



A lightweight citizens information portal
for extreme weather events

Dr. Richard Figura, Dr. Alexander Willner, Dr. Christopher Frank

Data Week 2022

06.07.2022 (11:30 – 11:45)

CISS TDI GmbH



about us

*The greatest sight there is is the world
- go see it.*

– Kurt Tucholsky





CISS TDI GmbH



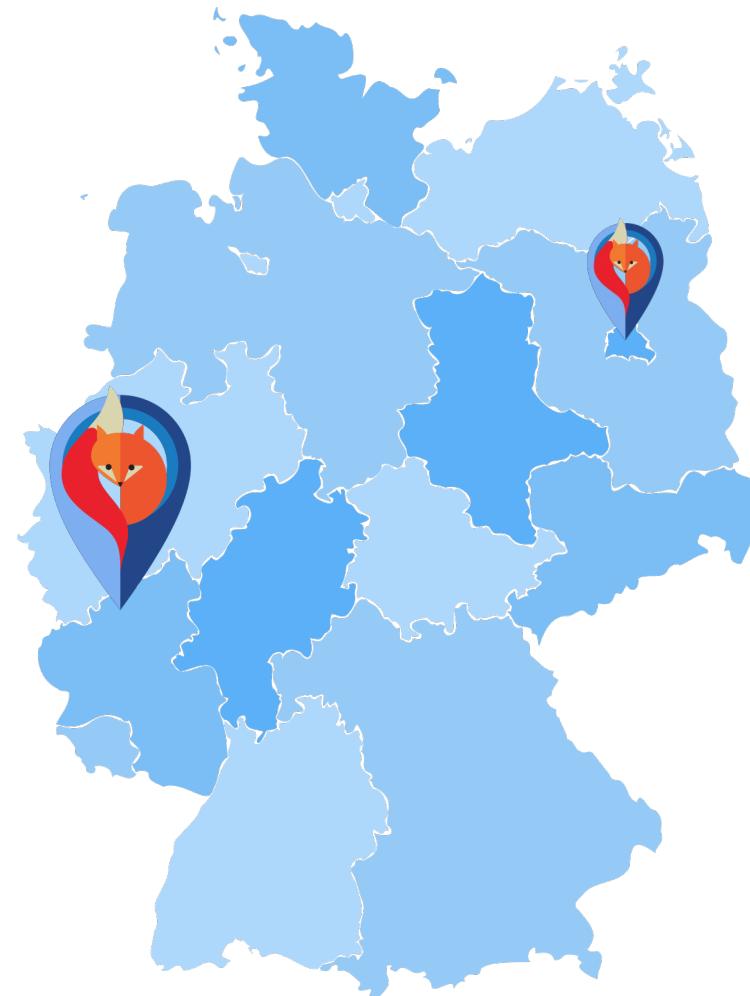
Established: 1982

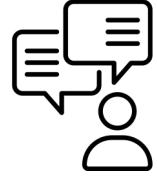


HQ: Sinzig / Rhein



Employees: ~37





Authors



