

# Name: Jean-Louis Koeck

**Country:** France

**Affiliation:** SYADEM

**Function:** Scientific Director

**Main expertise (1-2 lines):** Medical microbiologist with expertise in infectious disease epidemiology, vaccinology, and the use of digital technologies in healthcare.





# European coordination of vaccination record systems

## Focus on MesVaccins from France



# Declaration of interests

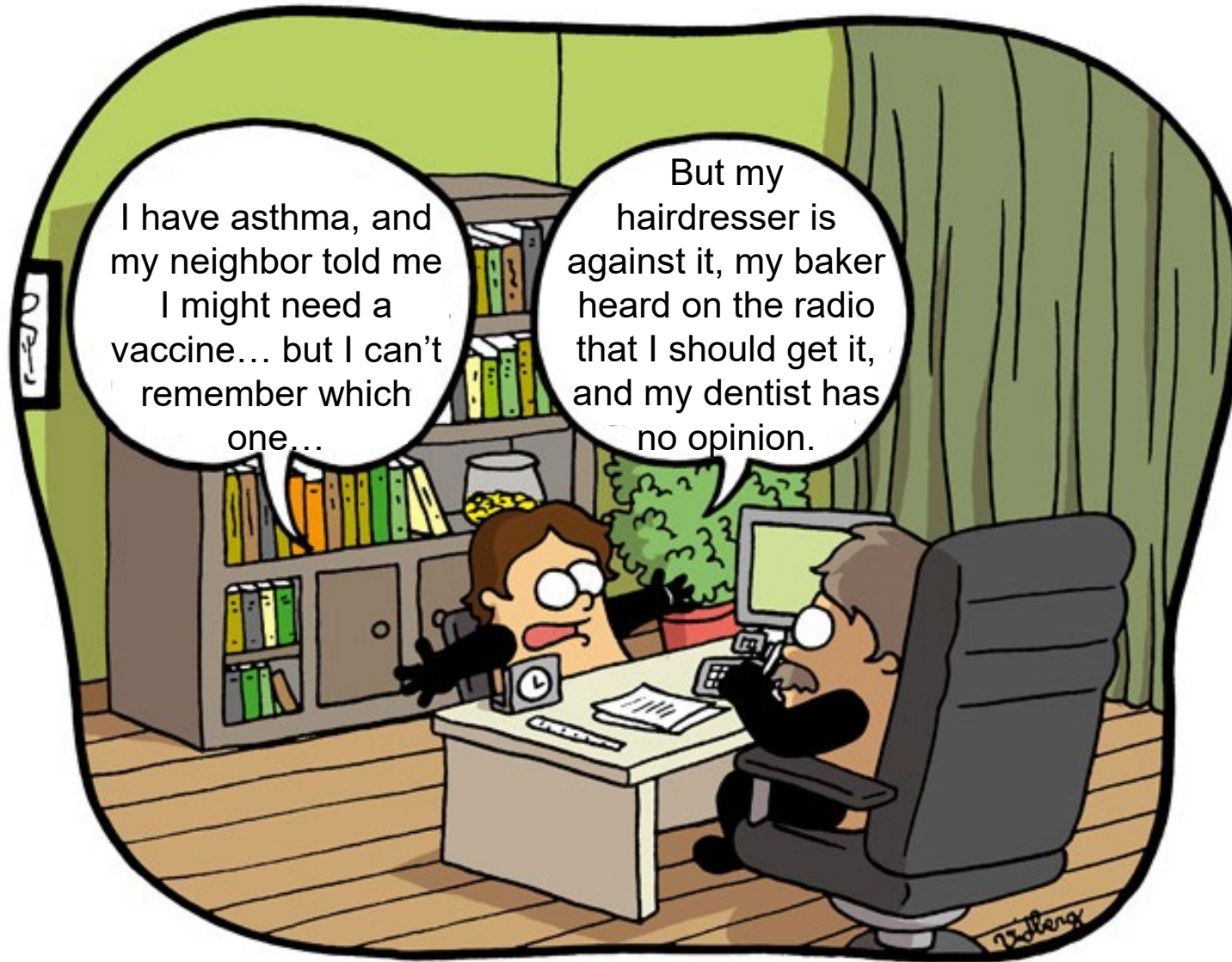
- No conflicts of interest with the vaccine industry.
- I work for SYADEM, a company specialised in vaccination software and clinical decision support systems.

