



Bayesian Network in Market Research, from Exploration to Prescriptive results

Paris, le 29/09/2017

About BVA



1970

Year of inception



155 MILLION

CA in 2016



60%

Percentage of CA from
international business



#3

ranking in France and #18
worldwide



700

Collaborators



11

Regional offices



4%

Of CA invested in R&D



47

years of fun!

BVA and BayesiaLab,

Since almost
15 years

Friendly and
efficient
relationship



A tool which is used in
all BU of BVA:

- FMCG, specifically in Sensory Analysis,
- Services, to discover to quickly highlight relations in our database,
- Politics, opinion and brand contents, to understand behaviors and building of opinions
- Even in qualitative teams

And each new BU
discovers Bayesia:

- Mystery Shopping, for data exploration
- Quality monitoring, to help consultants in their analysis



Sensory Analysis

Exploration to make sense in dataset

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Sensory analysis : Discover the story of the product

Consumers taste products and answer to a questionnaire with 2 different types of scale :

- four or five points hedonic scale (increasing)
- JAR (just all right) a five point scale

Easy to use parametric approach for each type of scale separately, but more complicated when mixing the different scales.



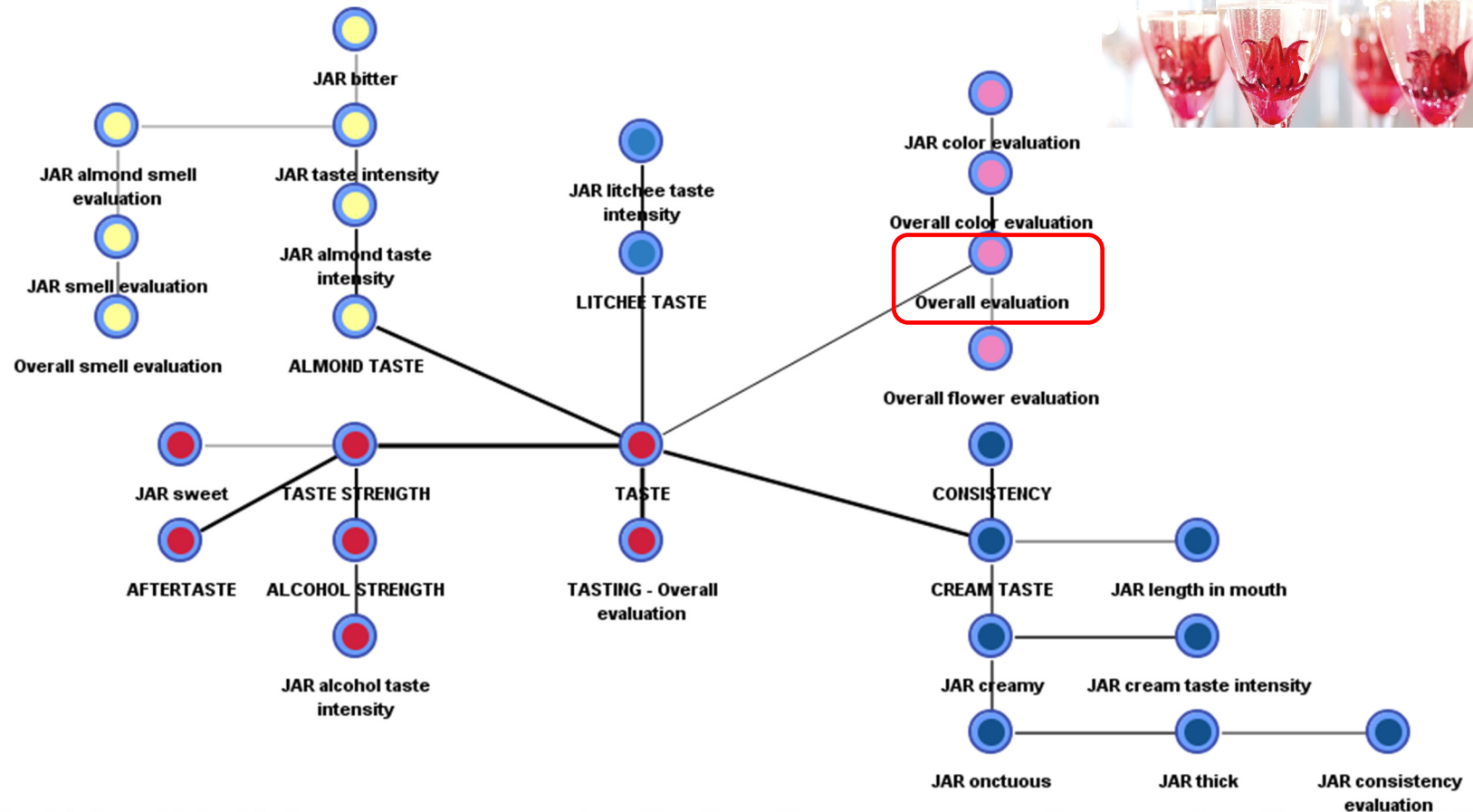
A simple exploration with an unsupervised bayesian network allows to undertake the mixed approach, and it quickly gives a network identifying the different dimensions of the product along with the contribution of each dimension to the global evaluation.