Dr. Richard Figura
Managing Director

r.figura@ciss.de
www.ciss.de



Dr. Alexander Willner
Managing Director

a.willner@ciss.de
www.ciss.de



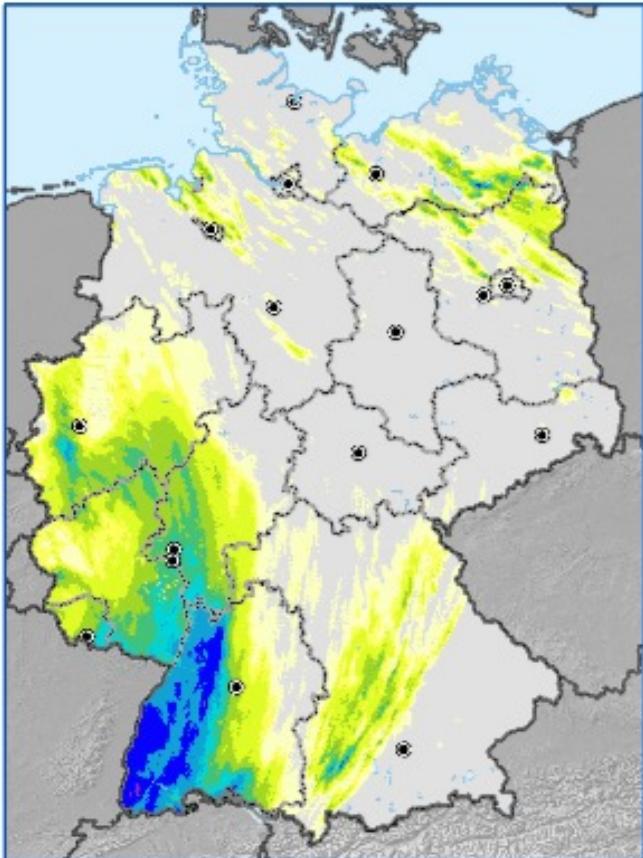
Dr. Christopher Frank
Head of Research

c.frank@ciss.de
www.ciss.de

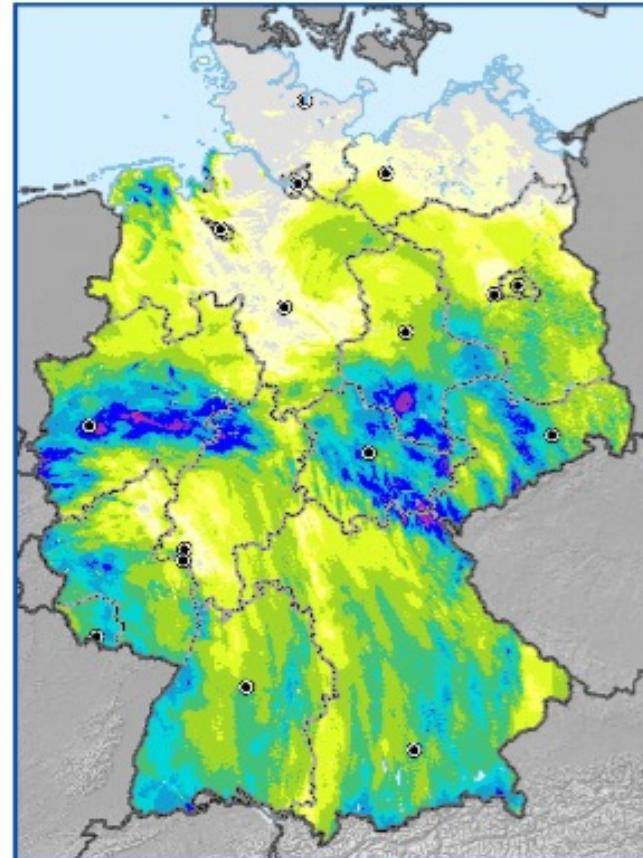
flood of the century (14.07.2021)

Analysis of precipitation (DWD, Hydrometeorologi)

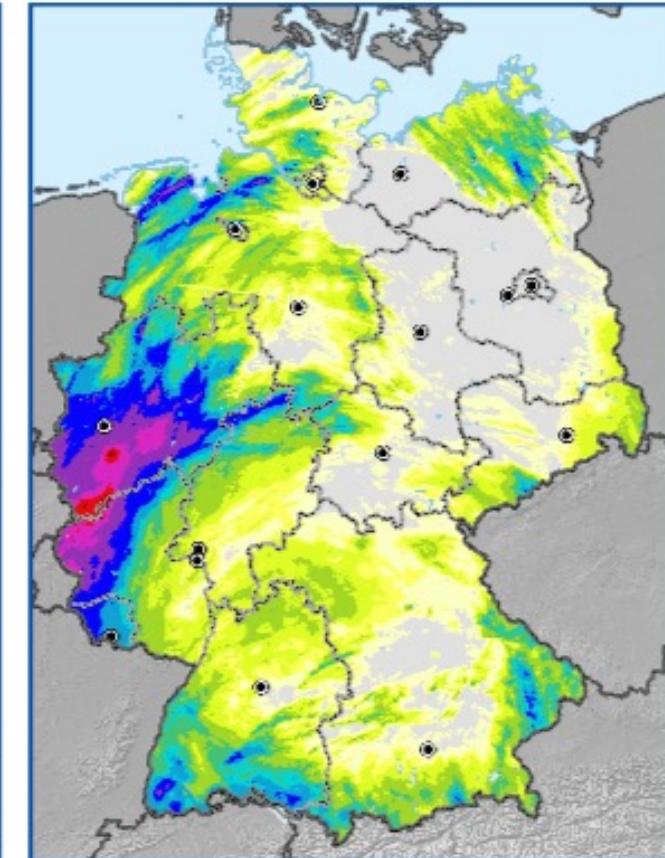
12. Juli 2021, 05:50 UTC
bis 13. Juli 2021, 05:50 UTC