# Immunisation information system

- Definition: a shared digital system for managing vaccination data
- Key functions:
  - Records vaccination histories
  - Helps healthcare providers know which vaccines are due or missing
  - Supports public health monitoring (e.g., vaccination coverage rates)
  - Sends reminders or alerts for upcoming vaccines
  - Ensures accurate and consistent data across different providers

# Issues & Challenges in IIS

- Data-related challenges
  - □ Fragmented and heterogeneous data sources
  - □ Persistence of paper-based and unstructured records
  - □ Difficulties in interpreting vaccination histories
- Interoperability challenges
  - □ Lack of shared semantic standards across countries
  - □ Variability in GDPR implementation and data sharing rules
  - □ Limited cross-border interoperability
- System and usage challenges
  - □ Data not easily transformed into actionable knowledge
  - □ Limited patient-centered integration of health data
  - □ Communication challenges and vaccine hesitancy



I have asthma, and my neighbor told me I might need a vaccine... but I can't remember which one...

But my hairdresser is against it, my baker heard on the radio that I should get it, and my dentist has no opinion.

# IIS Components of the SYADEM's solution

1. Champollion - Document digitisation tool
2. NUVA - Unified international vaccine nomenclature
3. VADES - Vaccine decision support system
4. DVR - Digital vaccination record
5. EVC - European Vaccination Card
6. Colibri - Operational vaccination management software
7. Dashboards – Real-time updated vaccination indicators

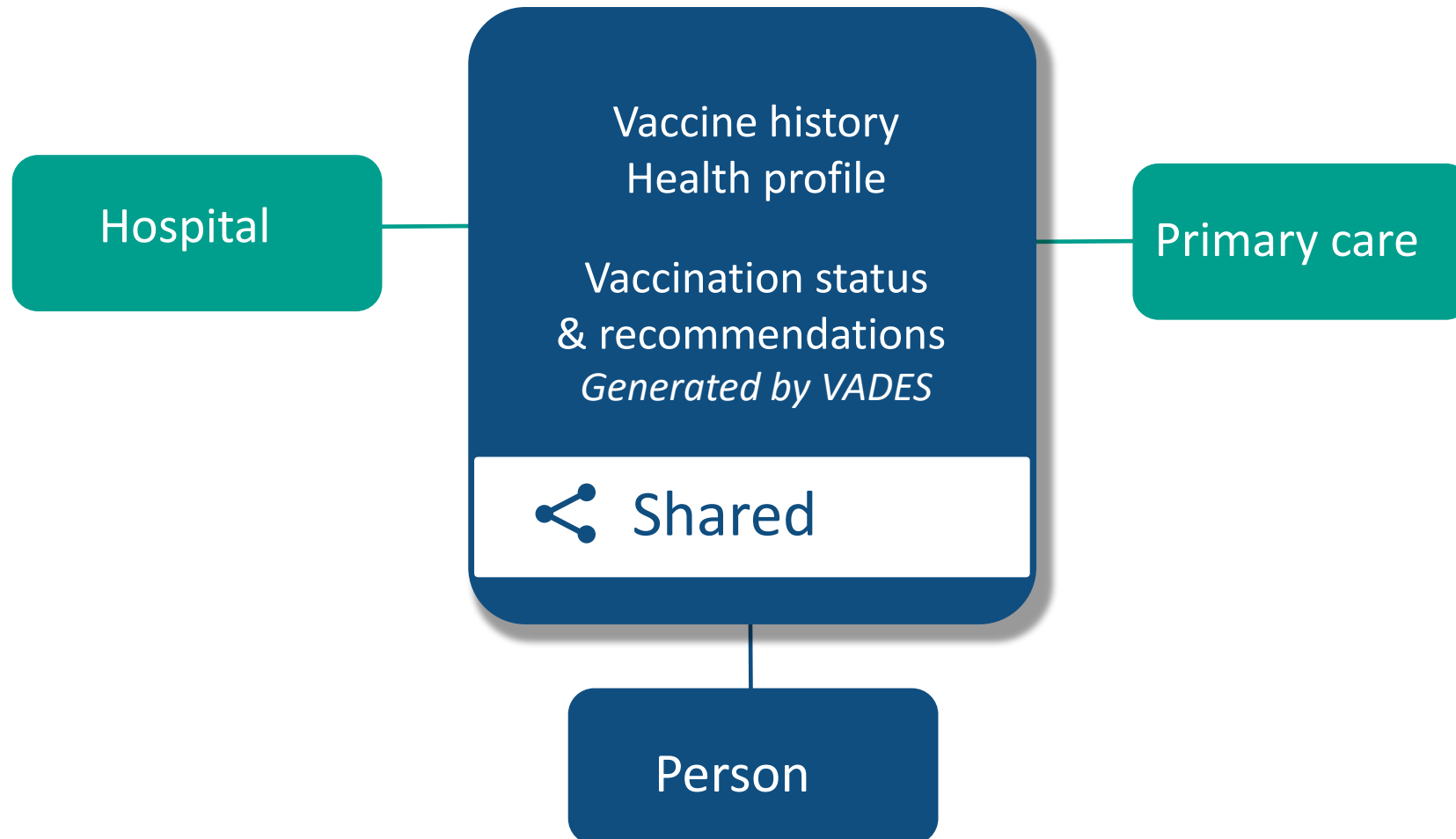
# Digital Vaccination Record (DVR): patient-centred core of the system

