

Personalized nutrition, a new setting for nutrition and health related business

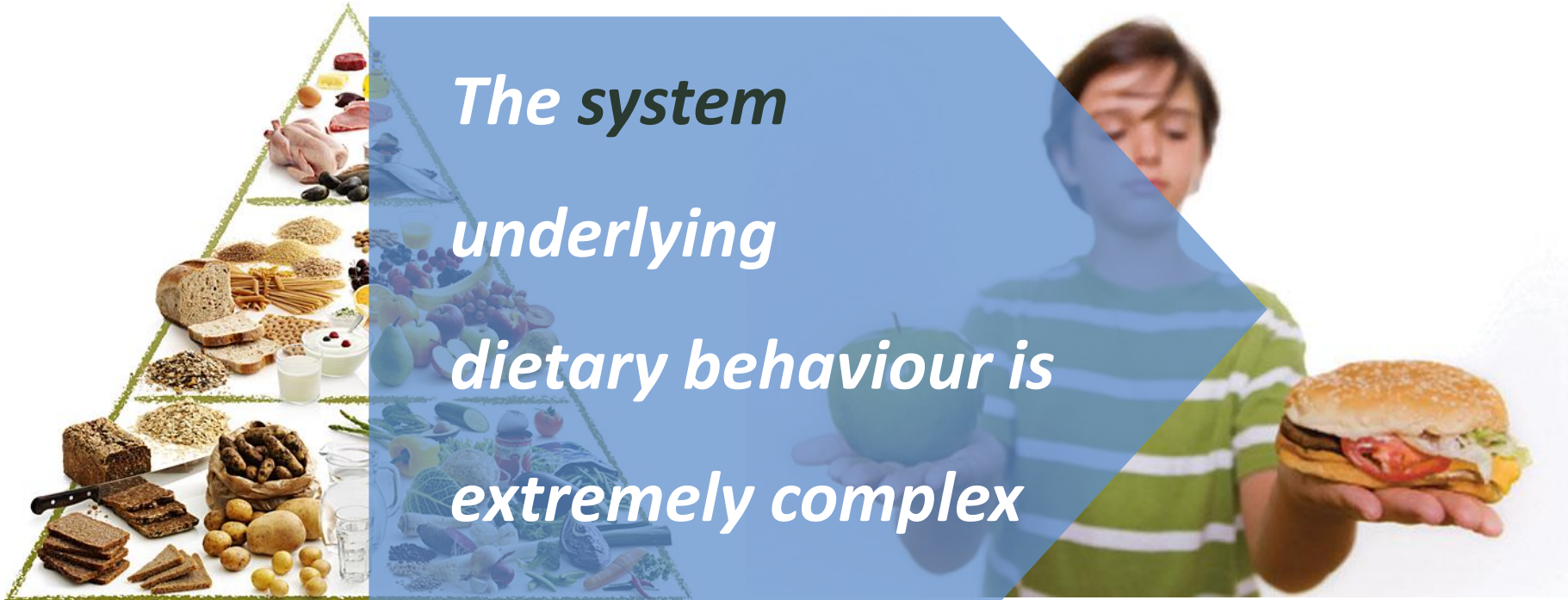


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PRECIOUS Seminar

Imperial College, London – 23 Sep 2016

Personalised nutrition offers a new way to deal with this complex and difficult issue



We have never known more about what food is good for health...

... but having the freedom to make the right choices seems to create problems

Two key issues that people are increasingly facing

What foods and what eating patterns are right for ME to have stable and good health in order to allow me to do what I would like to do ?

How do I go about changing my behaviour to adopt these recommendations ?

Working definition of personalised nutrition

The recommendation of a dietary behaviour that is appropriate for an individual to maintain optimal health.

It takes into account the individual's dietary and lifestyle patterns and preferences, phenotypic (biomarker) status and genetic background and delivers advice about food choice, eating patterns and lifestyle relevant to nutrition and health



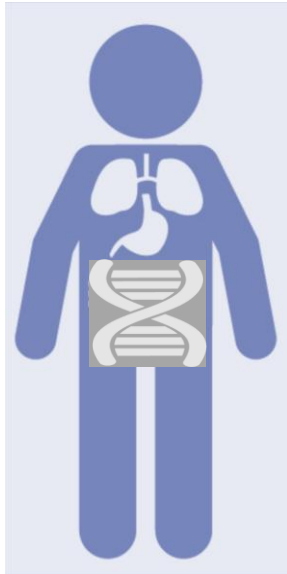
Nutrigenomics

(University of California, Davis)

The science of how foods affect our genes, how individual genetic differences can affect the way we respond to nutrients and how this gene-nutrition interaction affects diet-related diseases

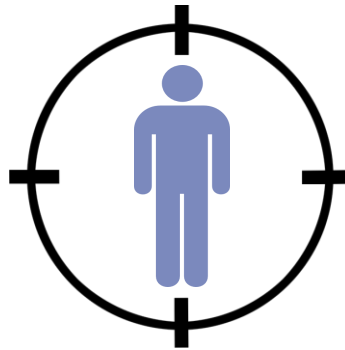
The essence of personalised nutrition

Metabolic factors

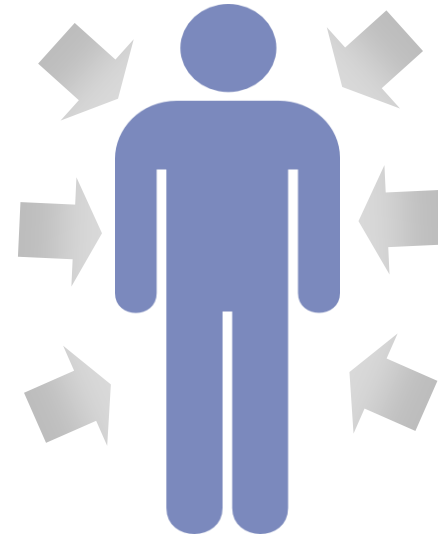


Biological status

- Physical (weight,...)
- Genetics (SNPs)
- Physiological (biomarkers)



Behavioral factors



Nutrition behaviour

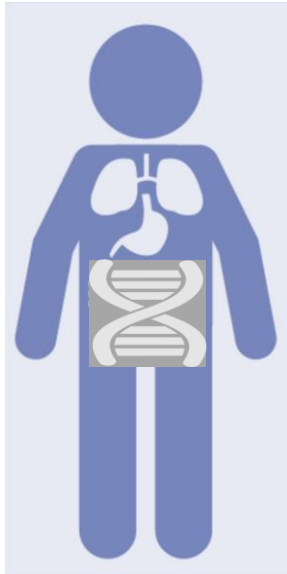
- food choices
- eating patterns

Lifestyle

- physical
- psychological
- emotional
- societal

The essence of personalised nutrition

Metabolic
factors

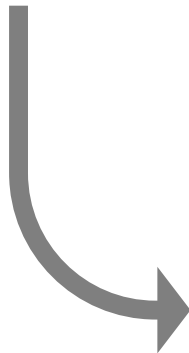
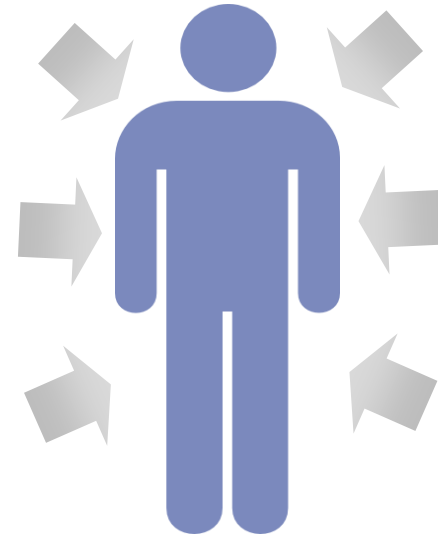