It enables us to give sense to the data and to learn about the consumers behaviors. R&D Direction can identify on the network which pillars can be used improve the product.

Sensory analysis : a litchee cocktail with a flower

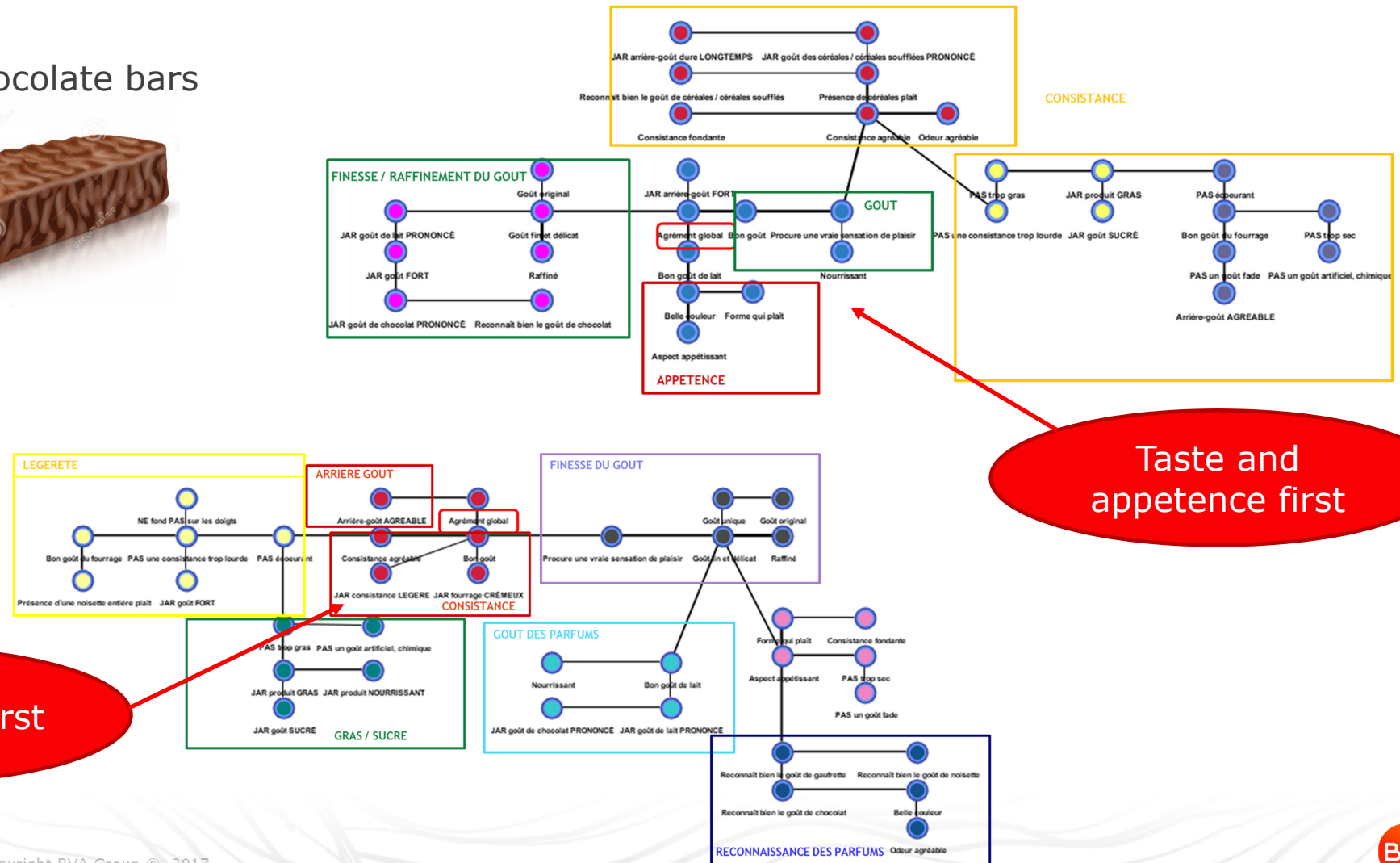
A single unsupervised network with a segmentation of variables.