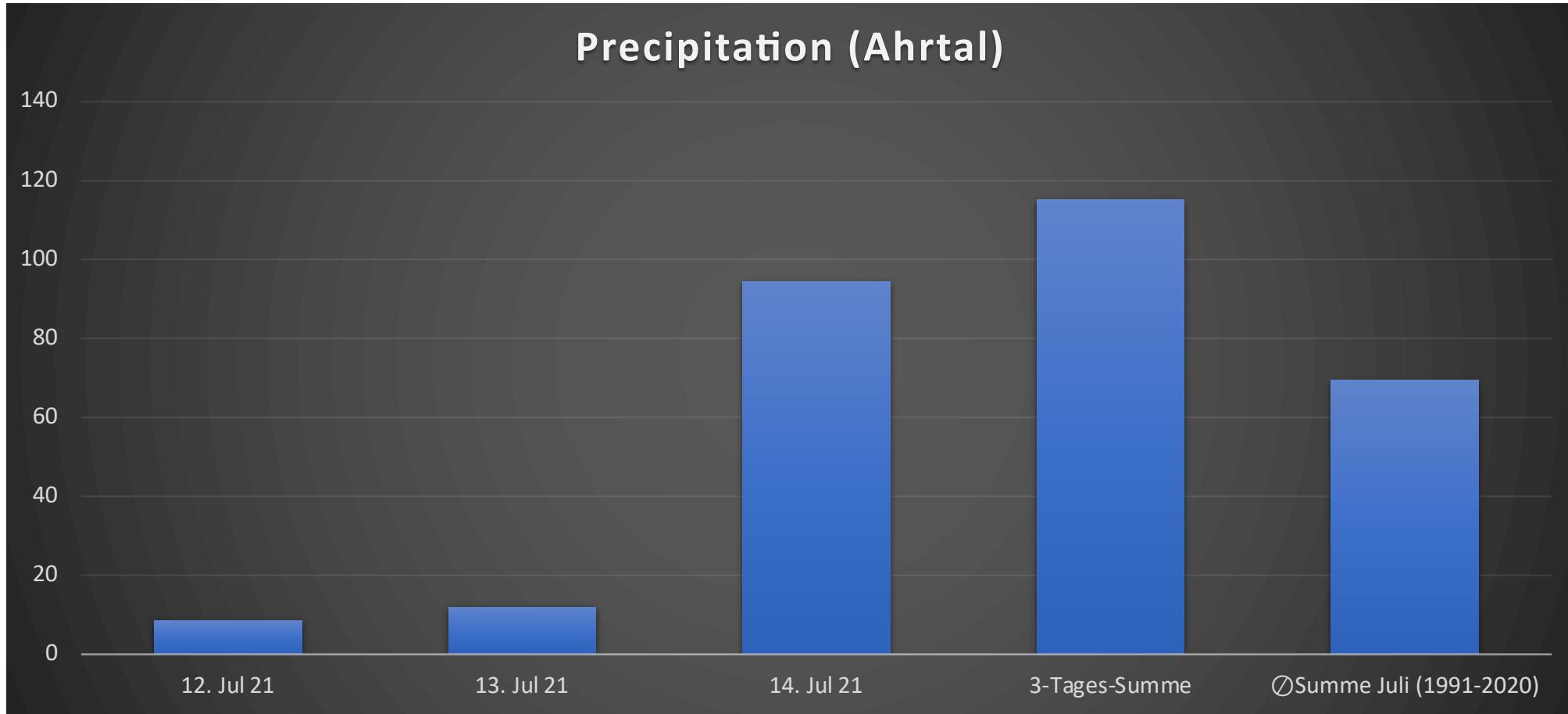
13. Juli 2021, 05:50 UTC
bis 14. Juli 2021, 05:50 UTC



14. Juli 2021, 05:50 UTC
bis 15. Juli 2021, 05:50 UTC



At one day more showers than the average sum of the last years





DOMA
VINOOTHEEK & RESTAURANT



Destroyed Infrastructure

- *Streets*
- *Bridges*
- *Telecommunication*
- *Power grid*
- *Gas grid*
- ...



