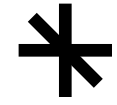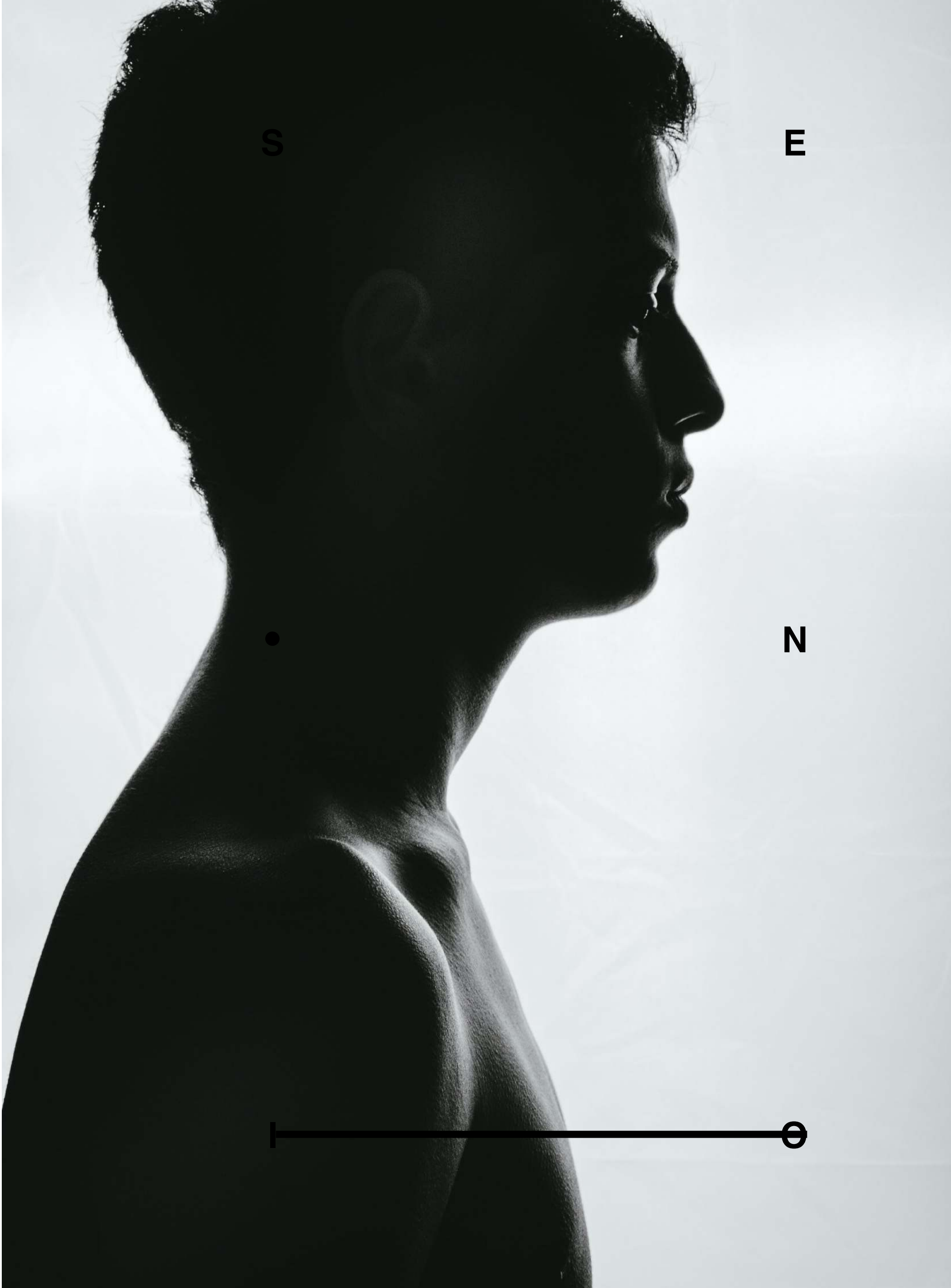# UNSEEN™
BIO

YOUR DIGITAL GUT

U · S · E · N · B

WHO ARE WE?