Effectiveness

**Personal goals
and preferences**

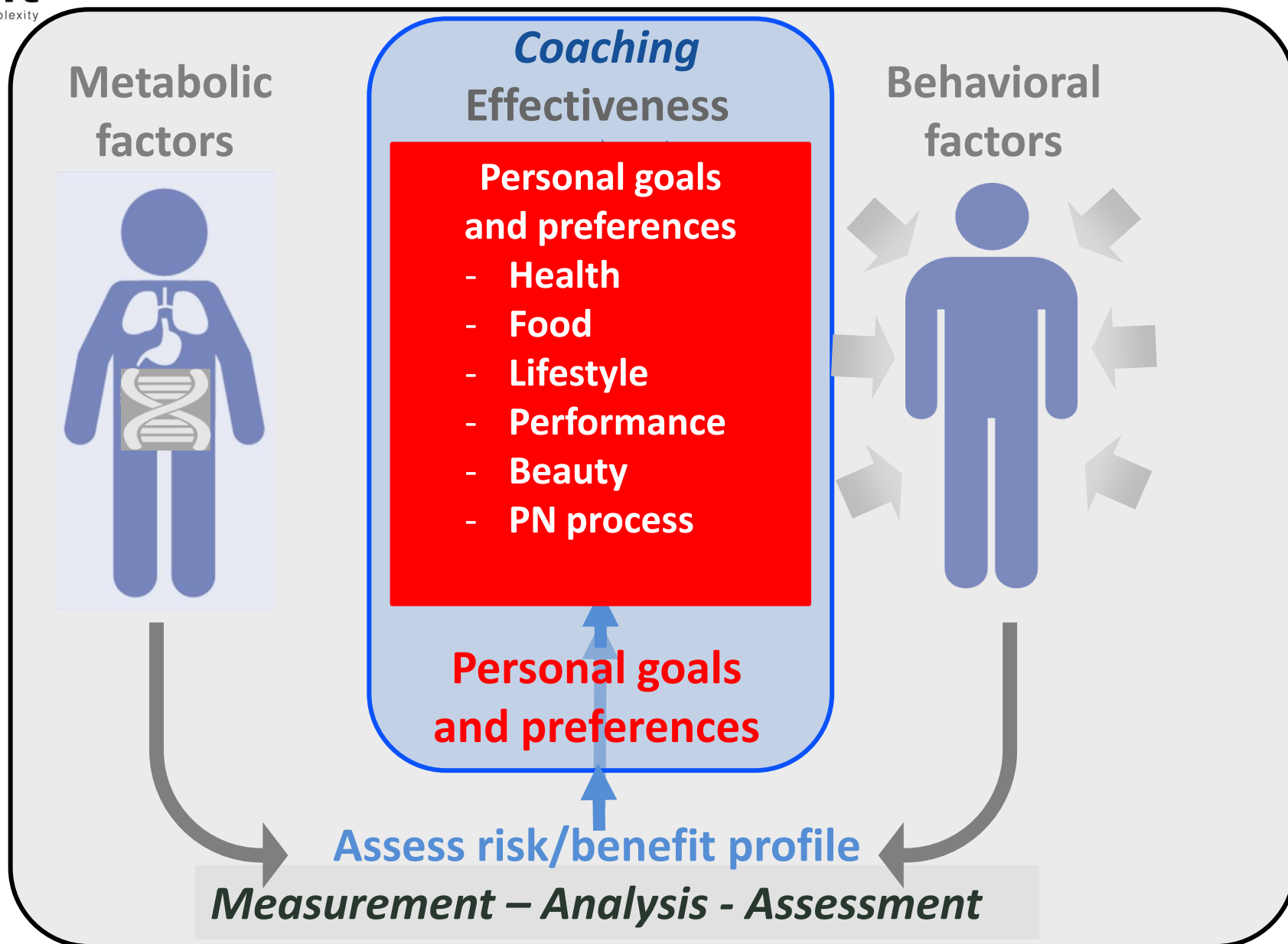
- Health
- Food
- Lifestyle
- Performance
- Beauty
- PN process

