

Virtual Assistant for the Dynamic Assessment of Well-Being

The need

Maintain the autonomy of elderly people so that they do not have to be institutionalized and can remain in their homes as long as possible.





1

THE PRODUCT

From Occasional Dependency Assessments...

AN OLDER PERSON IS AT HOME



Initial Assessment



- Dependency level
- Carried out by professionals
- Create the Individual Care Program

"Ad-hoc" Assessment



- At request of dependent person
- By Department of Social Action of Biscaia Province
- Update Individual Care Program

Periodic Monitoring

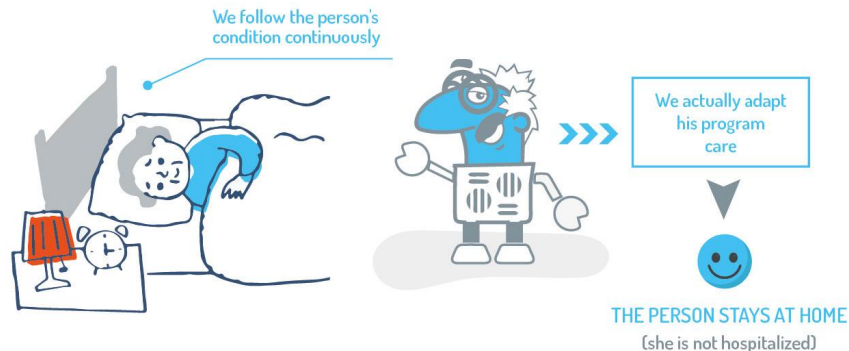


- No periodic information on evolution of dependent
- First signs of decline in well-being not easily detected
- Preventive measures not necessarily implemented to limit institutionalization of dependent.

...To a dynamic and regular adaptation of the social and medical resources...



AN OLDER PERSON IS AT HOME



Periodic Monitoring



- Frequent and regular assessment of well-being of dependent
- Rapidly detect changes situation and propose/send alerts
- Propose modification to the Individual Care Program
- Prevent unnecessary institutionalization of person

...by Staying close to the well-being status of the dependent...

Option 1

“IOT Everywhere”

- Expensive to install
 - Complex
 - Intrusive



Option 2

“Exhaustive Questionnaire”

- Time consuming
 - “Boring”
- Cannot be frequent



Option 3

“HUPI Smart Questionnaire”

- Quick
- Entertaining
- Frequency adjusted



... thanks to HUPI Virtual Assistant for the Dynamic Assessment of Well Being.