WHAT WE DO

Unseen Bio is a digital health tech company bringing test and data based decision support to our customers

OUR PURPOSE

We will unleash the health tech potential of stool data

TEAM

Bioinformatics & software	People & product development	Systems biology & Computational models	Software & IT	Operations & finance

Moritz Beber

Johan Bruun Hartmann

Christian Lieven

Ali Kaafarani

Jens Bøttcher Gandløse

PROBLEM - IBS

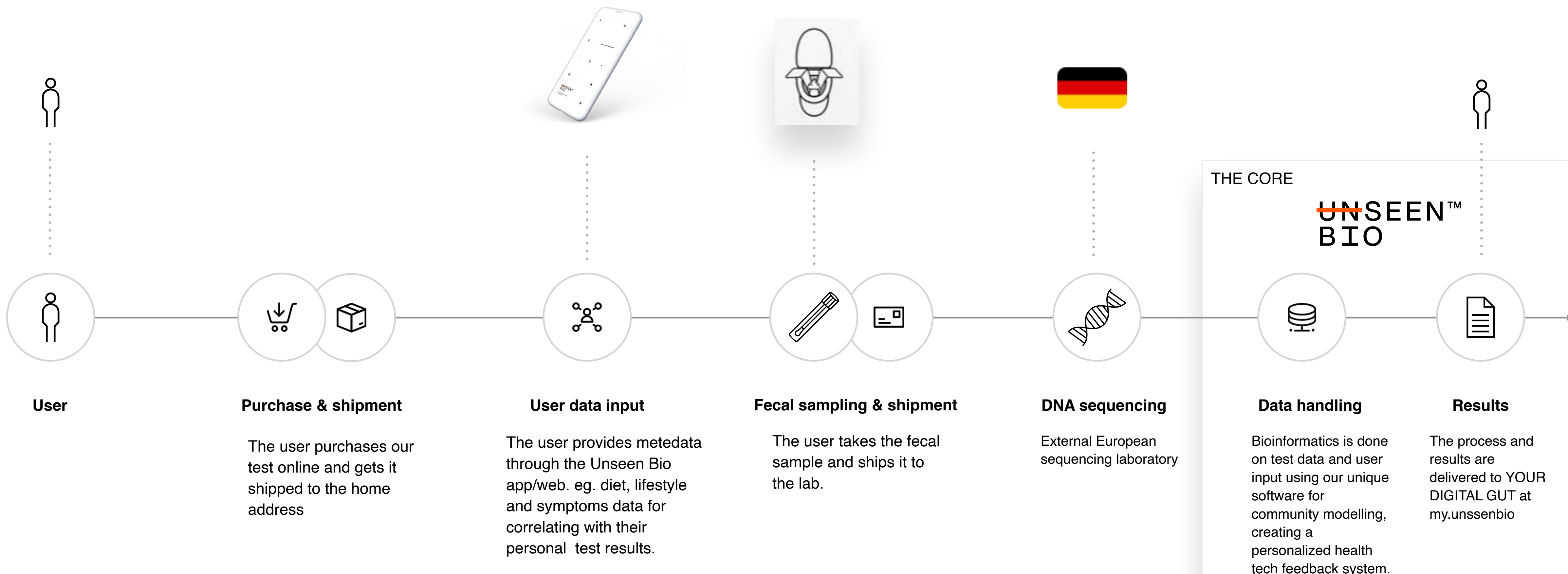## IRRITABLE BOWEL SYNDROME

- 16% of western population struggle
- "You are not sick" - No help

- Severe symptoms and affected life
- The worlds most expensive disease

- Few treatments with unproven effect
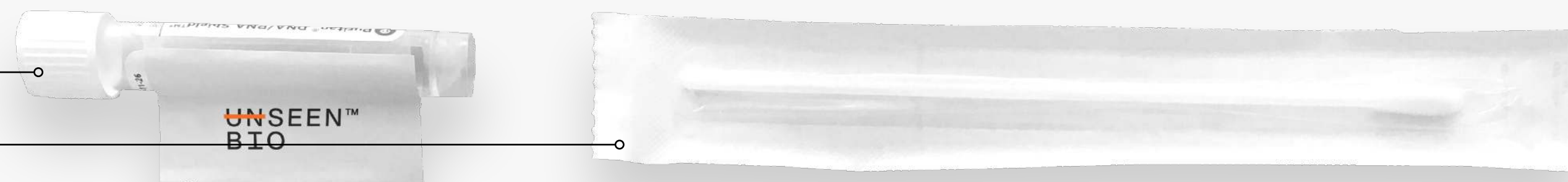- 80% of IBS patients can not be helped by GPs.

SOLUTION - YOUR DIGITAL GUT

User

Purchase & shipment

The user purchases our test online and gets it shipped to the home address

User data input

The user provides metedata through the Unseen Bio app/web. eg. diet, lifestyle and symptoms data for correlating with their personal test results.

Fecal sampling & shipment

The user takes the fecal sample and ships it to the lab.

DNA sequencing

External European sequencing laboratory

Data handling

Bioinformatics is done on test data and user input using our unique software for community modelling, creating a personalized health tech feedback system.

Results

The process and results are delivered to YOUR DIGITAL GUT at my.unssenbio

THE CORE

YOUR DIGITAL GUT

FECAL TEST

UNSEEN™
BIO

Sample tube

Swap

UNSEEN™
BIO

Prøverøret er registreret til dig,
skriv dato og evt. anden bruger

Tis som
du plejer

Påsæt