Behavioral
factors

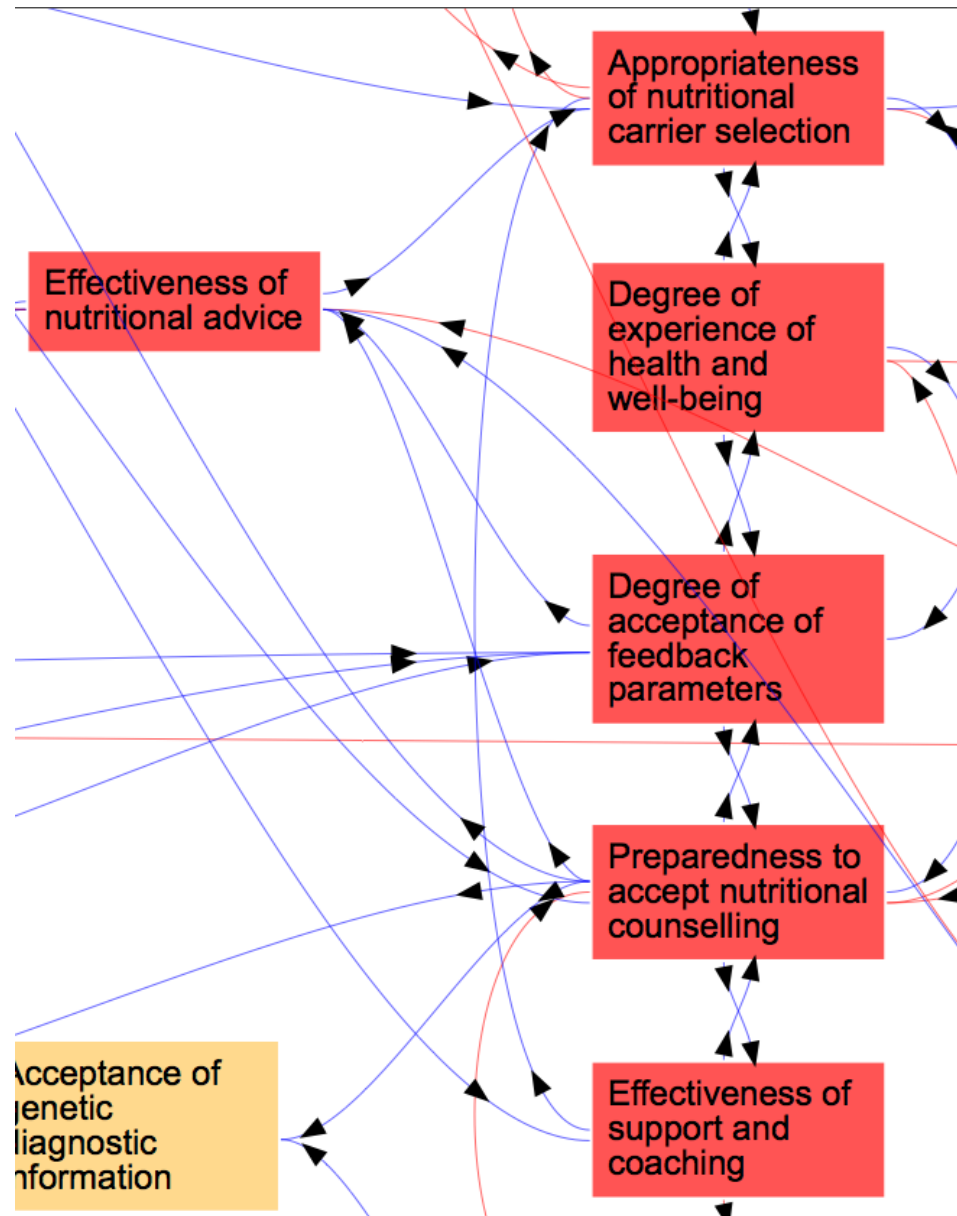


Assess risk/benefit profile

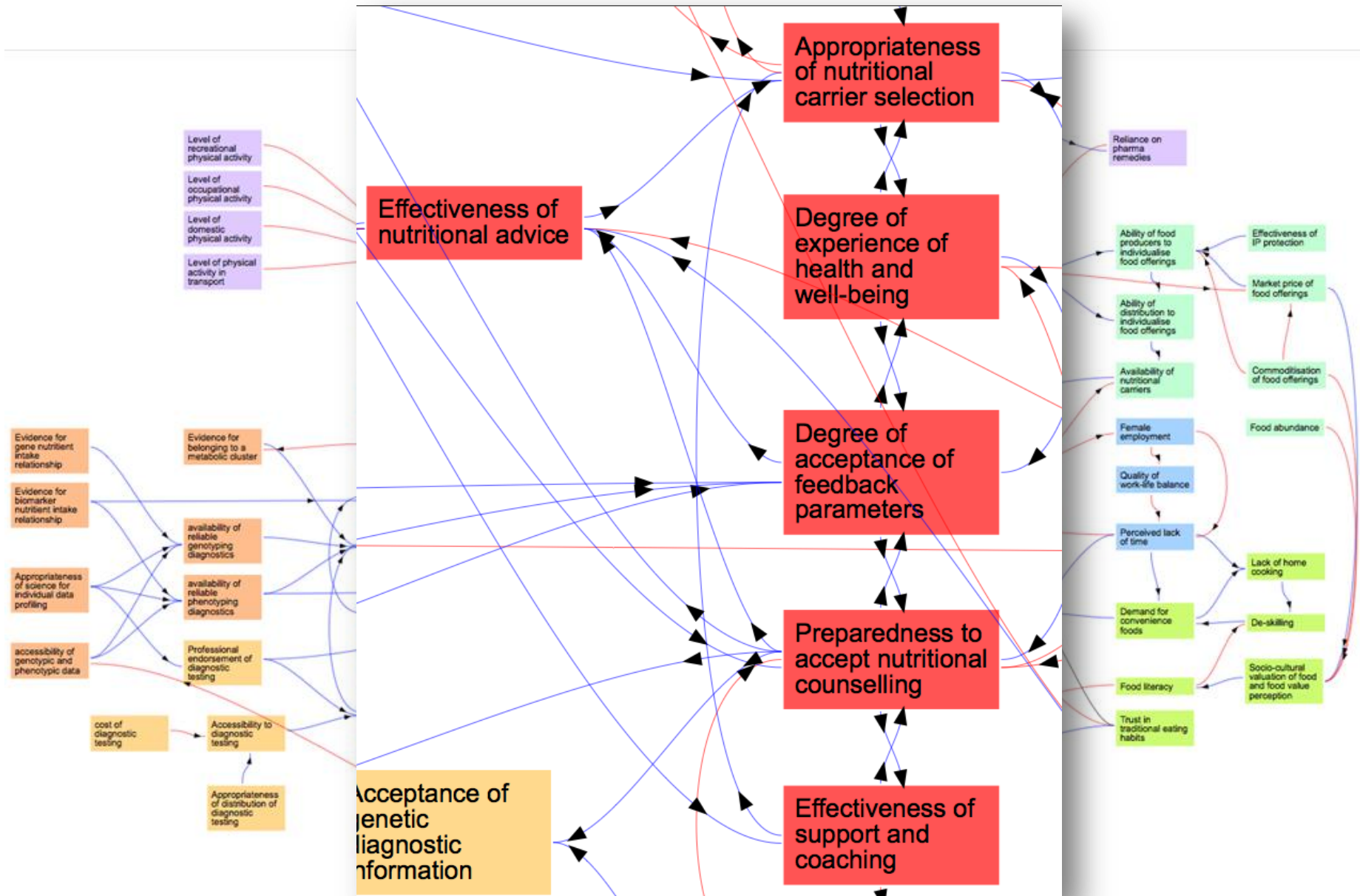
The essence of personalised nutrition



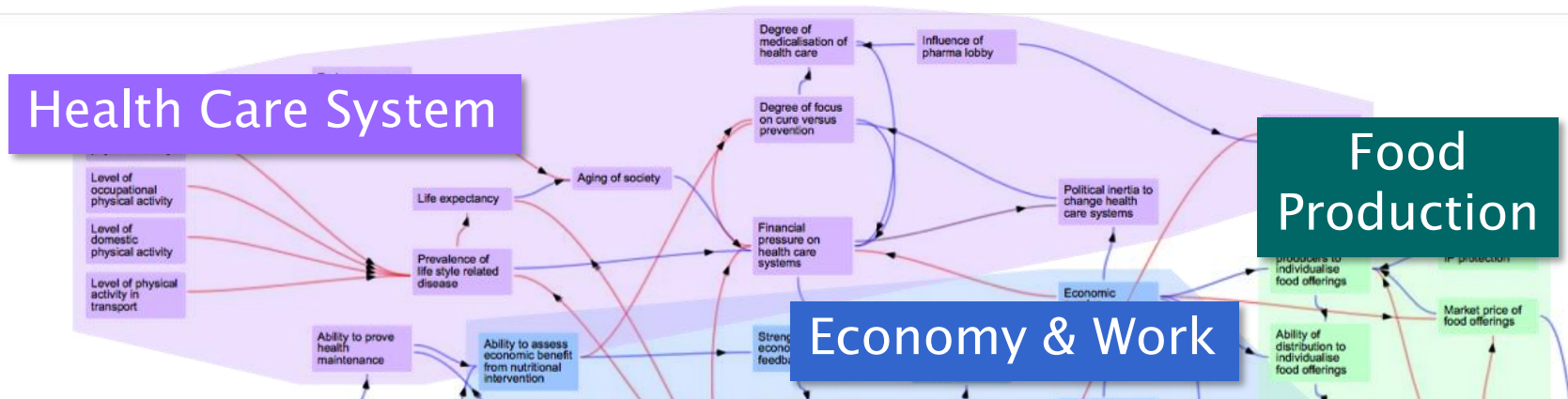
Personalised nutrition is aimed at lasting dietary behaviour change