The color and the flower are as important as the taste. Taste has 4 different dimensions (Strength, almond, litchee and cream). Consistency is marginal in the evaluation.



Sensory analysis : two products, two different stories

Two different chocolate bars



Consistency first

Taste and appetite first



Satisfaction barometer

Reduce the complexity

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Satisfaction barometer : Reduce the complexity ...

A complex dataset with more than 100 variables



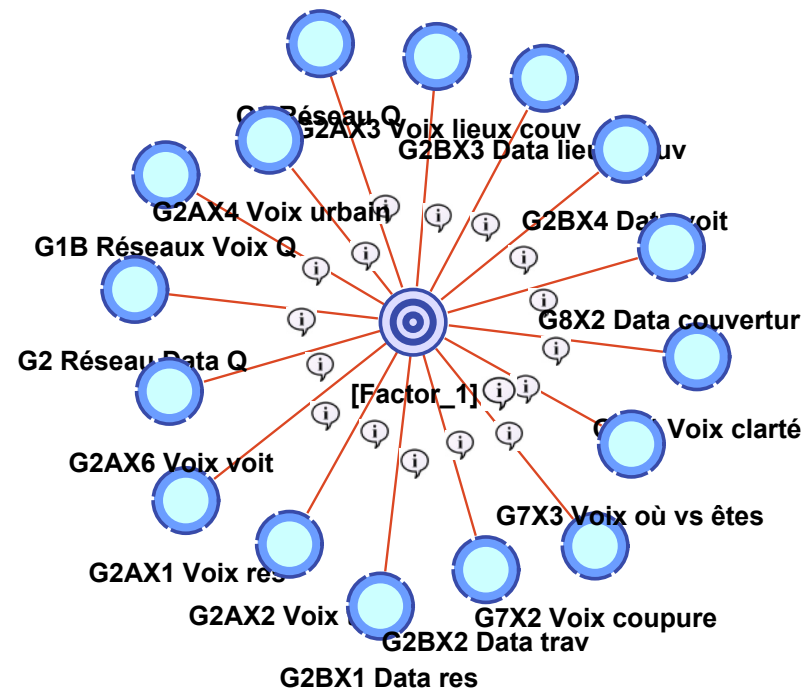
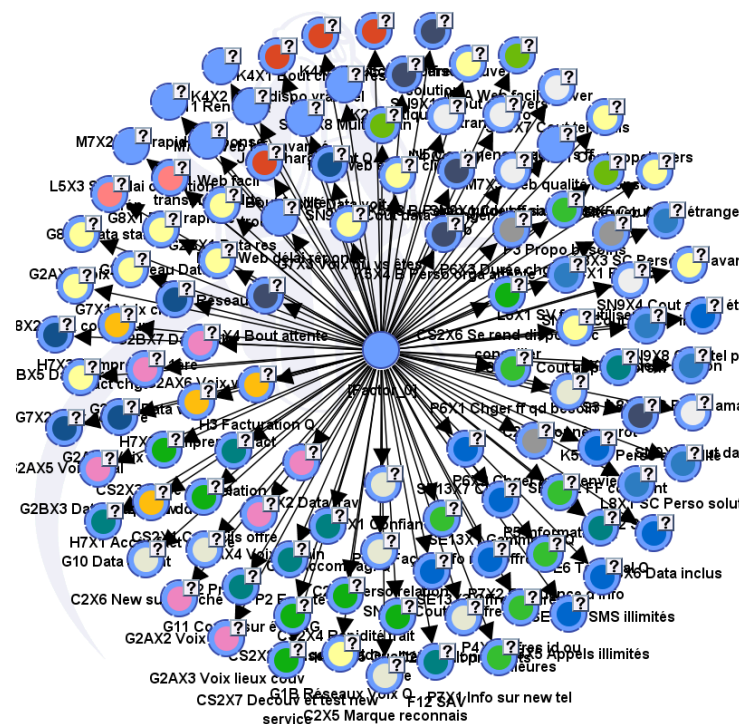
Building factors