Virtual Assistant

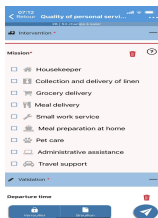
1. Smart Questionnaire



2. Machine Learning Automated



3. Dynamic Assessment



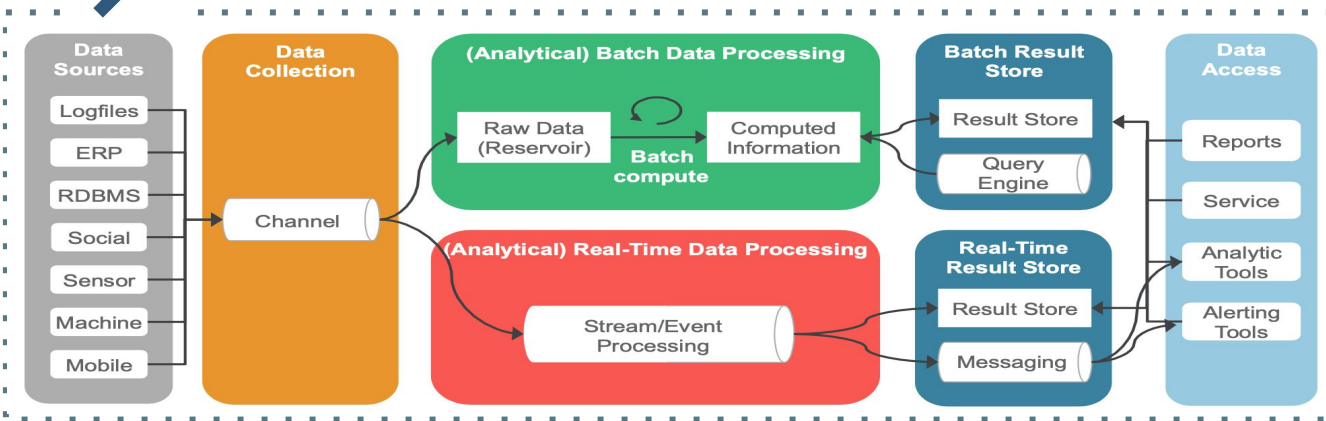
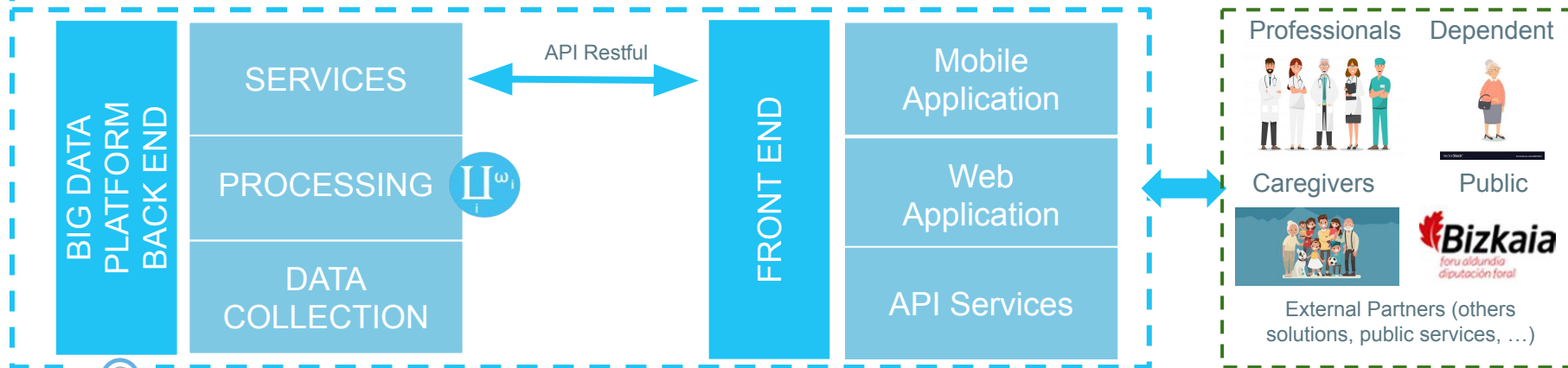
- Frequency of requests based on past assessments
- Dynamic Selection of Questions : 3-5 per request
- Gamification integrated
- Multi-user : dependent, caregiver, experts
- Questions Selection Optimization
- Prediction, Alerts and Recommendations
- Real-time automated processing
- **Today:** Dependent Status Daily Check
- **Past:** Status trends over time
- **Future:** Short-term prediction / Alerts
- Recommendations to update Care Plan (out scope)



2

THE TECHNOLOGY

Overall Architecture



Focus on BIG
DATA platform

1. Smart Questionnaire : Get Dependent's Regular Feedback

07:09
Retour How are you today ? ...

1 / 4 champs à saisir



Health

How do you feel today ?

Sélectionner une valeur >

Mood

Disease

Washing up

Moving outside

Where did you go today ?

to see friends >

Any Photos ?

Verrouiller Brouillon

07:12
Retour Quality of personal servi... ...

28 / 53 champs à saisir

Intervention *

Mission* ?

- ☐ Housekeeper
- ☐ Collection and delivery of linen
- ☐ Grocery delivery
- ☐ Meal delivery
- ☐ Small work service
- ☐ Meal preparation at home
- ☐ Pet care
- ☐ Administrative assistance
- ☐ Travel support

Validation *

Departure time

Verrouiller Brouillon

07:13
Retour Authorization to collect... ...

2 / 8 champs à saisir

By checking Yes, you agree that your information will be used exclusively within the framework of your request and the ethical and personalized commercial relationship that could result from it.