The personalised nutrition system



The personalised nutrition system



**The personalised nutrition system
is deeply rooted in the societal tissue**

**Value creation concepts for
personalised nutrition will be facing
important societal issues**

**Diagnostic
Testing**

**Individual
Psychology**

3 types of personalisation

Personalised nutrition



interface, tools, feedback
preferences,
psycho-social factors

Individual recommendation for dietary behaviour

*individual
level*



dietary intake
food preferences
lifestyle preferences

Basic personal nutritional recommendations

*metabolic
group level*



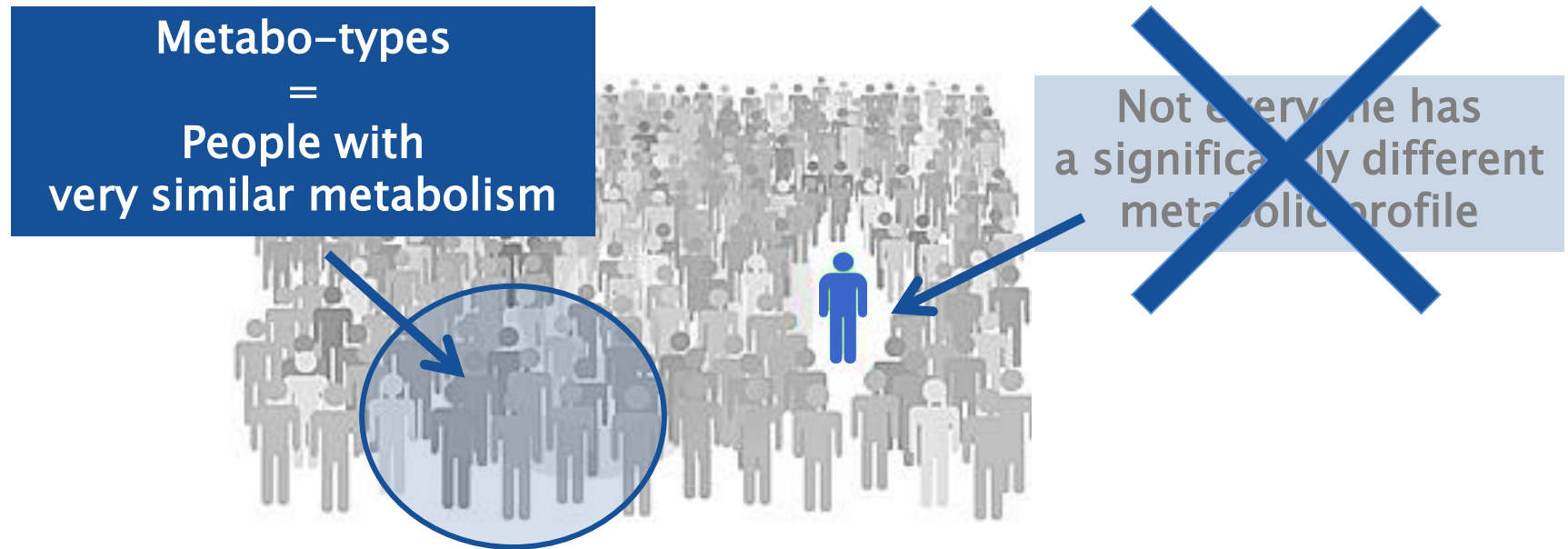
phenotyping
(physical parameters and biomarkers)
genotyping
(SNP profile)

Optimal nutrient requirements

biomarkers<>nutrient<>genotype
interactions

Population = group of different metabolisms

- Individual metabolic differences may not be large enough to justify different advices
 - identify people with similar metabo-types and tailor advice to each group



- Personalisation = analyse each person to determine to which metabolic group he/she belongs

Consumer's expectation of “personalisation”

Essential attributes



Personal
contact

Qualified
expert
advice



Exercise &
lifestyle

Regular
support
& guidance



Attributes to differentiate

Group support \Leftrightarrow one-to-one guidance

groups may motivate to adhere to advice

Dietary intake data \Leftrightarrow phenotypic data \Leftrightarrow genotypic data

*dietary intake data often seen too general
phenotypic data is most acceptable, familiar
genotypic data is often too far-fetched*

Scientific evidence \Leftrightarrow alternative evidence

there is a niche favoring experience-based evidence

Individual payment \Leftrightarrow sponsored program

government or employer sponsored programs are viable option for some

Personal food preferences \Leftrightarrow radical change in dietary patterns

dietary advice based on personal food preferences is easier to comply to, but for some it is too much in conflict with health needs

The **real challenge** of personalised nutrition



*is not to build sound nutritional advice,
but to **make it applicable in a real life situation***

Key take away message (1)

“Personalised nutrition will fundamentally change the way consumers make food choices, thus resolving the consumer's dilemma in making appropriate food choices that fit with lifestyle preferences and health goals”

(individual perspective)

A constellation of activities

Information collection

biological status

quantified self



sampling



analytics



lifestyle/food, habits & preferences

questionnaires

monitoring tools



Risk/benefit
it
–
Advice
generation

coherent
science based
interpretation

algorithms



databases



Delivery
feedback
interface

mobile tools



personal
contact



Behaviour
supporting
tools

intelligent
kitchen



shopping
assistants



personalised
food delivery



A constellation of activities

Who will handle all of these activities?

A new networked system is likely to emerge

...

it will affect all food and health related systems,

from the entire food chain

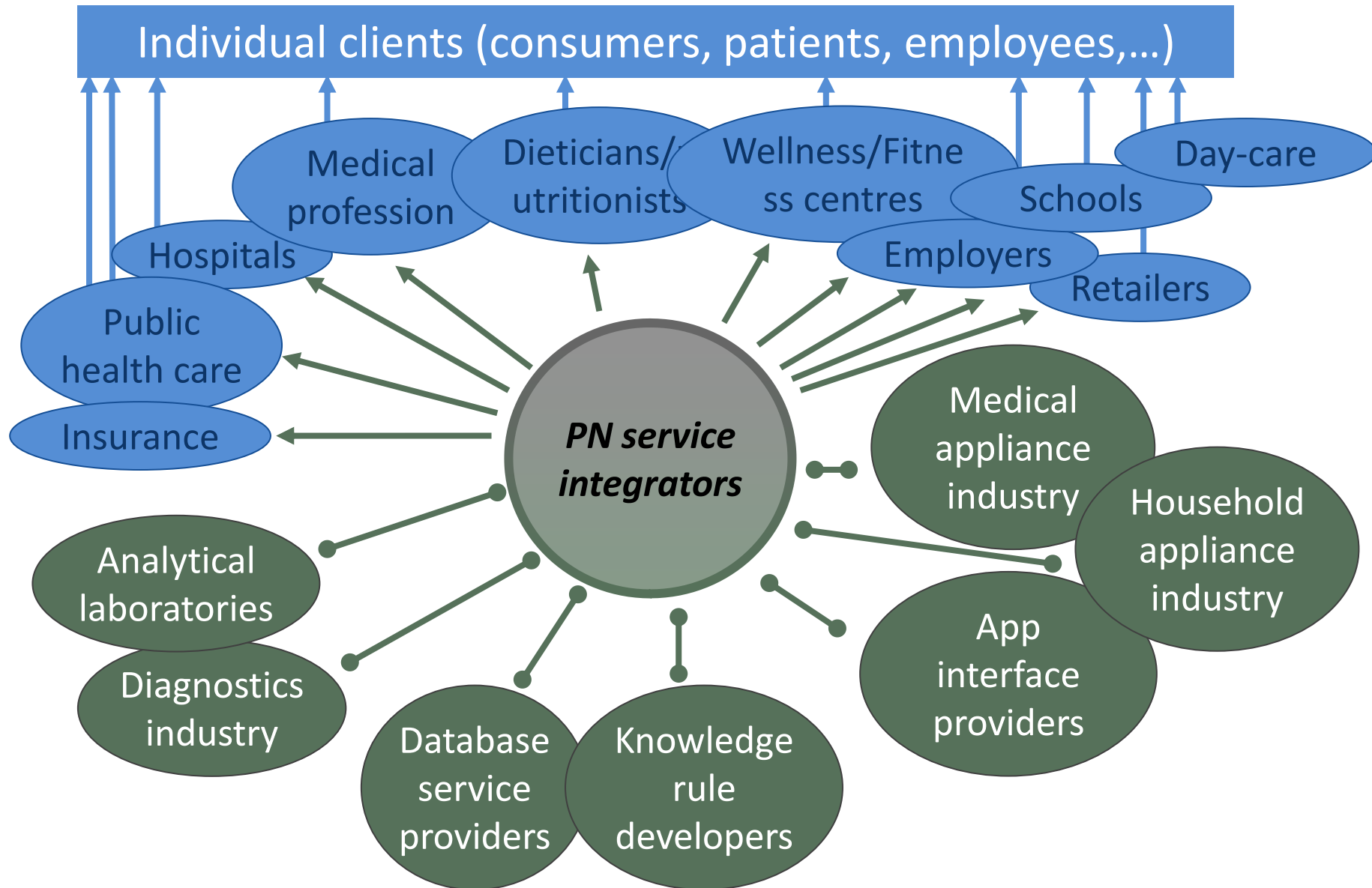
to the pharmaceutical and medical world,