Workshop with market research teams and clients



16 synthetic factors



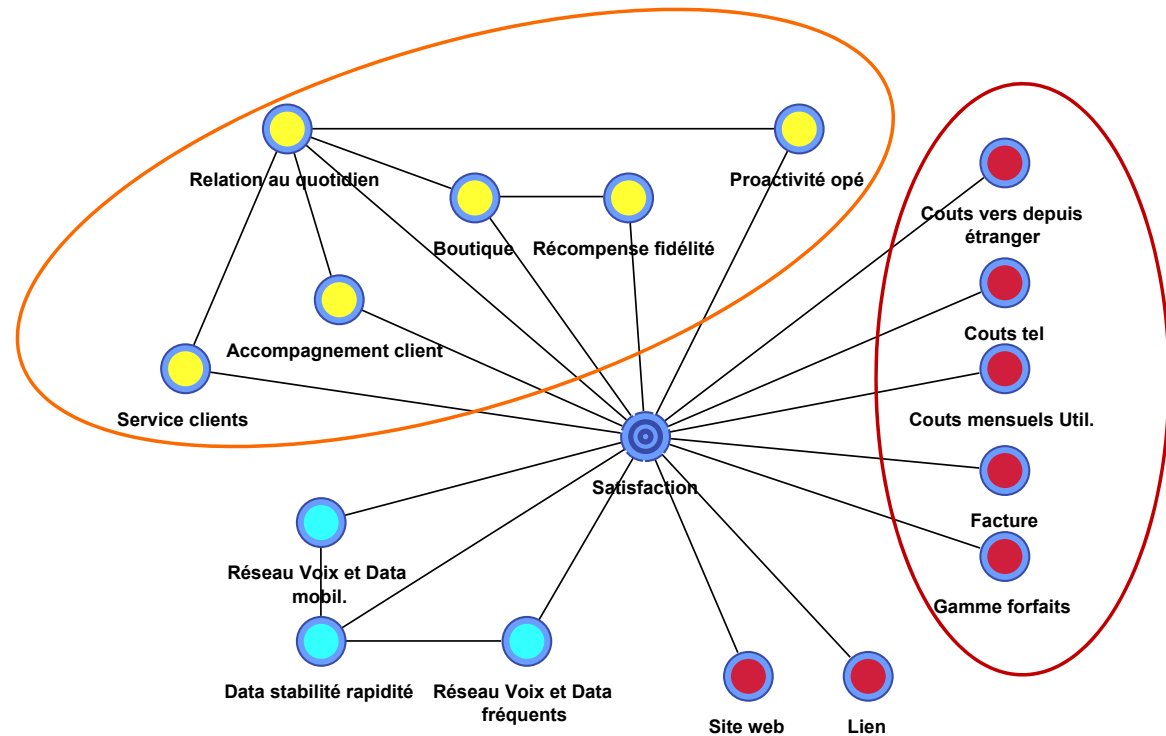
Analysis of factors and items contribution to the overall satisfaction in a structural model.

Satisfaction barometer : ... and undertand the data relation

The network based on factors is easy to understand.
Customer relationship presents a lot of cross effect →
Importance to be homogeneous and consistent on every time and on every touchpoints.

No cross effects between the different dimensions of prices
→ Each pricing strategy can be driven alone.

We can do operational recommandatons to the client.





