

SUSTAINABLE DEVELOPMENT GOALS

SUSTAINHEALTH

On the road to establishing a Centre for Food, Health and Sustainability

Strategic proposal for the Norwegian Institute of Public Health



Forskningsrådet

Nasjonal satsing på forskningsinfrastruktur (INFRASTRUKTUR)

Alle som vil søke infrastruktur i år må
levere skisse før 15. mai

Forskningsrådet planlegger å lyse ut inntil 700–900 millioner kroner til forskningsinfrastruktur med frist 10. oktober. Første fase av søknadsprosessen er en obligatorisk skisserunde.

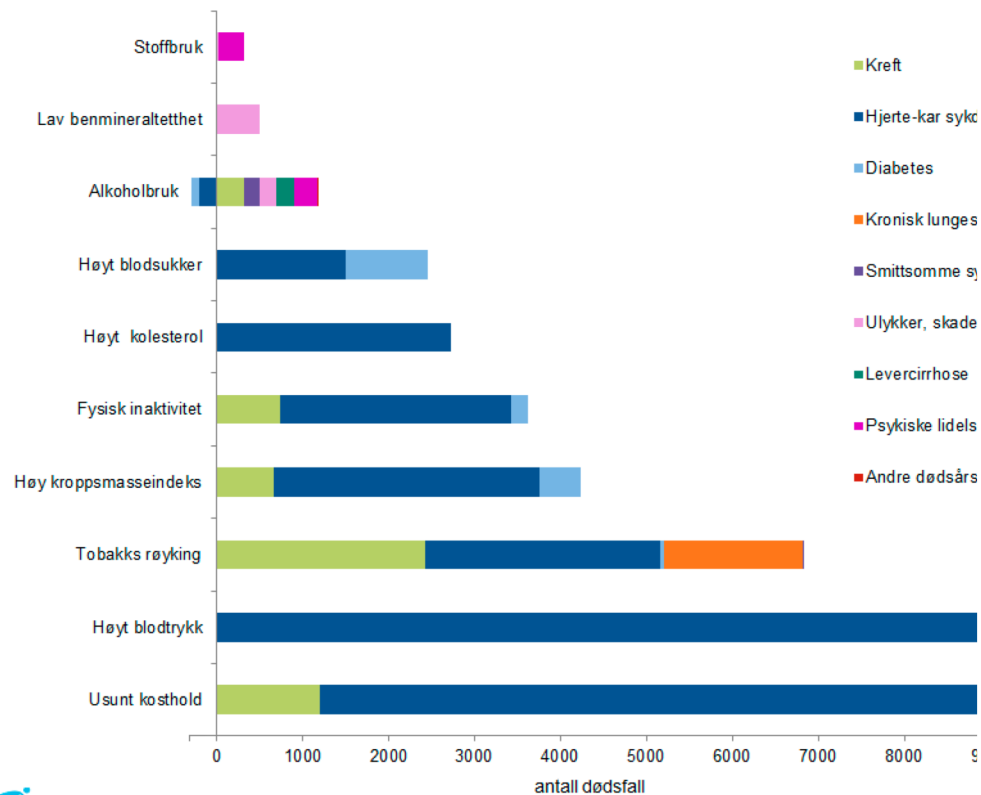
Fase 2-frist: 10. oktober

Project overview as of May 3rd 2018

- Work in progress.....!

Why nutrition, diet and sustainability?

Antall dødsfall som kan tilskrives den enkelte risikofaktor etter dødsårsak, 2010



folkehelseinstituttet

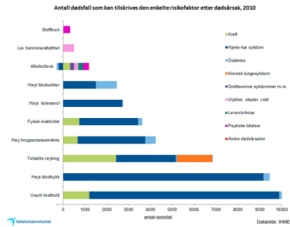
Kilde: Folkehelse rapporten 2014, kapittel: Temakap, Syjdomsbyrde, www.fhi.no/folkehelse/rapporten

Poor diet is a factor in one in five deaths, global disease study reveals

Study compiling data from every country finds people are living longer but millions are eating wrong foods for their health



Eating foods high in salt raises the risk of an early death, the study says. Photograph: Dominic Lipinski/PA



HEALTH

Encompasses both lifestyles that reduces risk, NCDs (including mental health) and infectious diseases.

The question of how to feed the world in a way that ensures human health, environmental sustainability and social wellbeing is one of the defining and most complex global challenges of our time.