from doctors and dieticians

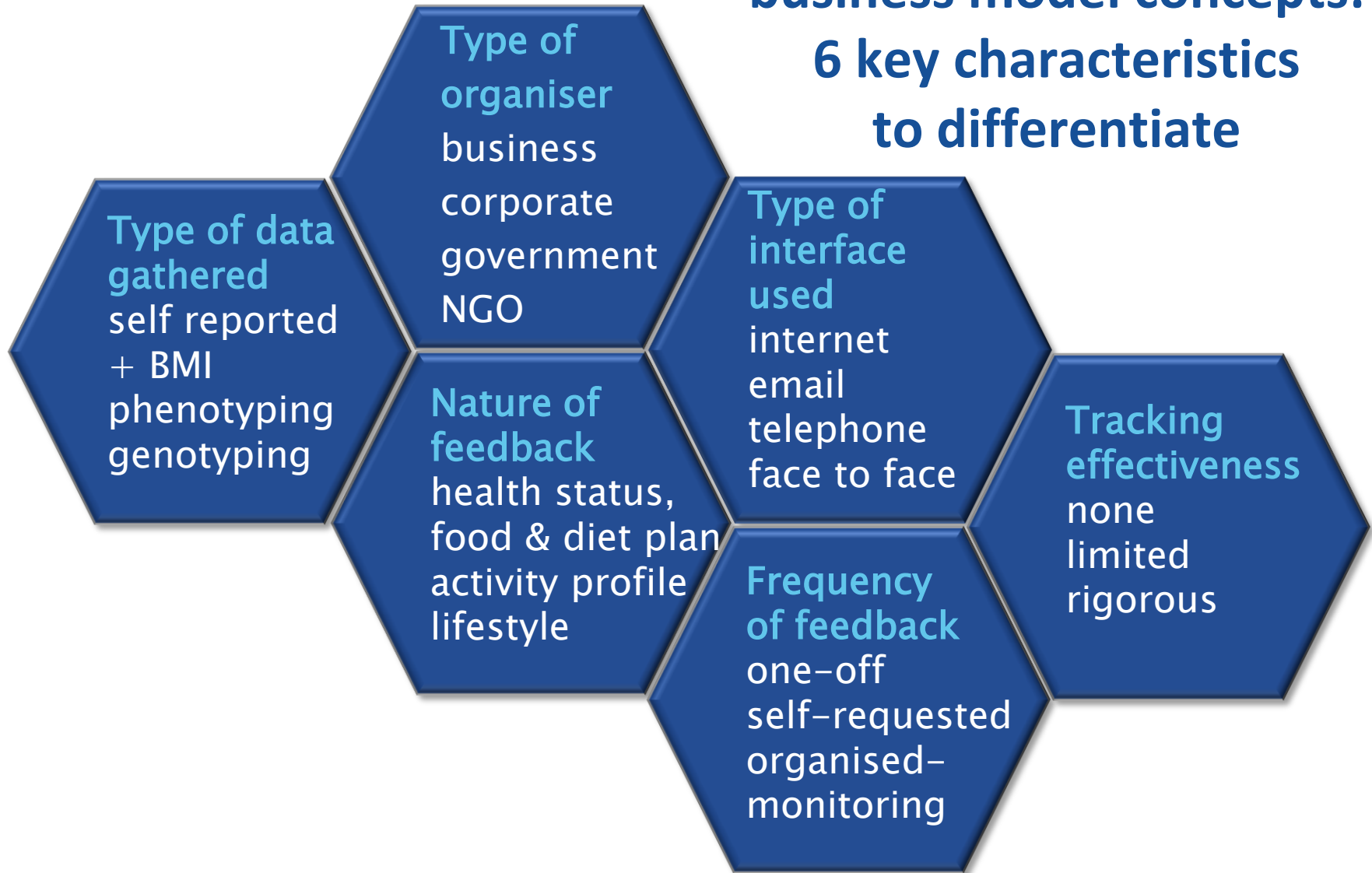
to employers, teachers, caterers, social workers

*... profoundly impacting how our society perceives the
food and health relationship*

New business models – new integrating actors



A wealth of possible PN business model concepts: 6 key characteristics to differentiate



Technology is adding significant drive



Nutrigenomics

is deepening insights in the link between metabolism and health

more reliable
and appropriate
nutritional and
dietary advice



Diagnostic and monitoring tools

reduce the barrier to 'quantify yourself',
both on metabolic status and behaviour