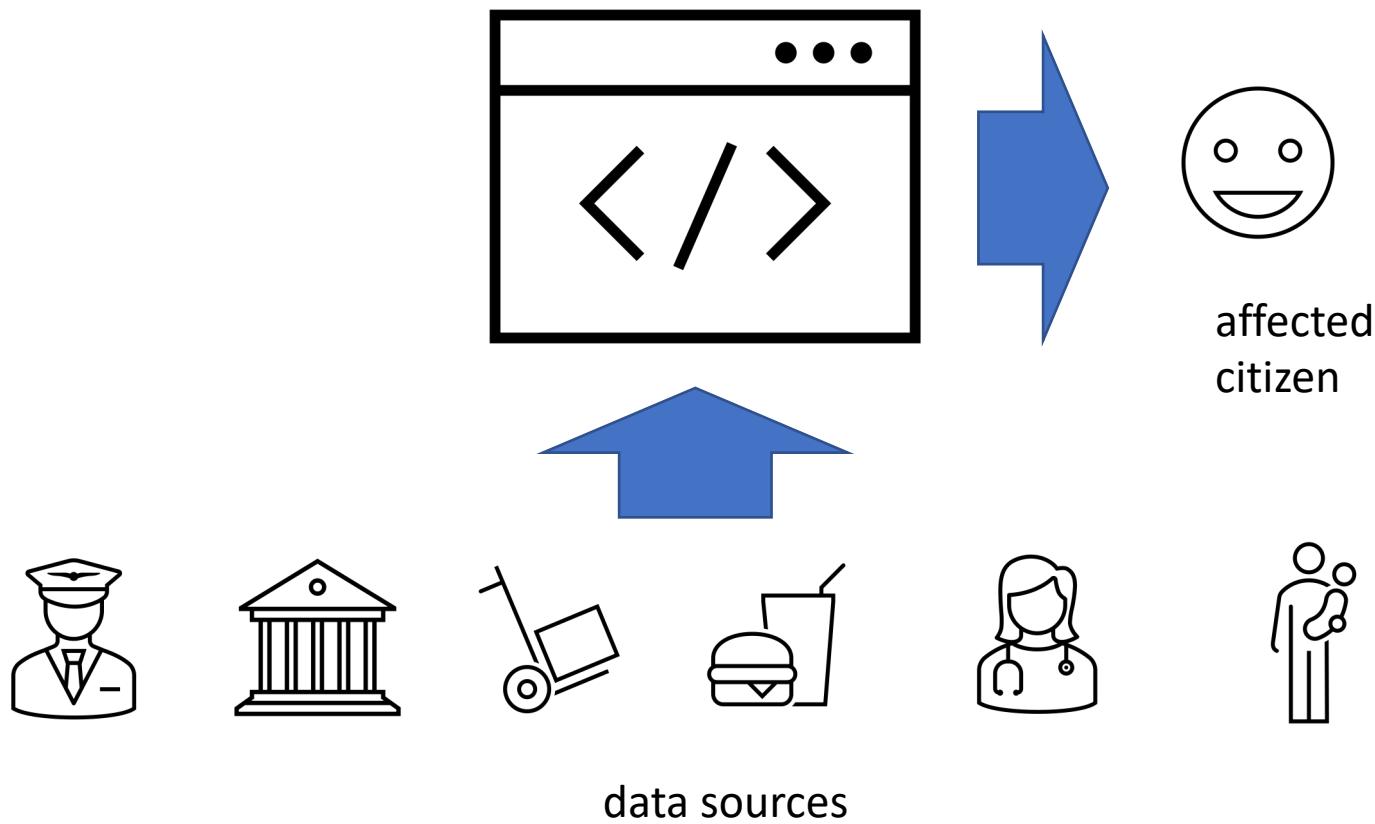
Where to find

- Medical care
- Childcare
- Information points
- Relief supplies
- Waste zones
- ...



how information was distributed

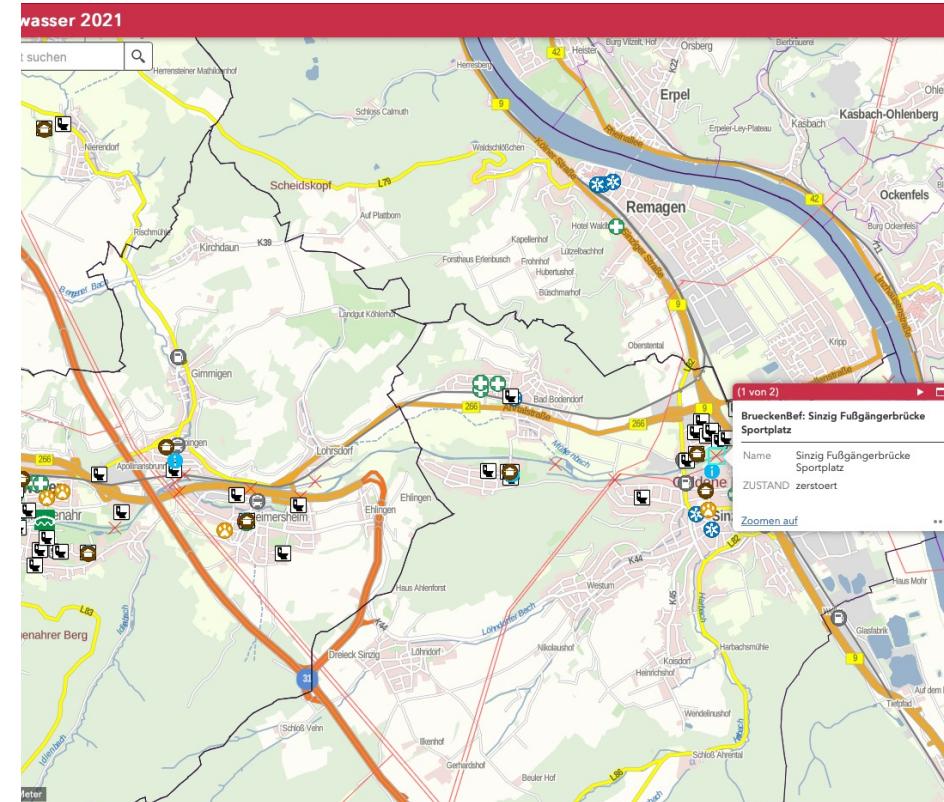
Goal: citizens information portal



Official Data Portal (ADD)