opsamlingspapiret

Lav afføring i
opsamlingspapiret

Skru låget af prøverøret
uden at spilde indholdet

Dæk hovedet af
vatpinden med afføring

Kom vatpinden i
prøverøret og knæk af

Skru låget
godt fast

Løsen opsamlingspapiret,
og lad det falde ned i toilettet

Vent et øjeblik
og skyl ud

Kom prøven i
fragtcoveret

Kom i kuvert og send
- portoen er betalt

Guide

Sample Catcher

Carefully loosen in the direction of the arrow

How to use the FecesCatcher

Dear user,

The FecesCatcher facilitates the taking of a stool sample. It is simple and hygienic.
For reliable results, without the risk of contaminating the sample. Water, urine, detergents and deodorants may affect the outcome of the analysis of the sample.

You should use the FecesCatcher as follows:

1. Open the FecesCatcher carefully in the direction of the arrows.
2. Paste the FecesCatcher on the back of the toilet seat, as shown in the second image.
3. Avoid that the FecesCatcher comes in contact with water.
4. After the defecating, take the sample as indicated in the instructions that came with the test set.

Carefully loosen in the direction of the arrow

MY.UNSEENBIO.COM

PARTICIPATION

Register metadata such as diet, sleep and exercise to your personal profile. Adding metadata improves our analysis of your sequencing test results.

EMPOWERMENT

Take ownership of your situation and keep track of wellbeing, symptoms, their severity, and stool properties.

COMMUNICATION

Monitor test process and receive reports, statistics, actions and counselling.

COMPLIANCE

Your data is protected as we ensure the highest level of compliance defined by the authorities.