awareness about
the actual personal
health status



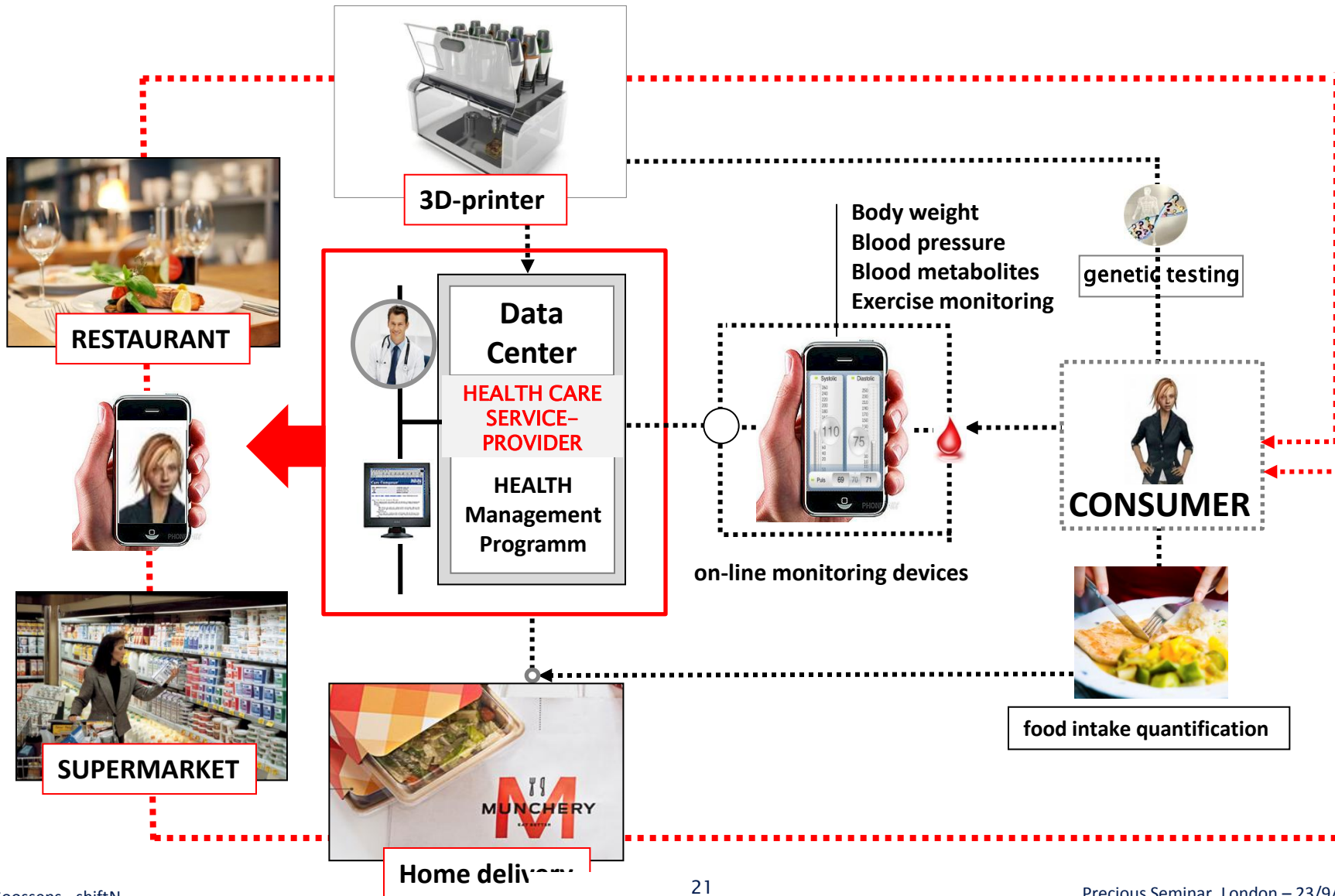
Mobile interfaces

make information ubiquitous and
instantly available

facilitate instant
informed decision
making in food
choices (shopping,
menu-choice,
activity)

A vision of the future

Technology helps to integrate many aspects



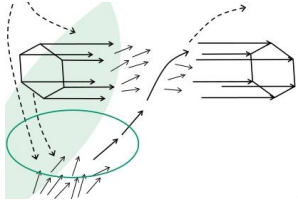
Key take away message (2)

*“Personalised nutrition will shift
the value creation focus
of food/health related businesses
from products to services
focusing on supporting consumers with
information and advice
to optimise health and dietary behaviour”
(industry perspective)*

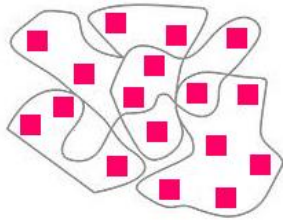
Future scenarios > business model concepts



Common features of future value creation concepts



Gradually emerging in a changing environment (transition dynamics)



Networked structure

Initiators and integrators driving the development

Distributed profit centres



Community driven and society encompassing approaches



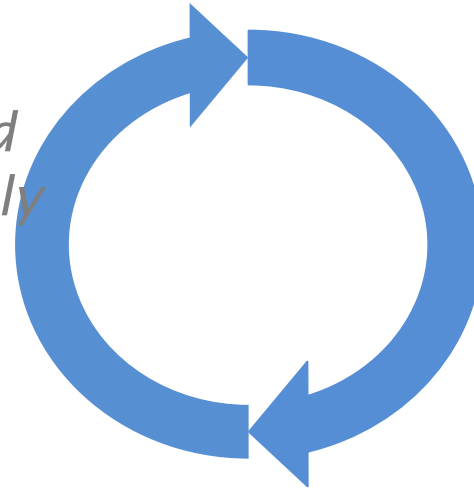
Public private partnerships will be most relevant to accommodate societal impact

Personalised nutrition : societal impact

Value creation concepts for personalised nutrition are inherently linked to a change in the societal context

Personalised nutrition value creation concepts

Societal changes to resolve the nutrition and health issue are very likely to trigger personalised nutrition concepts



Personalised nutrition concepts are very likely to result in societal changes

Changing perceptions in society on the value of food and its role in health

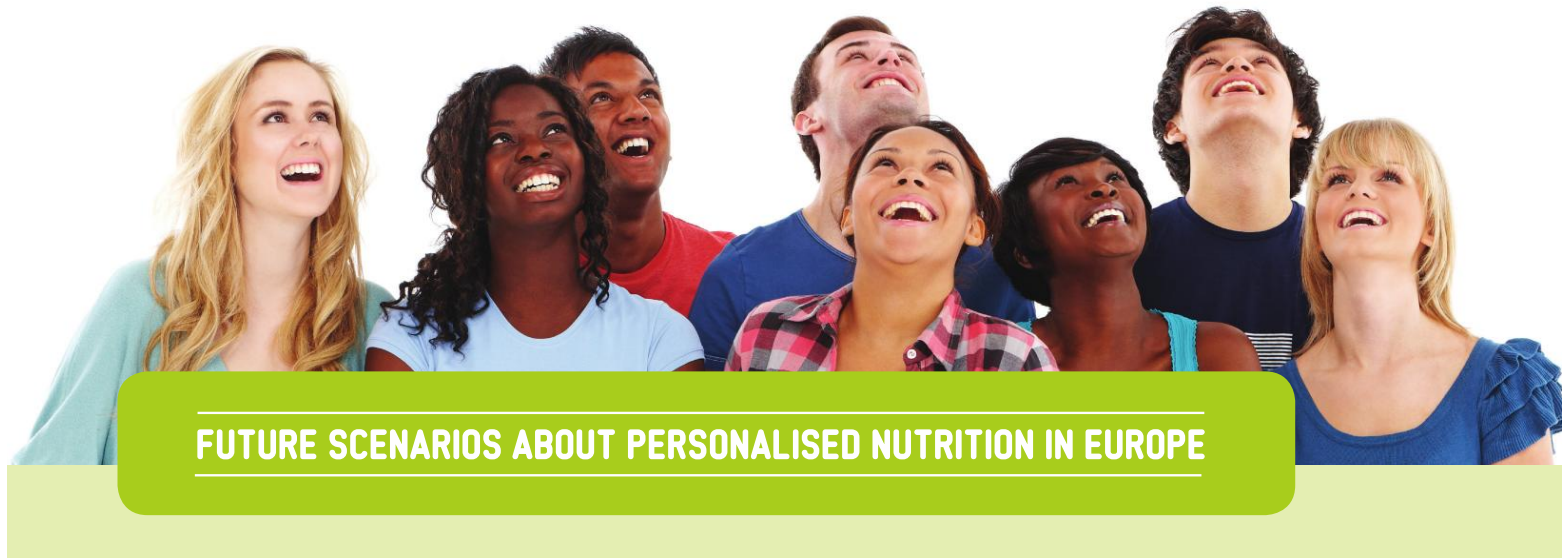
In the longer term (10- 20 years)

Broad acceptance of personalised nutrition is likely to bring significant changes in the societal context

The following is likely to happen:

- **Blurring borders** between nutrition/diet and health care
- **Community based approaches**
- **Education** in food and health will be revived
- Personal **health data** as an individual **value asset**
- **Self quantification** (monitoring and feedback) will be a habit
- Health **counselling ubiquitous**
- Dietary behaviour advice will **reduce need for special foods** (except for people with metabolic disorders)
- There will be a **uniform data** and **interpretation platform** for diet/nutrition/health

Food4Me scenario brochure, whitebook & video



Scenario brochure:

<http://www.food4me.org/component/content/article/2-content/191-brochurescenariospersonalisednutrition>

Whitebook:

<http://www.food4me.org/images/Food4MeWB-PRINT-14-05-15.pdf>

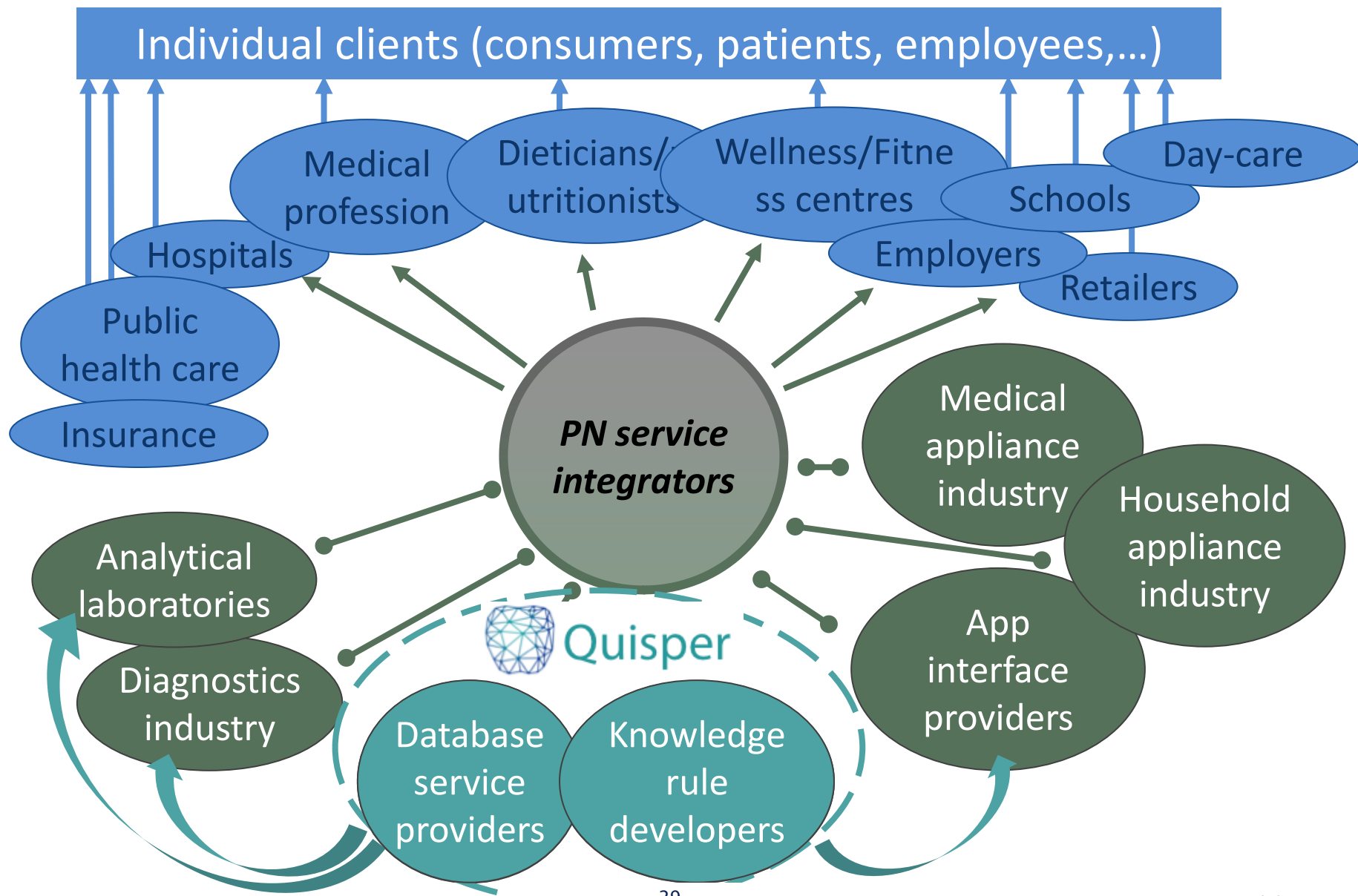
Video:

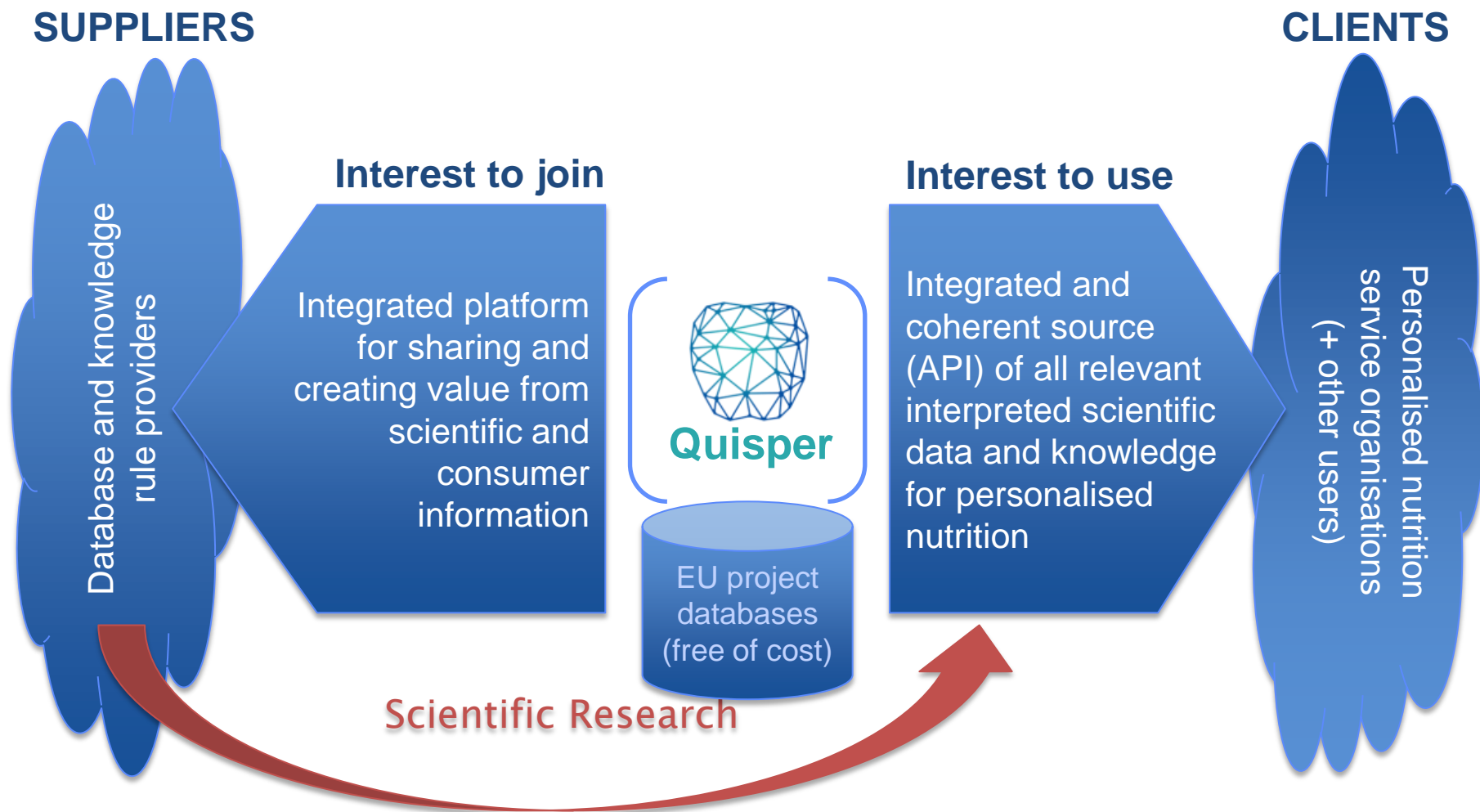
<https://www.youtube.com/watch?v=yUn9QgXWb-w>

Key take away message (3)

*“Personalised nutrition will have a substantial societal impact by changing the perceived role and the value of food in contributing to optimal health, thus alleviating the health care burden”
(societal perspective)*