- ☒ Yes
- ☐ No

Date

20/05/2021

Heure

07:13

By signing this form, you confirm your consent



Champ de saisie

Verrouiller Brouillon

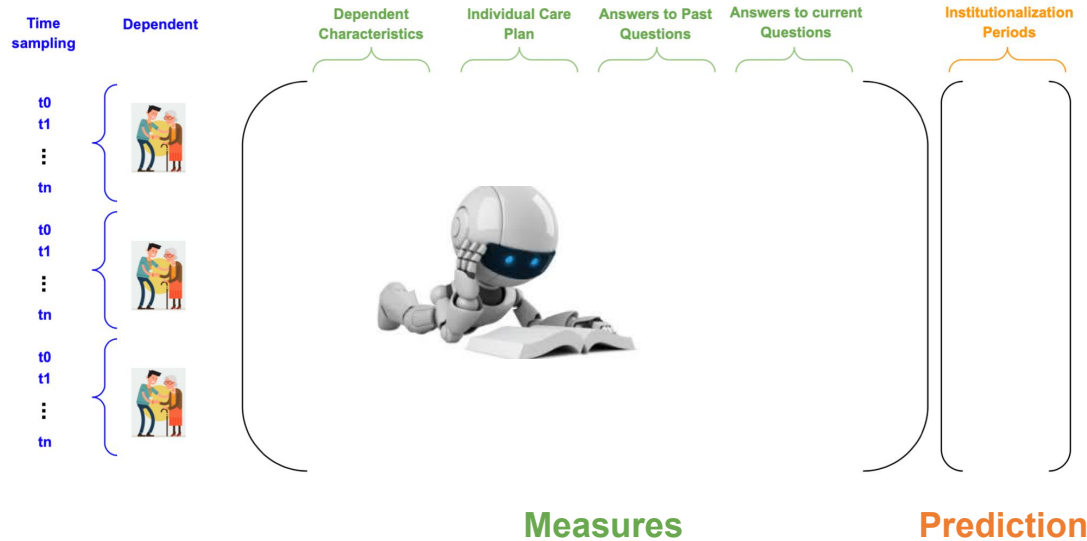
Smart Selection issued from a bank of 100+ questions, across a wide variety of medico-social themes, established with experts in this field*

* example :
<https://www.inrs.fr/risques/psychosociaux/questionnaires.html>

2. Machine Learning ...



Innovation : What questions should I ask today, at the minimum, to predict, with the highest level of probability, the short term evolution of the dependent?



Supervised Machine Learning :

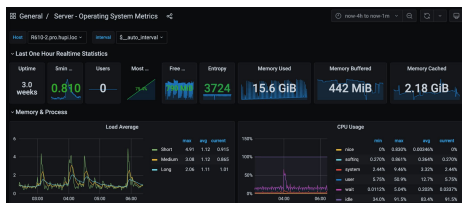
- Random Forest (decision tree) model with Mean Entropy Decrease
- LOGIT model with Wald statistics (Chi-2 law)

...and Automation

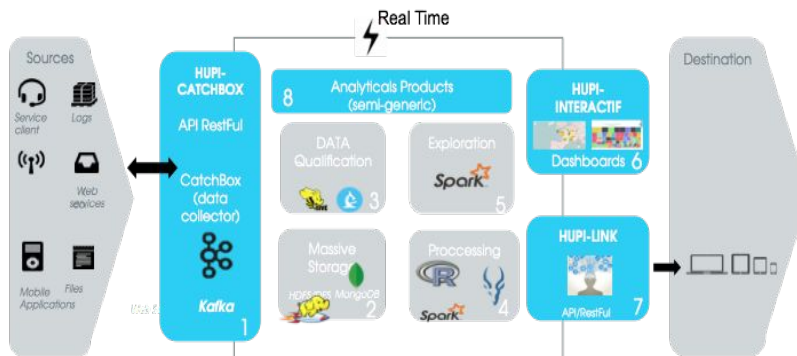


Advanced supervision monitoring :