(Supervisory and Service Directorate)

- *Data was managed by 1 person (receiving updates via e-mail)*
 - *Long update cycles*
 - *No optimization for mobile devices*
 - *No offline usage*
 - *ESRI licensed*

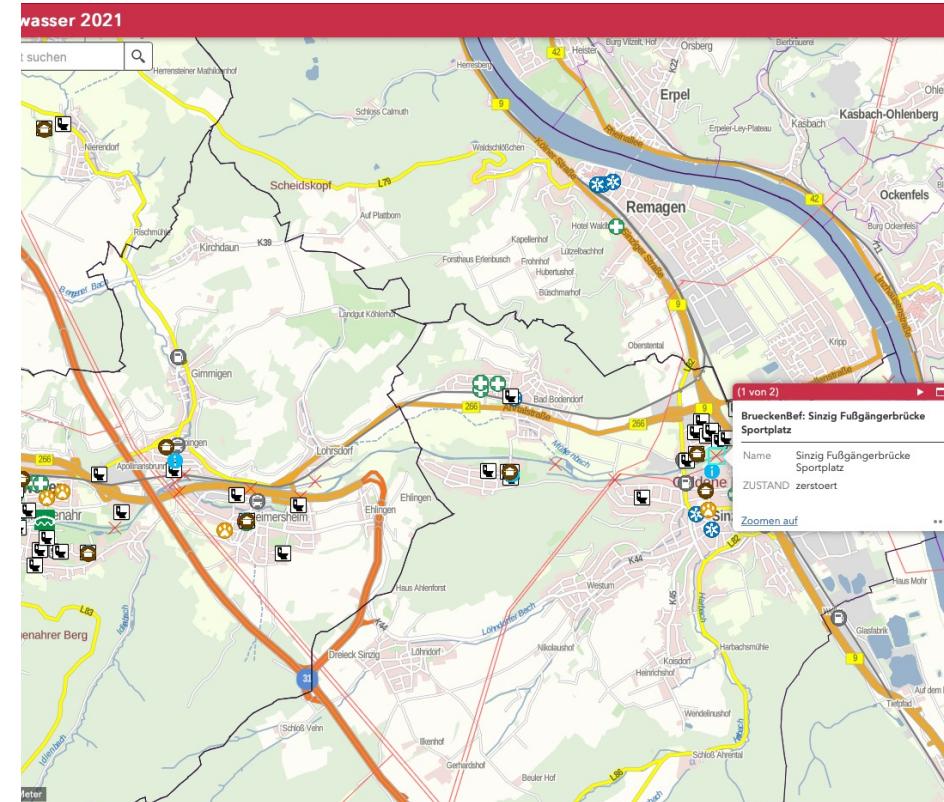


<https://lvermkv.maps.arcgis.com/apps/webappviewer/index.html?id=da78a306408441769ff803ec349789bc>

Official Data Portal (ADD)

(Supervisory and Service Directorate)