An example - a new integrating service platform

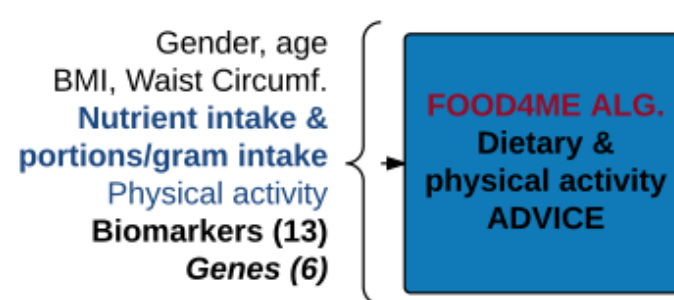
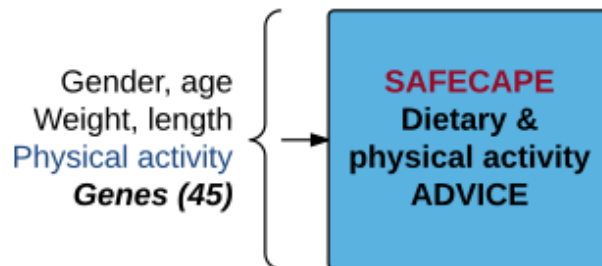
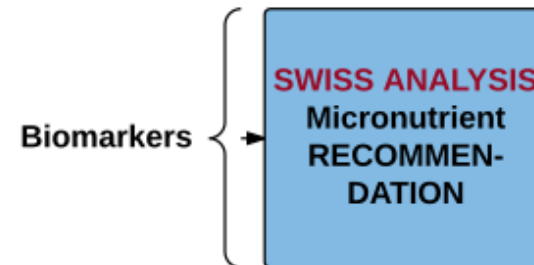
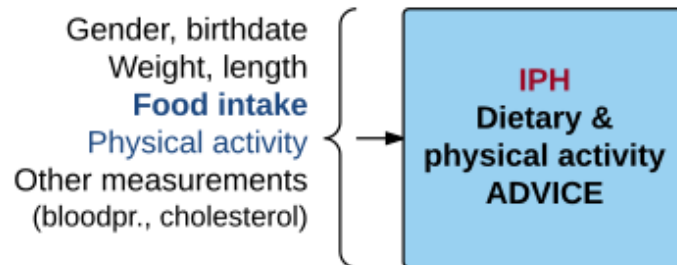
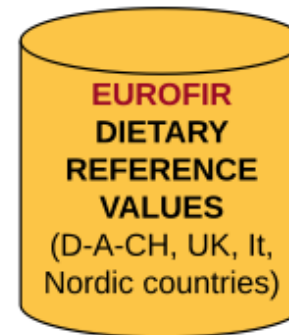




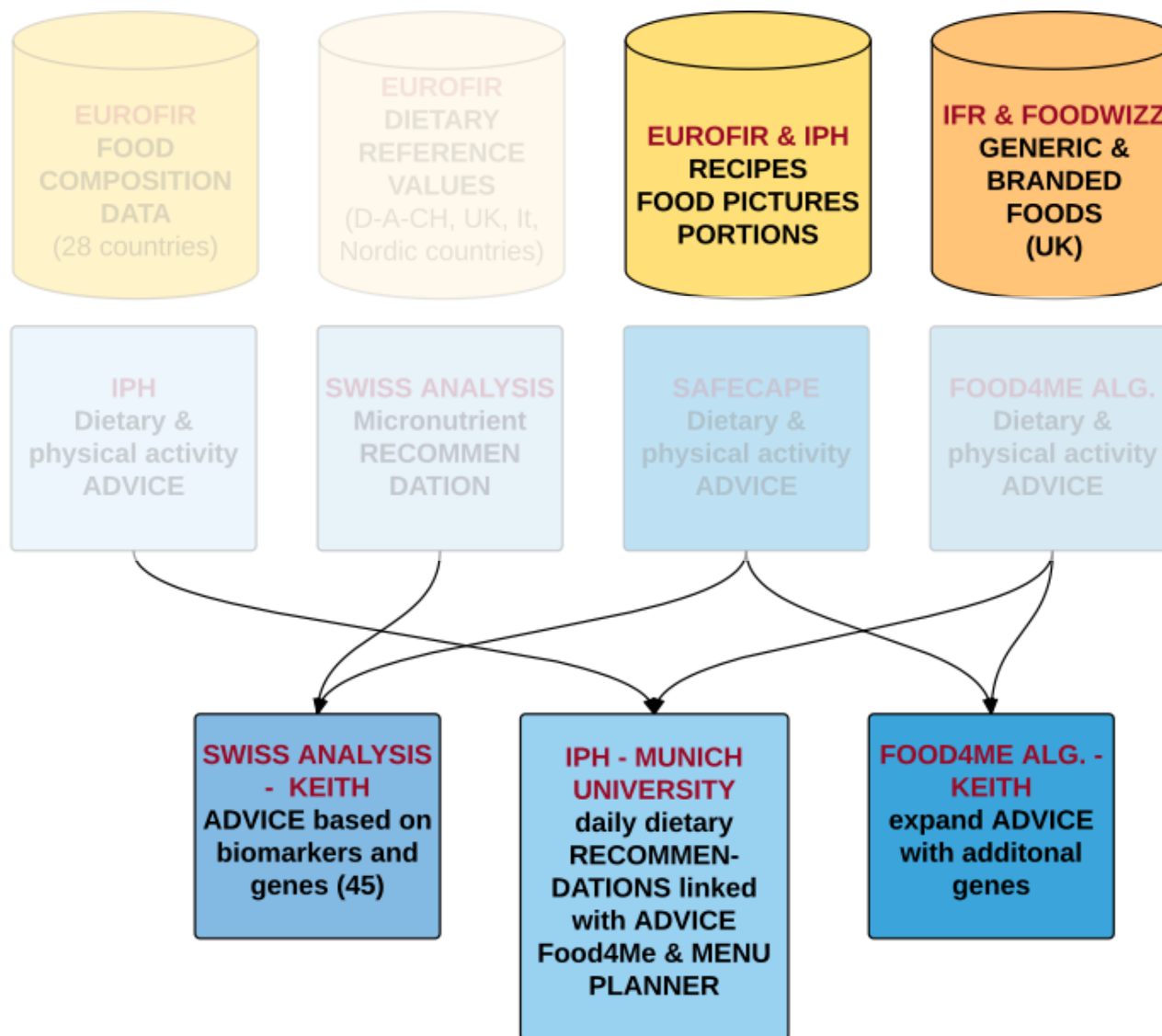


- **Quisper Association (AISBL) – not for profit structure**
- **Started 1 Jan 2016**
- **Quisper Quality Label**
- **Membership fee** to use the platform
 - Companies EUR 2,500 (SME) – 10,000
- **Consultation fee** for each query:
 - Data queries: based on volume (cost/datapoint)
 - Knowledge rule queries: based on frequency (cost/consultation)
 - different types of knowledge rules: daily/weekly – monthly – yearly
 - Other services by members can be offered via the platform:
 - app development support, knowledge rule development support, app performance measurement

Quisper services available at start



New services foreseen





**Personalised
nutrition**



interface, tools, feedback
preferences,
psycho-social factors

Individual recommendation for dietary behaviour



dietary intake
food preferences
lifestyle preferences

Basic personal nutritional recommendations



phenotyping
(physical parameters and biomarkers)
genotyping
(SNP profile)

Optimal nutrient requirements

biomarkers<>nutrient<>genotype
interactions



Quisper - 3 key advantages

- **Single unified portal for accessing** data and knowledge rules to interpret personal health/diet/lifestyle information to generate a personalised nutrition advice
- **Neutral validation of the scientific appropriateness** of the data and knowledge rules offered through Quisper (scientific advisory board and evaluation procedures)
- **Harmonisation of the data and knowledge rules** originating from different sources when accessed through Quisper (strict quality requirements from suppliers)

Thank you



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