Diet the most important determinant of NCDs both in Norway and globally.

(Diet encompasses both nutrients and non-nutrients, e.g. environmental contaminants. Diet is also a carrier of AMR bacteria and pathogens).

What we eat is a determinant of what is produced and vice versa

Food production (Norway: 40-50% self-sufficiency rate)

National policies
Trade agreements
Customs (toll)
Price
Latitude
Soil quality
Knowledge

Our food production systems are not sustainable

GLOBAL SITUATION, food production

- ✓ 20-30% of global GHG emission (14.4% from production of meat, eggs and milk)
- ✓ Most important factor in deforestation
- ✓ Change in use of land and loss of biodiversity
- ✓ Reduced humus quality
- ✓ Employs 70% of global water resources
- ✓ Most important reason for water pollution
- ✓ Climate changes make food production more unpredictable

Norway, food production

- ✓ 8% of Norwegian GHG from agriculture (not taking import of fodder into account)
- ✓ More forest, not less
- ✓ Change in use of land and loss of biodiversity
- ✓ Wetter, warmer and wilder weather
- ✓ Only 3% arable land, 40-60% mainly suited for grass
- ✓ Eutrophication
- ✓ Aquaculture contamination
- ✓ Farmed-wild-fish issues
- ✓ Etc, etc

Nok, trygg og sunn mat er ingen selvfølge
i ti-årene som kommer!

Nutrition is central to the Sustainable Development Goals (SDGs)

Nutrition as a direct goal



End hunger, access to safe, nutritious food (2.1)
End all forms of malnutrition (2.2)

Nutrition as an enabler for health related goals



Women (3.1) & Children (3.2)

Communicable diseases (3.3)

NCDs (3.4)

Emergencies (3.d)

Nutrition as an enabler for other goals



Today's situation

- Global climate change, natural system deterioration, pollutants and overpopulation threaten our planetary food production. Without enough, safe and nutritious food available, the basis for good health evaporates.
- Lack of tools and methods to produce knowledge about sustainable diet and lifestyle in a holistic, integrated way
- Although very many are working with bits of it....
- **Norway lacks a comprehensive, nationally coordinated strategy to understand health and disease that involves the impact of major ecosystem determinants, such as biodiversity loss and climate change stress, food production and consumption changes, changes in human toxicity and pathogen exposure etc.**

Our solution



Norwegian Institute of Public Health

We believe that NIPH is uniquely poised to establish a Center on Food, Health and Sustainability to address the global need for research that bridges diet with environment and health with special focus on:

- interdisciplinary research
- translation of research into policy
- building international collaborative networks
- developing communication outreach activities
- creating integrated, innovative open access databases on food systems and health



Vision

Deliver our food systems to the next generation in a better condition than at present

Aim:

build a data and knowledge infrastructure that supports transdisciplinary research and development, bridging food security, food safety, health and sustainability