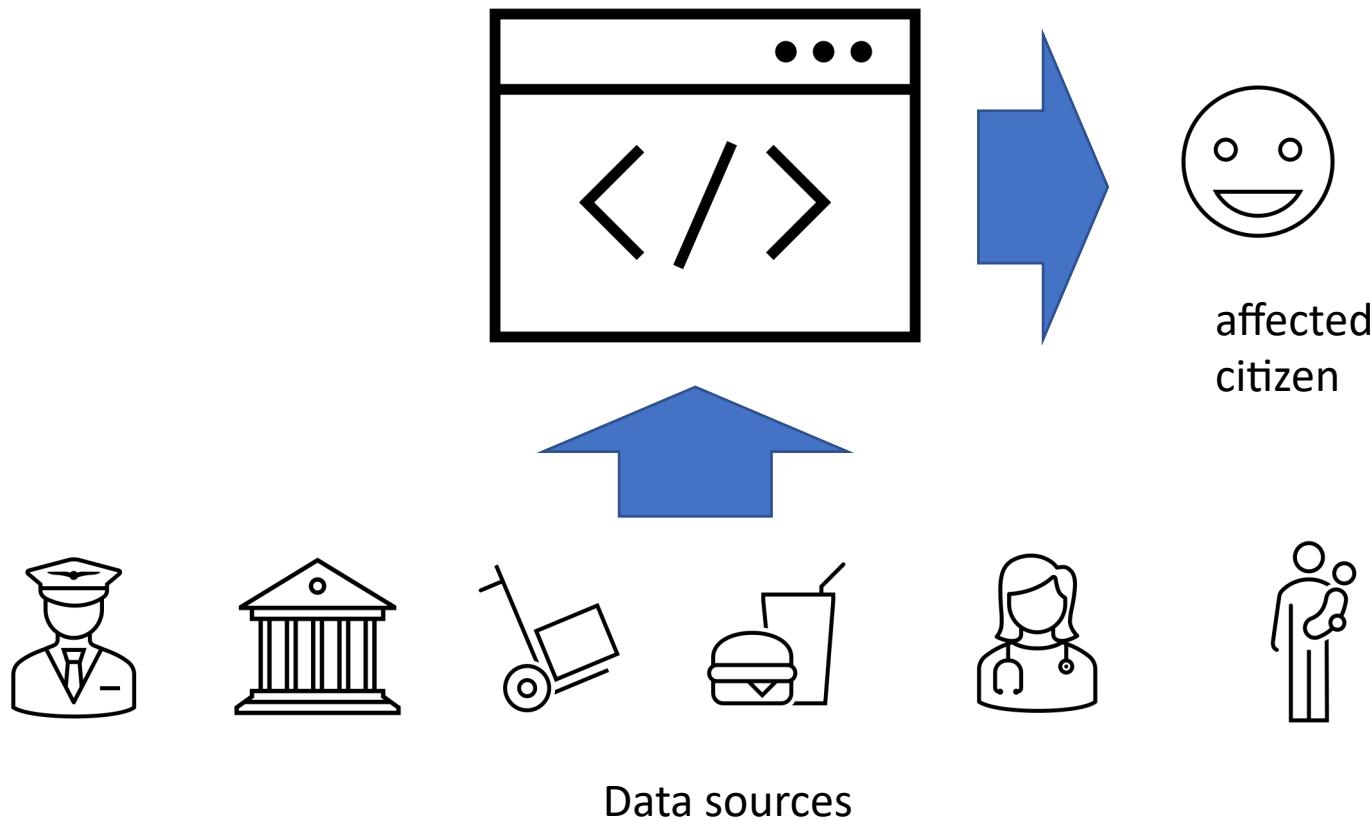
- Data was managed by 1 person (receiving updates via e-mail)
- Long update cycles
- No optimization for mobile devices
- No offline usage
- ESRI licensed
- Offered around two to three weeks after the event...



<https://lvermkv.maps.arcgis.com/apps/webappviewer/index.html?id=da78a306408441769ff803ec349789bc>

how information could be distributed

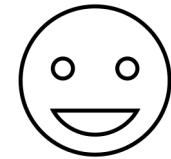
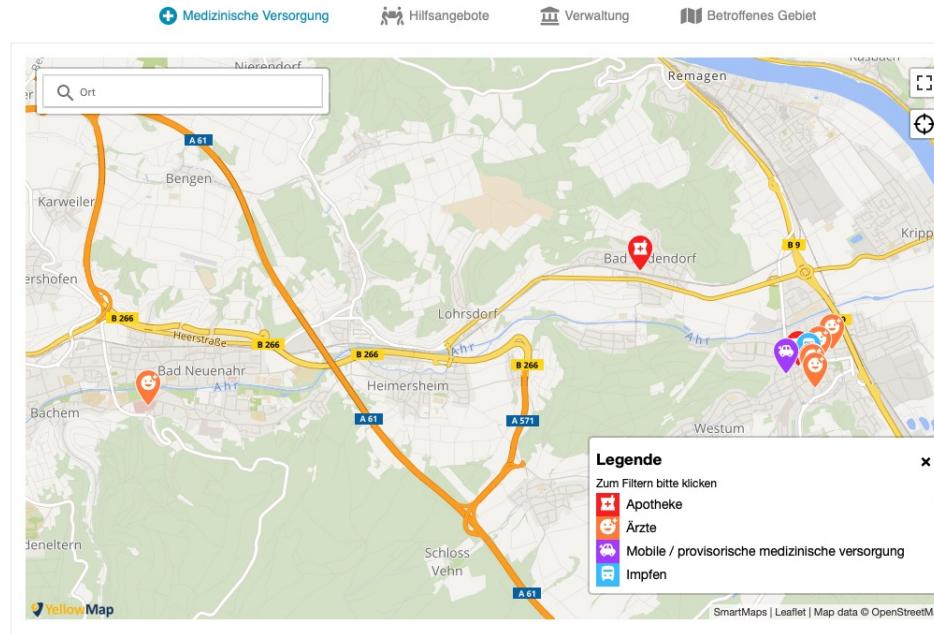
Goal: citizens information portal