- Structured vaccination history (NUVA)
- Health profile
- **Computed vaccination status and recommendations**

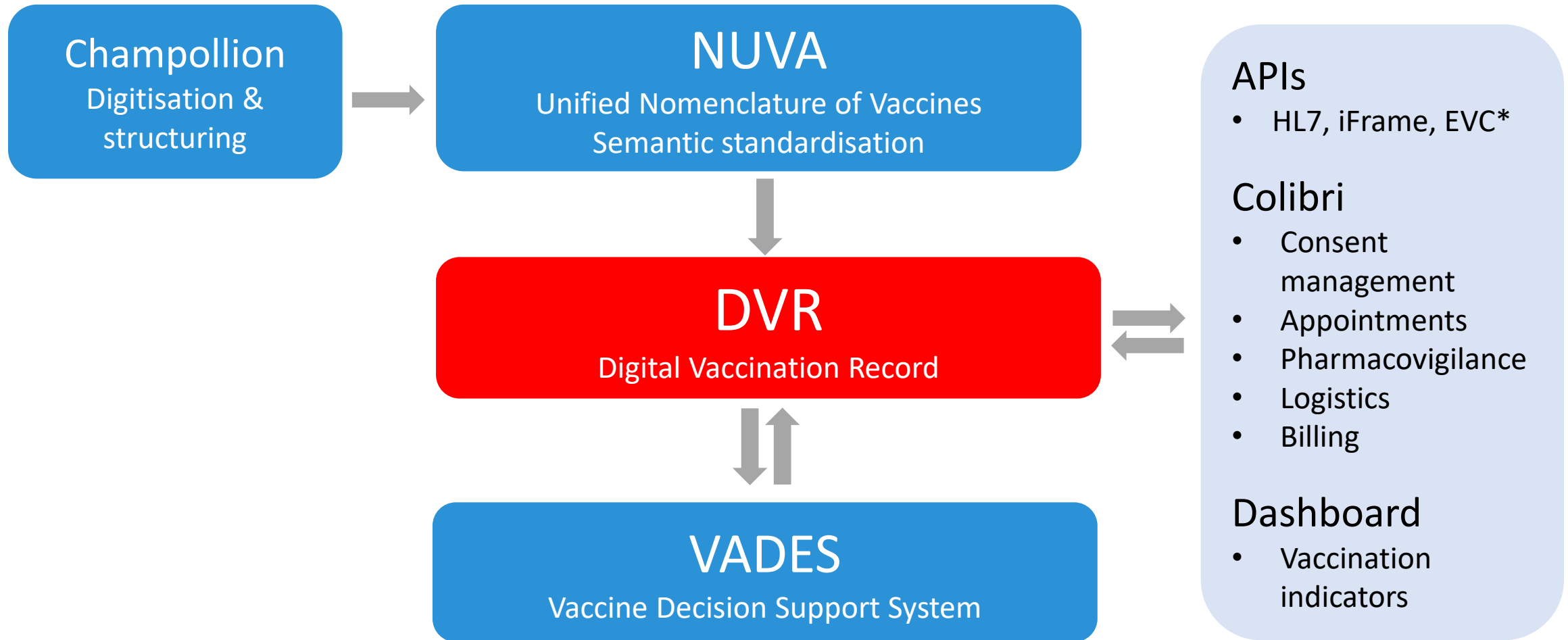


This is the core around which everything is built

# A patient-centred Digital Vaccination Record



# A patient-centred IIS architecture



# Unified nomenclature of vaccines (NUVA)

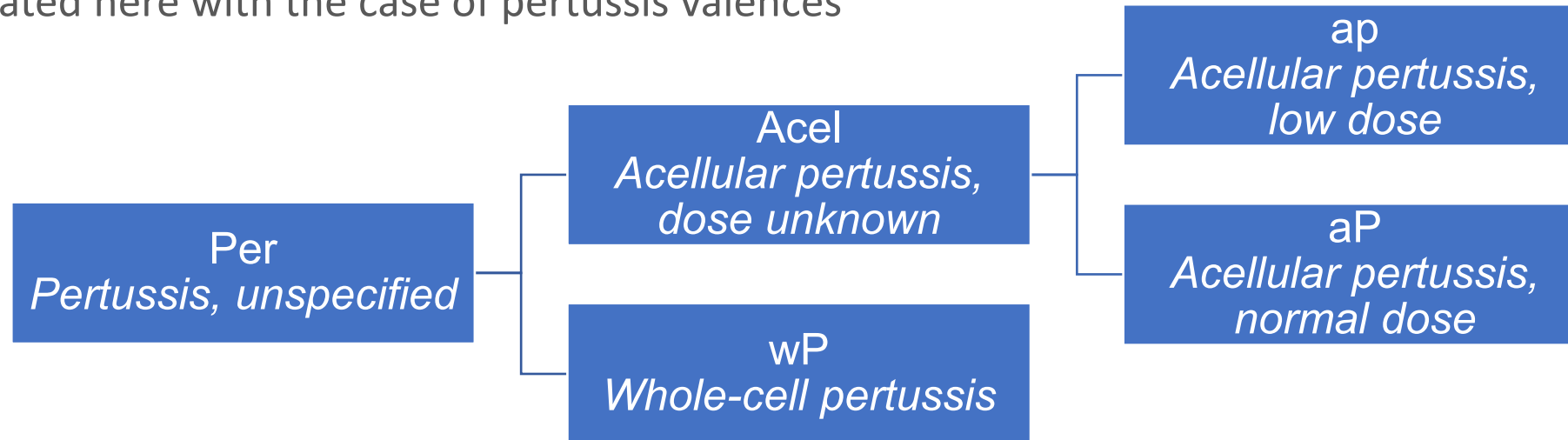
[nuva.syadem.com](http://nuva.syadem.com)

# The three dimensions of NUVA

- Comprehensive catalogue of vaccine names
  - Ensures consistent identification of vaccines, including those received abroad
- Structured representation of vaccines (valence concept)
  - Enables precise interpretation of vaccination histories
- Pivot terminology
  - Enables interoperability across systems and countries

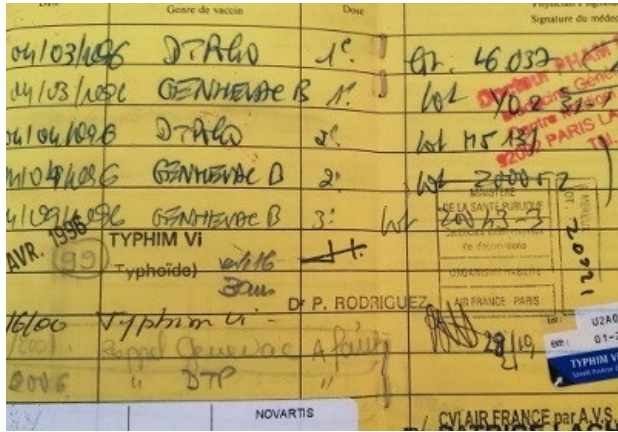
# Hierarchical representation of valences

Allows to include vaccines that are not fully identified  
Illustrated here with the case of pertussis valences



A child who has received a booster vaccination with a reduced dose (TdapIPV) at the age of 6 will receive a booster vaccination with a standard dose (DTaPIPv) at the next booster vaccination at the age of 11-13.

# From documents to structured vaccination data



Champollion

AI + OCR → structured, NUVA-coded vaccination data



NUVA-coded data		
DATE	VACCINE NAME	DISEASES
2005-07-06	PREVENAR	Pneumococcus
2005-07-06	INFANRIXQUINTA	Diphtheria, Haemophilus influenzae b, Pertussis, Poliomyelitis, Tetanus
