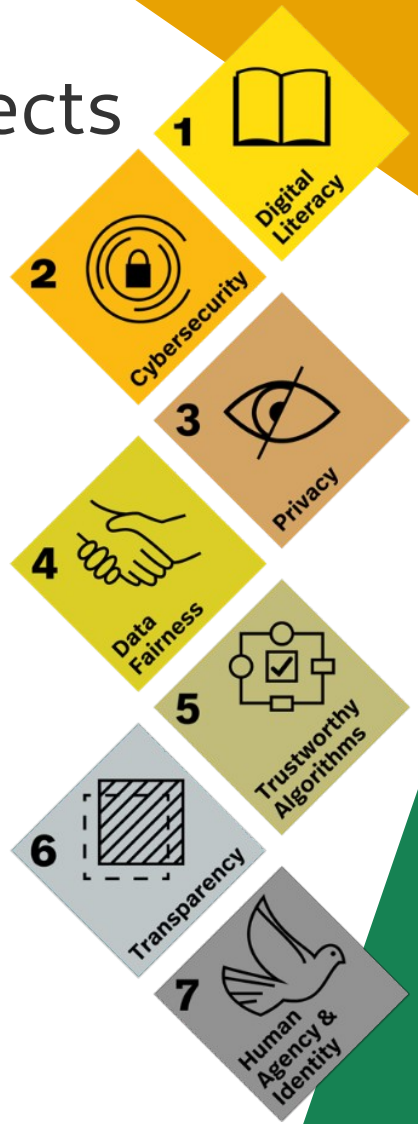
An Open-Source Developer's Perspective on

STANDARDS

and Ontologies for the Agri-Food Sector

Our **DRG4Food & FOODITY** Projects

- ATTESTED
  - Traceability of food products
  - Automated data entry
- 3FAIR
  - Online survey
  - Customer feedback
  - Consumer preferences



ATTESTED

ATTESTED

- Easy / Automatic data collection
- QR-code webUI shows history of the product
- Open-Source Hardware
- Free/Open-Source Software
- DRG best practices

Valdibella

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FiBL

ATTESTED

TRACK CLIMATE
REPORT:
temperature: 33.99
humidity: 62.32
pressure: 1013.63
altitude: -3.85
(uploaded)

ATTESTED

ATTESTED

- **Unique ID** on every item
  (For the pilot: on every 6-pack)
- **Producer**
  (For the pilot: only 3 producers)
- **Dates** of
  - Harvest
  - Processing
  - Shipping
  - Best-Before ?
- **Route** travelled with GPS
  (For the pilot: to Palermo)

3FAIR

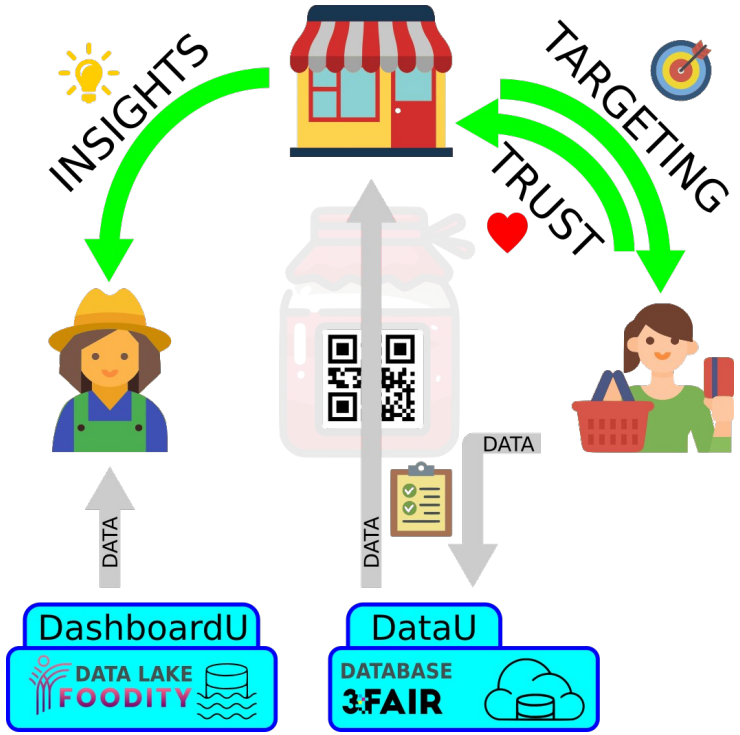
3FAIR

- Product info webUI from QR-code on product
  (Could be integrated with ATTESTED.)
- Customer survey below product info webUI
  - Give insights to shop and producter
  - Possibility to contact customers by email / SMS
- Data Owner will be the customer/consumer