YOUR DIGITAL GUT

ILLUSTRATIVE

Clear infographics developed specifically for this system.
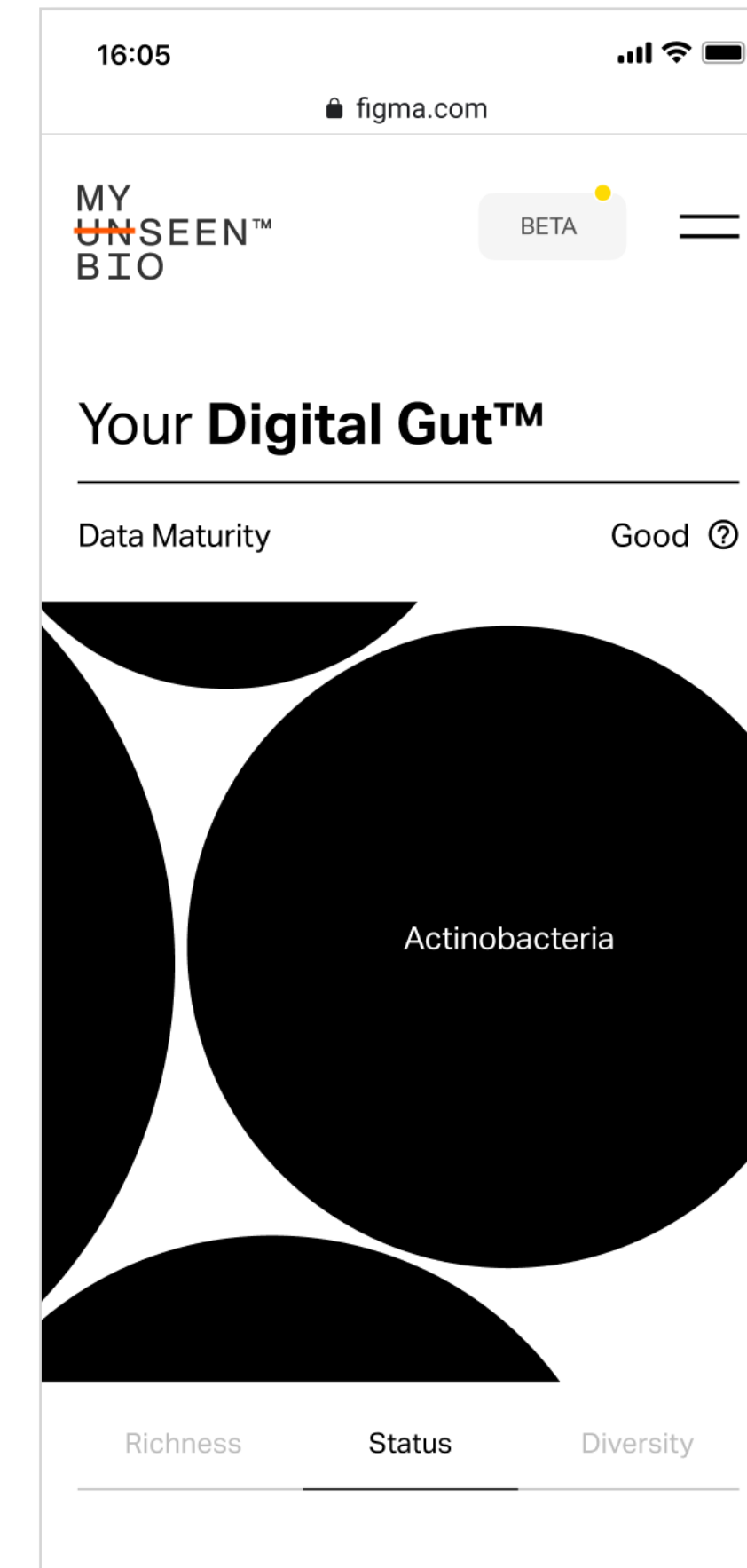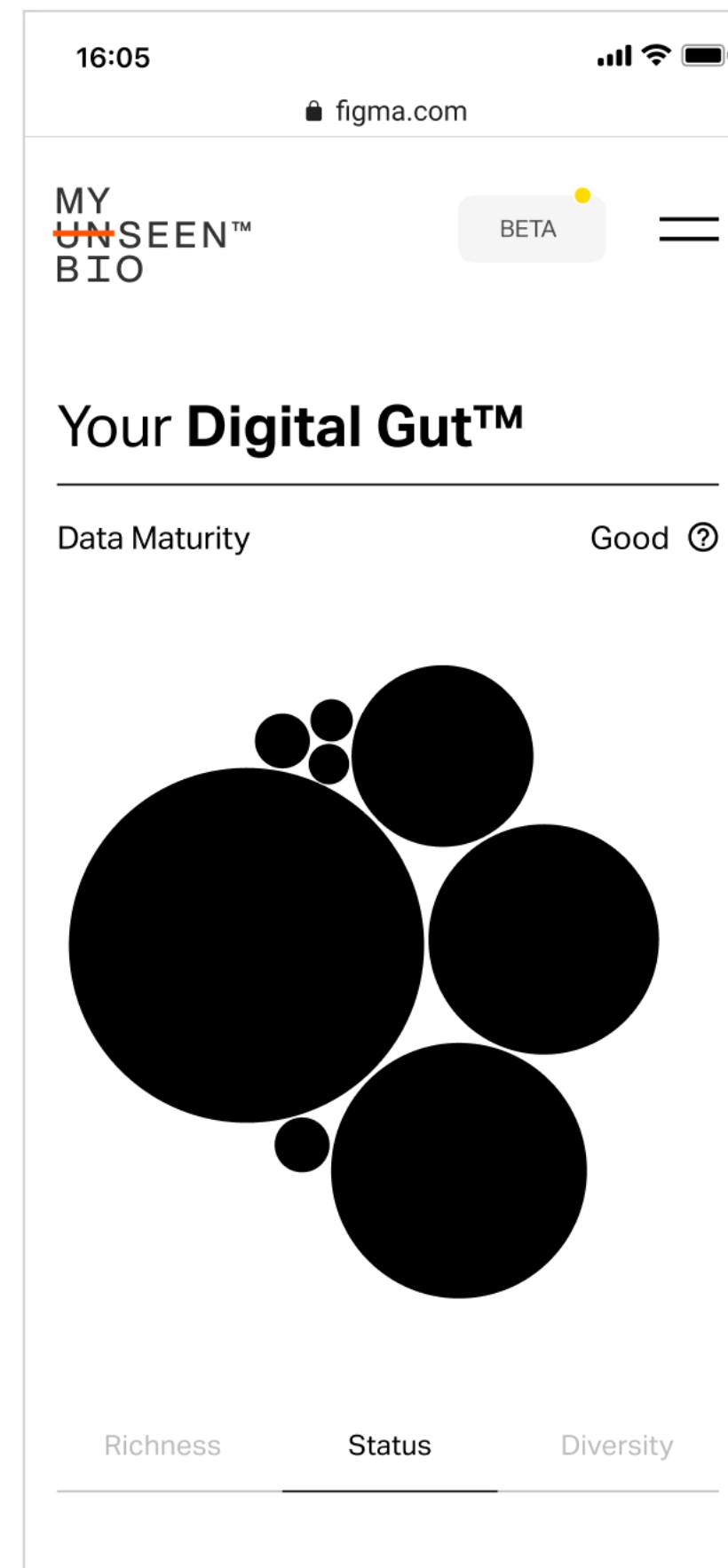
SIMPLE COMMUNICATION