Requirements:

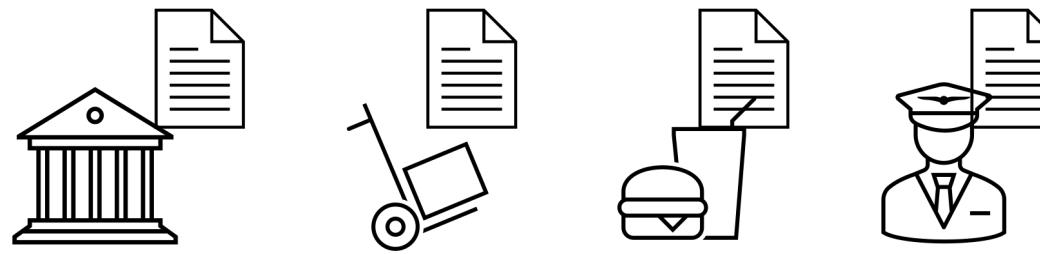
- Allow *input from different sources (apply changes immediately)*
- Allow *input from non-technical experts*
- Allow *offline usage (data download)*
- Must be optimized for *mobile usage*
- Provide a *data API*

Extreme situations require “extreme” solutions



affected
citizen

E.g. Google Docs
as data source



Authorized accounts should be able to update data immediately

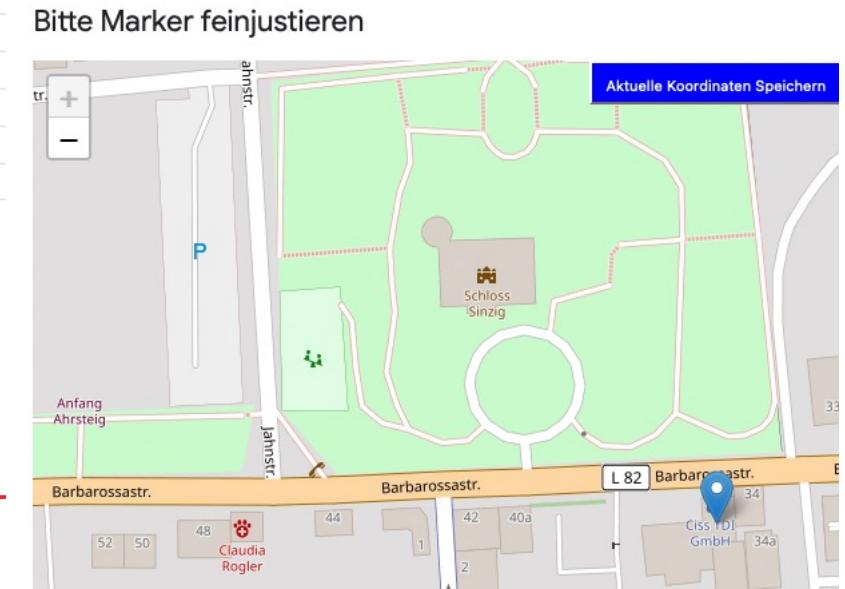
Suche geographische Informationen per Adresse							
Koordinaten	Straße	Hausnr.	PLZ	Stadt	Suche-Straße	Suche-PLZ	Such
50.5460372, 7.246989699999999	Barbarossastraße				43	53489	Sinzig
50.55116680617844, 7.2496891021728525					53489	Sinzig	
50.549939733240365, 7.2245192527771005					53489	Sinzig	
50.55865125951707, 7.27646827697754	Leinpfad				9	Sinzig	
50.5513211, 7.246698299999999	Grüner Weg				60	Sinzig	
50.548782, 7.21749	Bäderstraße				1	53489	Sinzig
50.54069695, 7.127501749051339	Dahlienweg				10		
50.543875478934325, 7.249335050582887	Koblenzer Straße				9		
50.54530383613794, 7.246835231781007	Mühlenbachstraße				21		
50.5564683, 7.2179086	Bahnhofstraße				2		
50.54726392177968, 7.25297212600708	Alfred-Ott-Straße				36		
50.54378343533955, 7.249447703361512	Koblenzer Straße				aße	13a	
50.54579812628676, 7.250552773475648	Barbarossastraße						
50.5443959, 7.2446228	Friedrich-Ebert-Stra						
50.5485353772434, 7.233853340148927							