3FAIR

3FAIR

3FAIR


INSIGHTS
TARGETING
TRUST
DATA
DATA
DATA
DashboardU
DATA LAKE
FOODITY
DataU
DATABASE
3FAIR

DATA

STANDARDS

STANDARDS

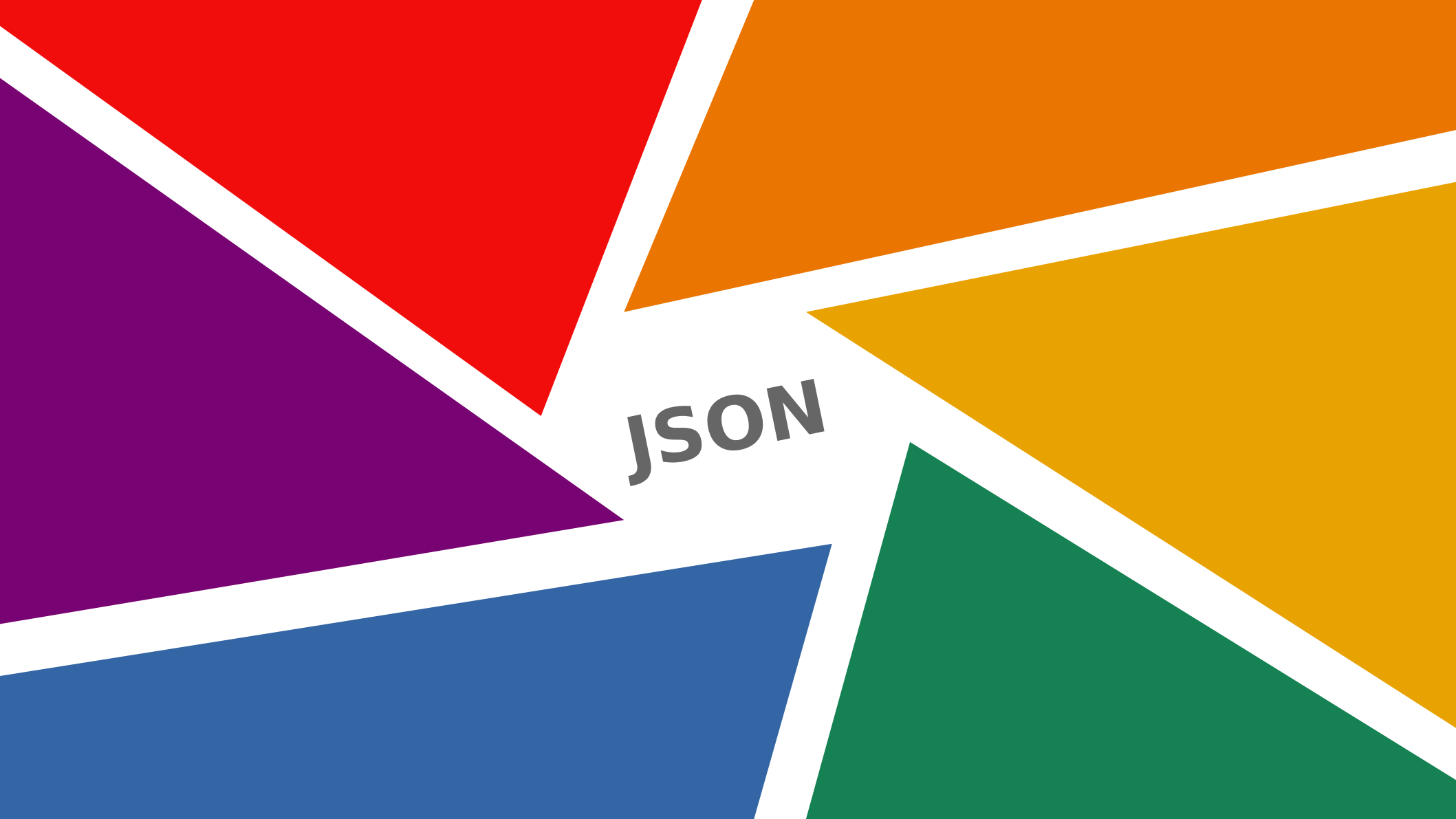
- **Open** Standards
  - WWW (HTML, HTTP, DNS)
  - Network (IPv4, IPv6, TCP, UDP, IP, SMTP, GSM, 4G, 5G)
  - Electro- / Mechanical (M6-Screws, Headphone plugs)
- **Not-so-open** Standards
  - H.265 video, DOCx
- **Non-Standards**
  - Printer ink

WELL-KNOWN STANDARDS

WELL-KNOWN?? DATA STANDARDS

Well-Knwon Data STANDARDS ??

- **Formatting** Standards
  - CSV, JSON, XML
  - BMP, JPG, WAV, MP3 (non-free), MP4 (non-free)


JSON

JSON Example

- Plain text format
- JSON can store ***many*** kinds of data
  - Lists / Arrays
  - Dates, Names
  - Geolocations
  - free-text

```
{
  "list": [
    "apples",
    "pears",
    "oranges"
  ],
  "available": true,
  "location": "home",
  "exirationDate": null,
  "weight": 5.3,
  "meta": {
    "datePurchased": "today",
    "dateProduced": "yesterday"
  },
  "comment": "tasty stuff"
}
```

JSON Example

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Well-Knwon Data STANDARDS ??

- **Formatting** Standards
  - CSV, JSON, XML
  - BMP, JPG, WAV, MP3 (non-free), MP4 (non-free)
  - Makes data ***machine-readable***
- **Meaning** Standards
  - Vocabularies, Taxonomies, Ontologies & Semantic Models can be used to make data ***understandable***
    - Concepts (“Person”, “Fruit”, “Climate Change”)
    - Definitions (“Homo sapiens”, “Malus domestica”, “A/H1N1”)
    - Relationships (“friend_of”, “issued_by”, “happens_after”)

Thank you!

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