Language is local and carefully crafted to be understandable by the target segment.
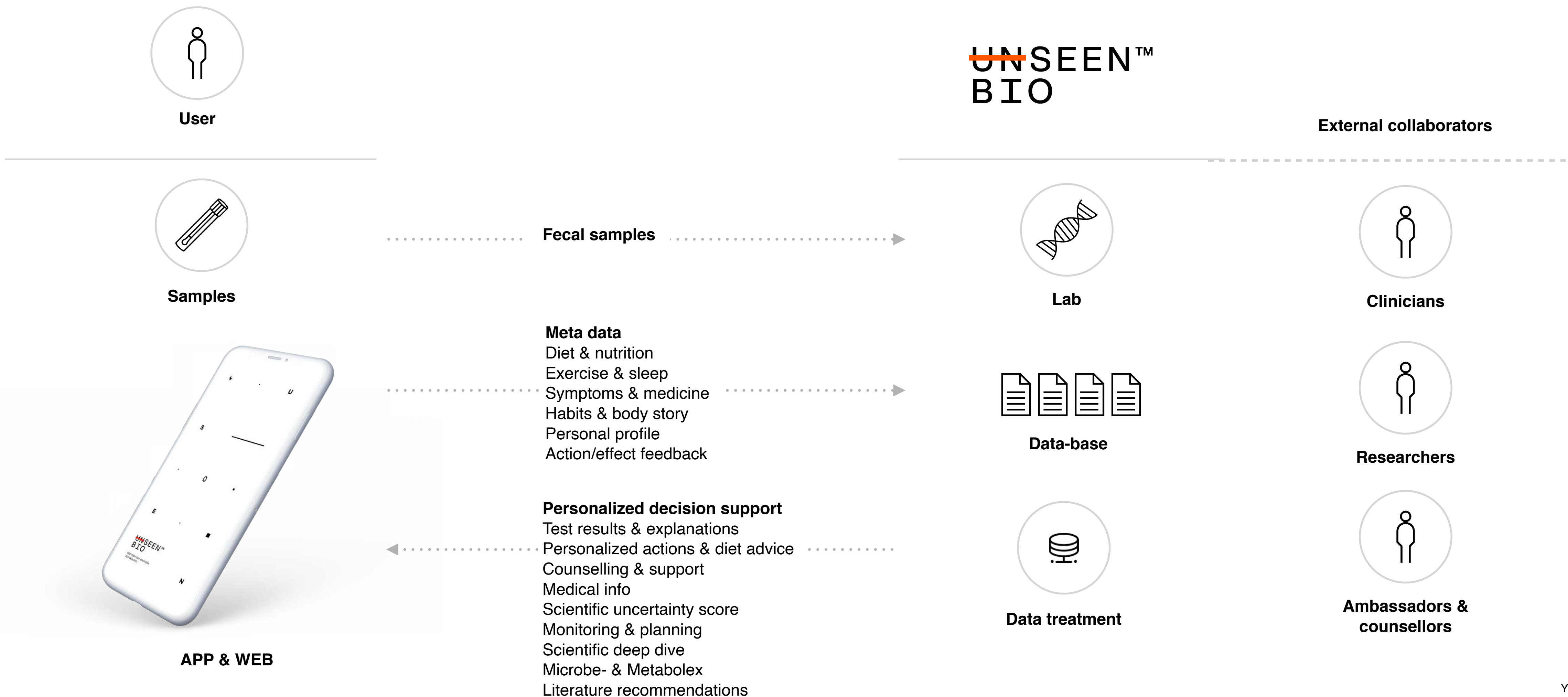
EXPLANATORY CONTENT