- Services
- Workflows
- Infrastructure



GPRD Compliant
with our internal
DPO



HUPI Big Data Platform

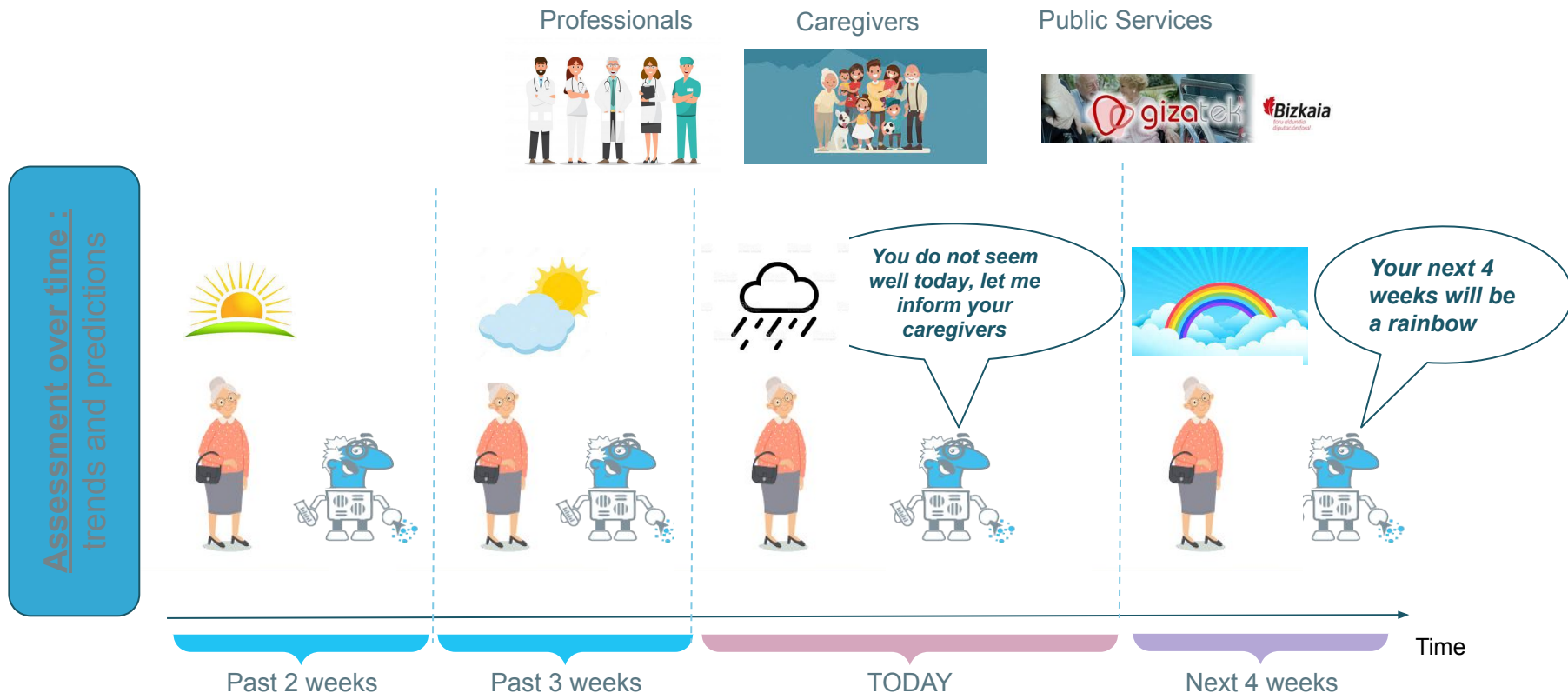
- “State of the Art” technologies
- users connexions > 35 000 users/days
- Data flows : > 20 Go/days



Data Center highly secure + backup site

- 6 servers (96 cores, 1,8 To memory)
- SAN Full Flash 80 To, NAS 70 To
- Firewall (x2)
- Band Width 100 Mb/s

3. Dynamic Assessment : Past, Present and Future





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OTHER BUSINESS APPLICATIONS

Business Applications



Virtual Assistant

To follow : professionals “highly” exposed

in order to prevent : Burnout, Stress, Psychological Distress

and to enable : Well being at Work



“Garapen ekonomikoa xedea baino gehiago baliabide bat dela uste du HUPIk”

“Le Développement Économique est un Moyen et pas une Finalité”

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