Public policy and citizen life events

Set up a collaborative mode with the client

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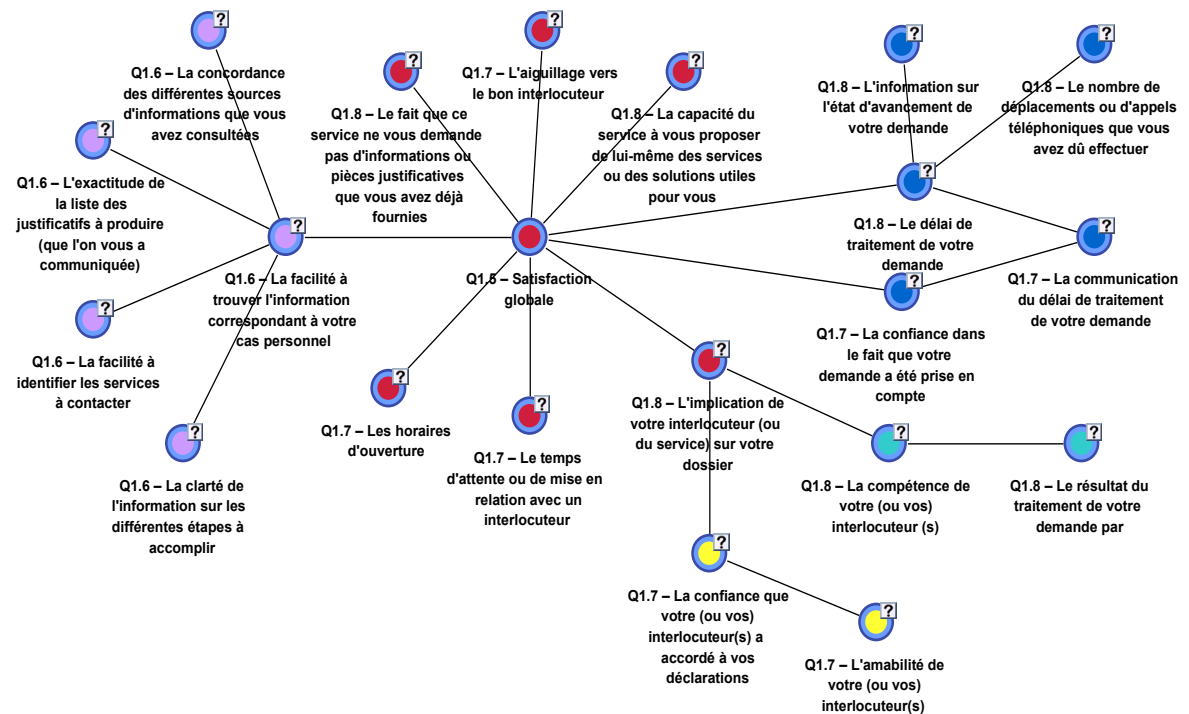
How to drive the public services modernisation

A survey based on life events (passport renewal, retire ...) to understand the blocking points of the citizen route.

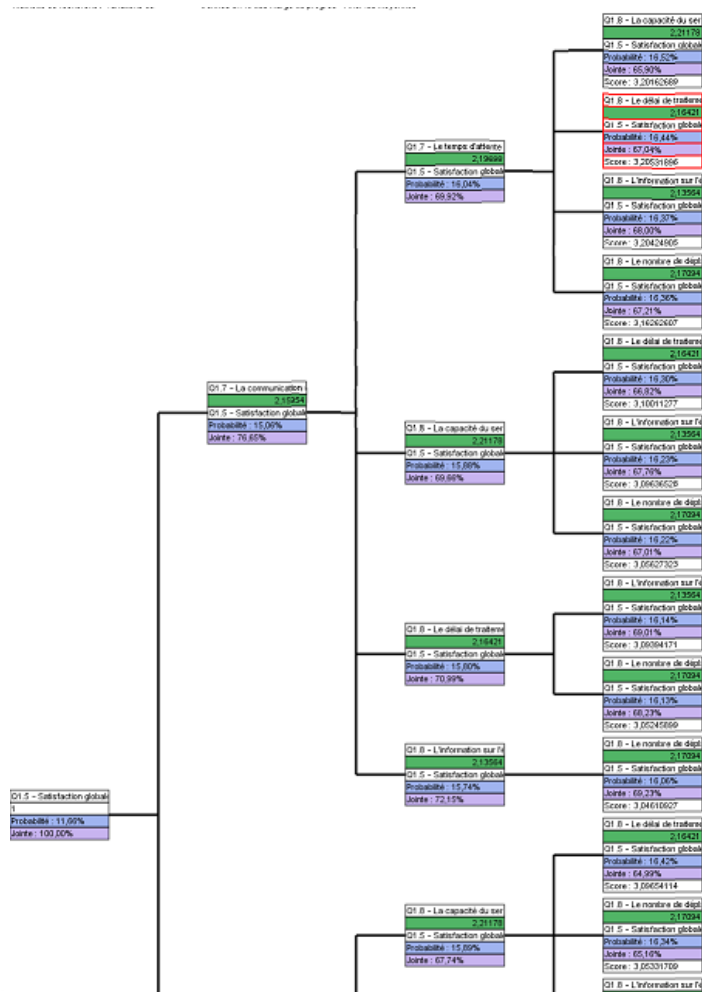
A Bayesian network to identify the key points.

An asymmetrical approach to answer a double challenge (to reduce dissatisfaction, to improve excellence) :

- Unsatisfied vs Neutral
- Neutral vs Very satisfied



How to drive the public services modernisation



Using optimization tree to identify the best action plan

Doing a workshop with the client to measure efforts for each action (define the costs of the action)

Actualizing optimization trees and defining the final action plan in a collaborative mode with the client



Finally

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With BayesiaLab, it is easy ...

- To implement and to use the software
- To work with multiform data
- To explore complex dataset
- To explain analytic results
- To create collaborative works with the final client

Thanks for your attention