Specific aims

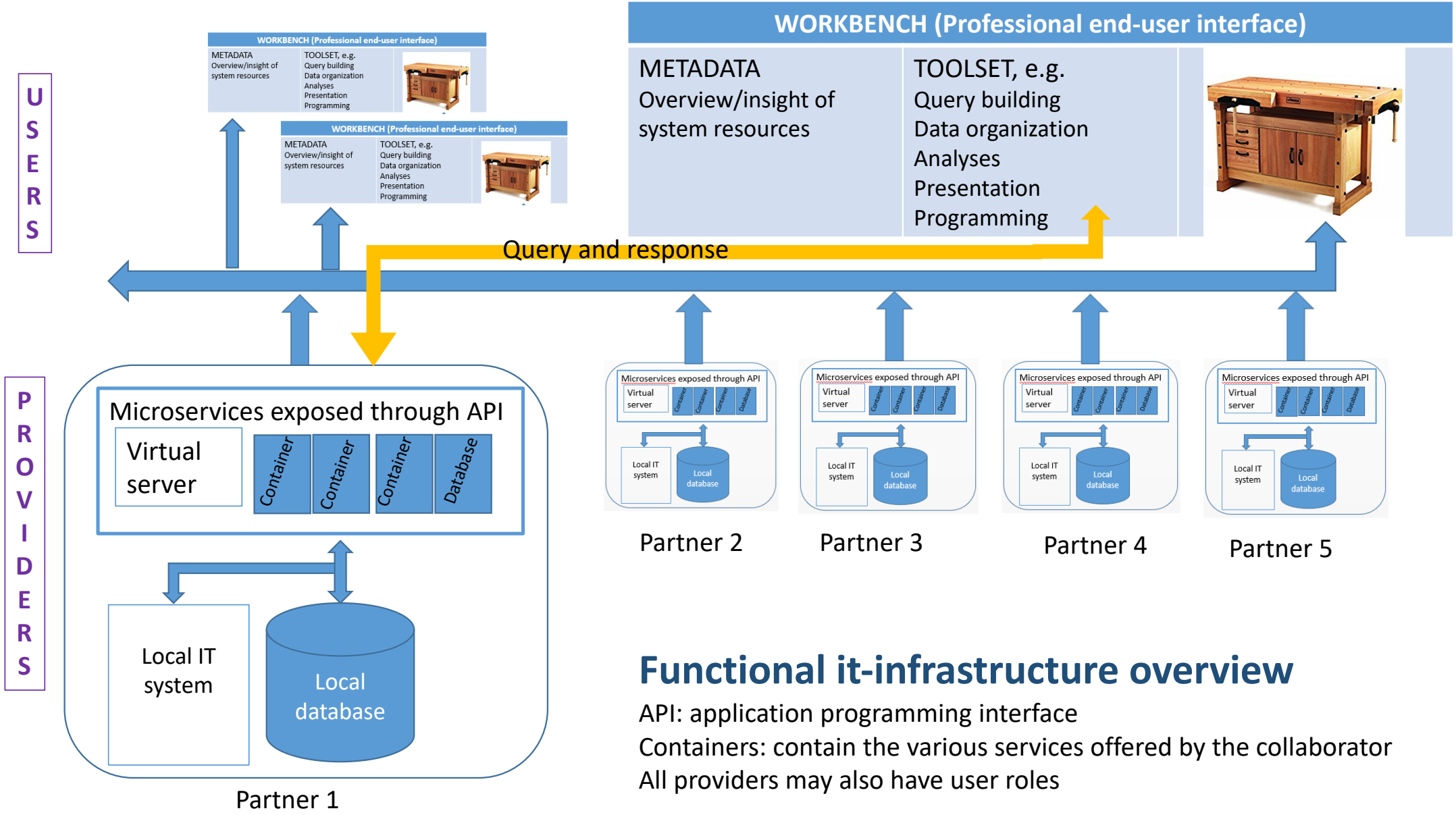
- 1) Develop tools that evaluate and monitor the sustainability of food production and food consumption with the perspective of impact on health, i.e., a OneHealth approach
- 2) Develop a national infrastructure providing access to food composition databases, environmental and production related data and validated dietary and health assessment tools for studies of diet and health - coordinated with existing national health and biomonitoring surveys
- 3) Facilitate access to and coordination with data collected in relevant fields (ex: consumption data, factors influencing diet related life style changes etc)
- 4) Provide access to/query functionality on sustainability metrics, food production, composition and consumption data for research, evidence based advice and policy development and evaluation, in part supported by linkage with data on health outcomes
- 5) Whenever possible, coordinate with ongoing similar European or international projects