2005-08-09	INFANRIXQUINTA	Diphtheria, Haemophilus influenzae b, Pertussis, Poliomyelitis, Tetanus
2005-08-09	PREVENAR	Pneumococcus
2005-10-10	MONOVAX	Tuberculosis
2005-11-10	INFANRIXQUINTA	Diphtheria, Haemophilus influenzae b, Pertussis, Poliomyelitis, Tetanus
2005-11-10	PREVENAR	Pneumococcus
2006-05-12	PRIORIX	Measles, Mumps, Rubella

No structured data → no interoperability.

# Vaccination decision support system

# The Vaccine Decision Support System (VADES)

- Supports citizens and healthcare professionals
- Maximises benefits and reduces misuse
- Handles the complexity and evolution of recommendations
- Provides personalised recommendations with justification
- Ensures consistent interpretation across stakeholders

# Vaccine Decision Support System (VADES): from data to recommendations



Patient  
characteristics



Medical  
history



Vaccination  
history



Clinical  
context



Individuals



Health professionals

# An immunisation information system for:

## ● Individuals

- Personalised information
- Informed and empowered
- Appropriately vaccinated

## ● Healthcare professionals

- Decision support
- Collaboration
- Continuous learning

## ● Public health

- Real-time data
- Improved pharmacovigilance
- Better programme management

# Conclusion

- Data is not enough
- Interpretation is essential
- Coordination requires shared understanding

The future is not only digital  
it is interpretable, interoperable, and patient-centred