Provides both a quick overview of results and the possibility to take a closer look at explanations.

VALUE & RESPECT

Communicate measurements of valuable biomarkers, explanations and actions in a respectful manner.
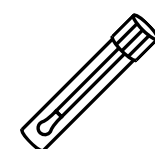
A TOTAL SYSTEM

User

UNSEEN™ BIO

External collaborators

Samples

Fecal samples

Lab

Clinicians

Meta data
Diet & nutrition
Exercise & sleep
Symptoms & medicine
Habits & body story
Personal profile
Action/effect feedback

Data-base

Researchers

Personalized decision support
Test results & explanations
Personalized actions & diet advice
Counselling & support
Medical info
Scientific uncertainty score
Monitoring & planning
Scientific deep dive
Microbe- & Metabolex
Literature recommendations

Data treatment

Ambassadors & counsellors

APP & WEB

YOUR DIGITAL GUT

CURRENT STATE   DIGITAL GUT

Personal sample.	
DNA Sample Analysis.	
Abundance of each organism.	**16S RNA**
Calculated abundances.	A B C D
Average abundances reported in scientific literature.	A B C D
High level comparison and generic advice.	

GO TO MARKET

DIGITAL GUT Pilot launched July 2020
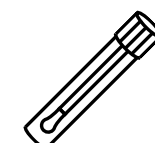
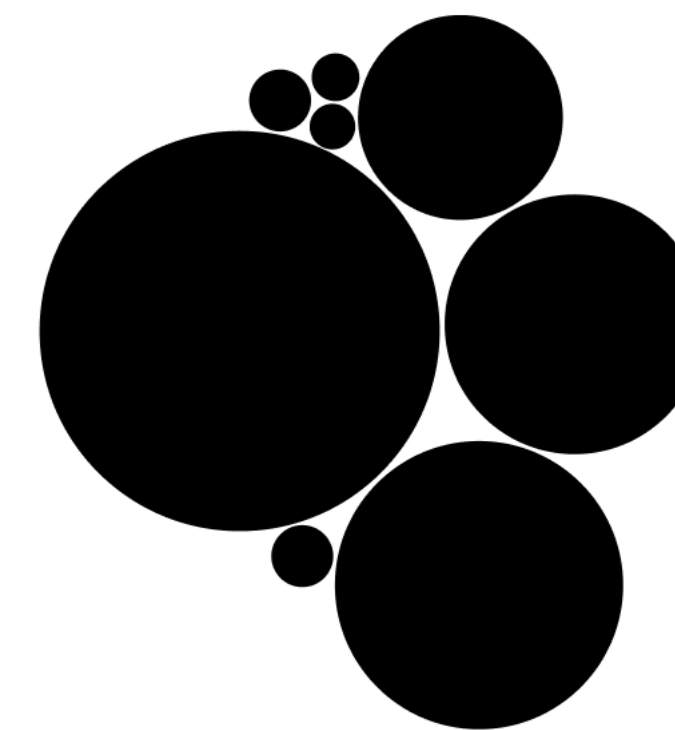|	
Personal sample.	
DNA Sample Analysis.	
Full genome of each organism.	**FULL**
Calculated abundances.	A B C D
Digital copy of the individual gut microbiome. We can add or remove bacteria, manipulate their function and determine the conditions they require to thrive.	
Detailed report / companion app.	
Truly personal diet advice.	
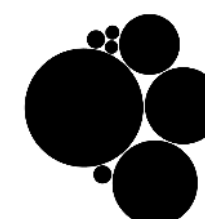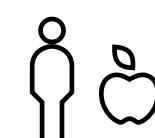
OUR CORE