SUSTAINHEALTH partners (overview is not complete): national, Nordic, and global



Norwegian Institute of Public Health

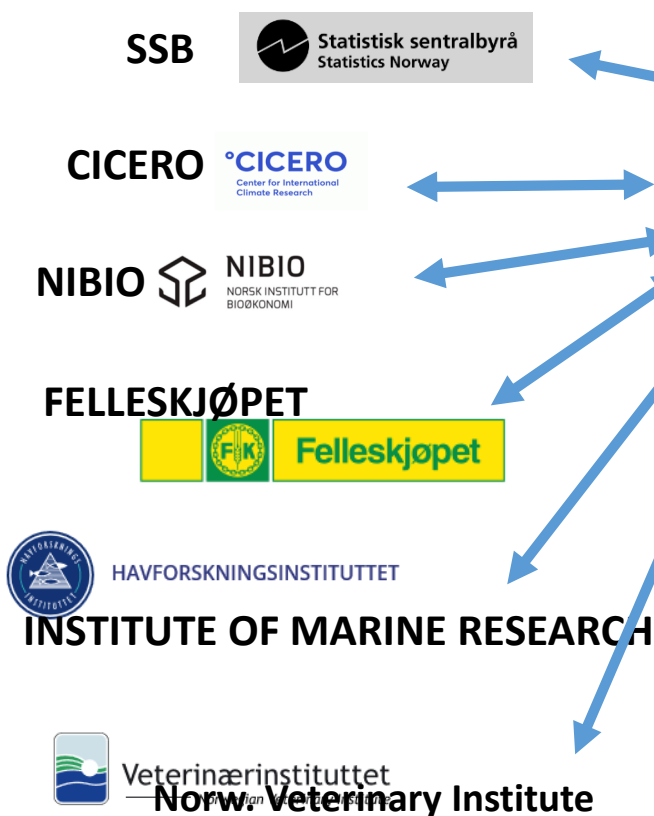




Functional it-infrastructure overview

API: application programming interface
Containers: contain the various services offered by the collaborator
All providers may also have user roles

PROVIDERS (data partners)



University of
Oslo

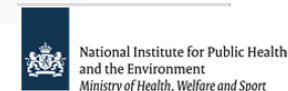


Norwegian Food
Safety Authority



METHOD COLLABORATORS

UNIVERSITY OF WAGENINGEN & RIVM



EFSA European Food Safety Authority



NATURAL RESOURCES INSTITUTE
FINLAND



FOOD CLIMATE RESEARCH
NETWORK (Oxford)

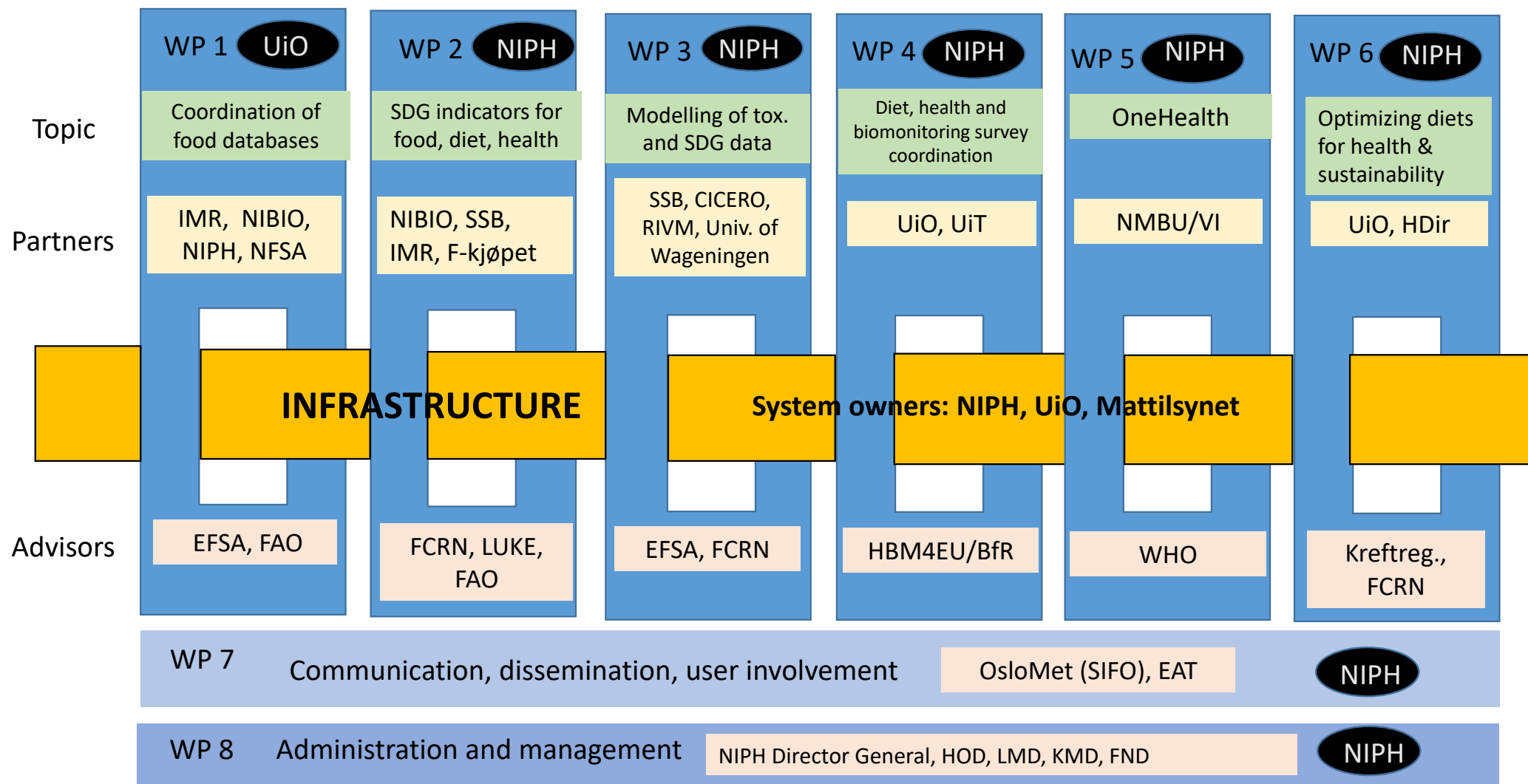
Super-user: GOVERNMENT
(HOD, LMD, KMD, FND)