Automatic data publication

Add coordinates automatically

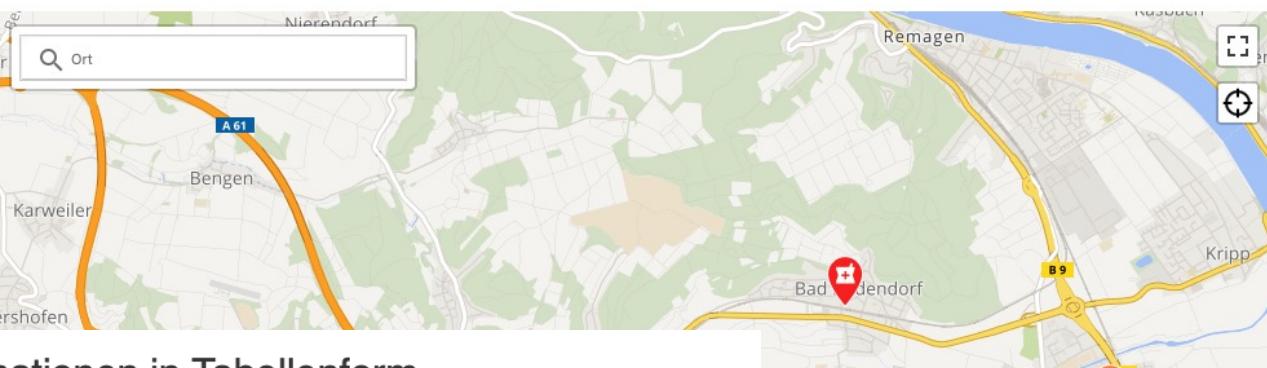
Adjust coordinates manually (when needed)



Data portal provided by CISS TDI and YellowMap

(<https://ahr-hochwasser.ciss.de>)

Medizinische Versorgung
Hilfsangebote
Verwaltung
Betroffenes Gebiet



Detailinformationen in Tabellenform

Durch einen Klick auf die folgenden Buttons können Sie die Liste bereitgestellter Informationen vollständig herunterladen. Suchlaste filtern oder einzelne Zeilen markieren, so werden nur die entsprechenden Zeilen heruntergeladen.

[csv](#) [excel](#) [pdf](#)

Name	Straße	Nr.	Ort	Telefon	Kategorie
Sportplatz	Grüner Weg	9	Sinzig		Hilfsgüter-Verteilung
Pavillon am Kurpark	Bäderstraße		Sinzig		Hilfsgüter-Verteilung
Rathaus	Markt	1	Sinzig		Infopoints
CoWorking Sinzig	Bachovenstraße	3	Sinzig		Infopoints
Container Jahnsporthalle	Dreifaltigkeitsweg	32	Sinzig	0151/54342513	Infopoints



Legende

Zum Filtern bitte klicken

- Apotheke
- Ärzte
- Mobile / provisorische medizinische versorgung
- Impfen

SmartMaps | Leaflet | Map data © OpenStreetMap

- Update: immediately w/o knowledge
- Access: offline and mobile mode
- Data: 10 different categories
- Export: CSV, Excel , PDF, GeoJSON

```
{
  "type": "FeatureCollection",
  "name": "Transformed Data",
  "features": [
    {
      "type": "Feature",
      "geometry": {
        "coordinates": [
          [7.233, 50.547863],
          [7.233558, 50.551489],
          [7.246472, 50.554896],
          [7.249003, 50.55506],
          [7.250205, 50.554324],
          [7.252221, 50.553097],
          [7.256898, 50.547017],
          [7.25338, 50.54669],
          [7.252908, 50.547699],
          [7.24866, 50.547481],
          [7.245914, 50.547454],
          [7.245571, 50.54729],
          [7.243511, 50.547208],
          [7.243039, 50.546608],
          [7.241795, 50.546908],
          [7.237162, 50.547154],
          [7.234845, 50.547263],
          [7.233, 50.547863]
        ]
      },
      "type": "Polygon",
      "properties": {
        "category": 5,
        "icon": "crop_square",
        "color": "#ff3f2e",
        "opacity": "0.6",
        "weight": "3",
        "strokeGebiet": "text": "<b>Betroffenes Gebiet</b>Sinzig"
      }
    }
  ]
}
```

where to go next

What went well

- Prototype was ready 7 days after the flood
- Google Sheets enabled non-technical experts to provide data
- Google based authentication
- Adjusting coordinates, integrated in google sheets
- SmartMaps enabled simple data visualization
- License free solution

What could be better

- Portal was applied in Sinzig only -> need for a German/European wide approach (joined proposal?)
- Import data automatically from already available linked data sources and export as linked data
- Polygon information was difficult to add -> not everyone is an expert
- Need for a Google account -> use open distributed tools

Summary in three points

1

*Distributed data provision
allows input from different
sources*

2

*Google Sheets allow non-
technical experts to provide
data*

3

*No power grid, no internet →
data must be optimized for
offline usage*
