instance, here the FSM MIRACLE service. The labelling information have to be queried again, translated, and returned to the filter. Only then can the filter decide whether or not to make the content available to the user.

### **3.3.3. Time plan**

The FSM mapping service is expected to be fully operational in December 2014. Throughout the remaining period of MIRACLE, we will carefully assess the functionality and strive to improve the service, if necessary.