Everyone is welcome on board

.....although a specific role for each and every one has not been defined yet

IT infrastructure

Knowledge infrastructure



Four levels of data access at each local data provider (in accordance with EU standards)



Level 0: Public access

- Data provided to the public, e.g. food composition tables



Level 1: Query making

- E.G run models
- Methods
- Limitation: no authorization needed to access data, non-sensitive data



Level 2: Authorisation required

Non-disclosure agreements

- Commercial ingredient lists etc



Level 3: Person sensitive data access (ensuring compliance with EU data protection law)

- Ethical approval needed

Increasing
depth,
complexity
and
sensitivity
of
requests

TAKK!

Providers of data (and users)

Norwegian Food Safety Authority

- Food composition database owner
- Toxicity data
- Medical residues

University of Oslo

- KBS owner (food ingredients)
- Diet survey expertise

Providers of data (and users)

HAVFORSKNINGSINSTITUTTET

- Data on contaminants in fish
- Antibiotic use in fish-farming
- Farmed fish:
 - Feed ingredients
 - # fish /m³
 - Waste handling regime
- Wild fish
 - Threatened species
 - Where fileted
 - Waste handling regime

NIBIO

- Residues of pesticides in foods
- Soil quality/fertility
- Biodiversity index
- Fertilizer use, type, amount

FELLESKJØPET

- Feed composition, animal and fish fodder
- Production efficiency

Providers of data (and users)

SSB

- Land use
- Water use
- Environmental data

CICERO

- CO₂ emission + GHG cycle
- N₂O emission + GHG cycle
- Methane emission + GHG cycle
- Other GHG

VETERINÆRINSTITUTTET

- Pathogens in food
- Antibiotic use

Background, compliance NIPH mandate

Folkehelseinstituttet skal bidra med forskning, analyser, metodevurderinger og oppsummert kunnskap som:

- understøtter pasientenes helse- og omsorgstjenester og befolkningens folkehelsearbeid
- **beskriver helsetilstanden i befolkningen og faktorer som påvirker denne**
- **identifiserer påvirkningsfaktorer, årsaker og konsekvenser av sykdom og tidlig død**
- **undersøker effekten av tiltak som kan virke helsefremmende eller forebyggende**
- **medvirker til riktige beslutninger og gode prioriteringer på alle nivåer**
- bidrar til kontinuerlig kvalitetsforbedring for å sikre virksomme, trygge og kostnadseffektive helse- og omsorgstjenester
- viser samlede effekter av folkehelsearbeidet og tjenestenes innsatser, samt prognoser til nasjonal helseplanlegging
- **danner grunnlag for overvåking av og beredskap overfor helsetrusler nasjonalt og globalt**
- beskriver behov, forbruk, kvalitet og konsekvens av helse- og omsorgstjenester
- **beskriver og forklarer sosial ulikhet i helse**



Main deliverables

- Alignment of food databases in Norway, compliant with EFSA datasheets
- Methods development for integrating sustainability metrics in diet and health surveys and evaluations
- An IT infrastructure that supports a work-bench approach with tools for unified diet, health, biomonitoring and sustainability analyses
- Support for operationalization of the onehealth/ecohealth paradigm
- Broad Nordic and international cooperation and networking
- Efficient communication and dissemination strategies

- A suite of web-based tools for free use globally