Individual digital microbiome model

Collecting & utilizing unique scientific data

Move from generic to personalized recommendations

INNOVATION JUMP

INNOVATION HEIGHT

Current   **DIGITAL GUT**
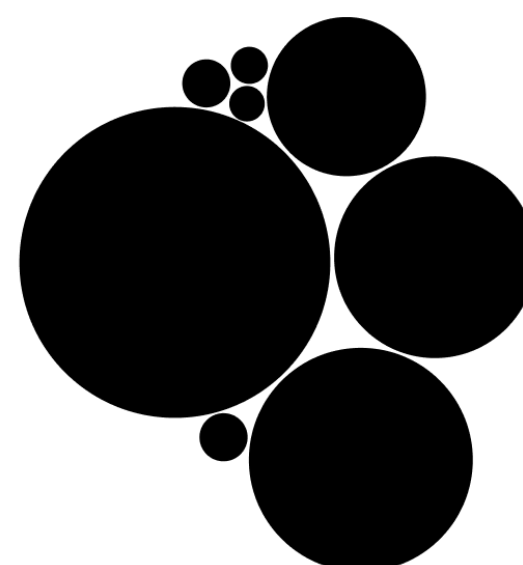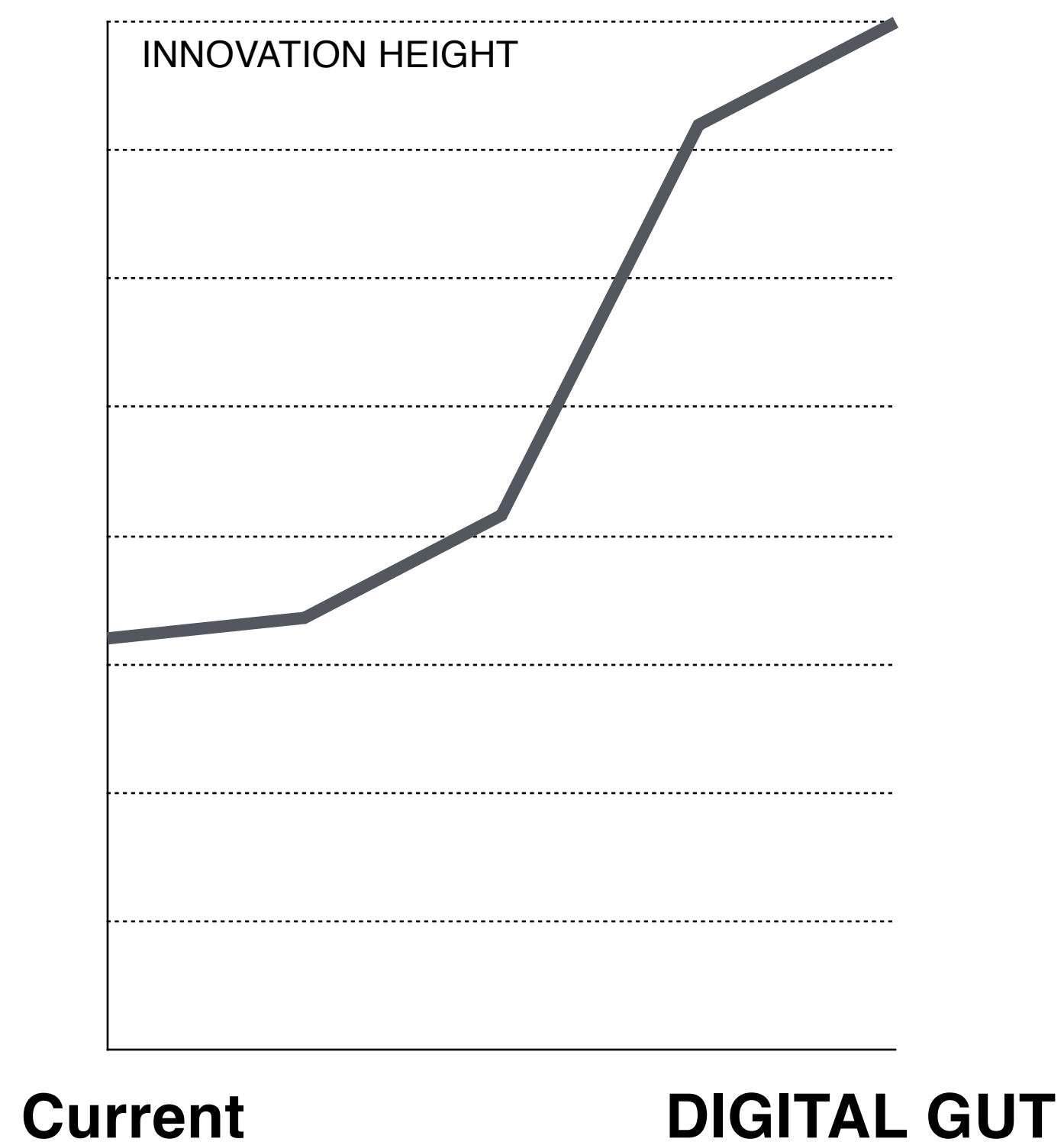
- The core can create a virtual version of the individual microbiome including microbial functional interactions and metabolic pathways.

- The core can now exploit the detailed functional data from deep sequencing inserting it into the model.

- The virtual microbiome can now be adjusted by adding or removing organisms, nutrients and metabolites.

- It is possible to utilize the latest scientific discoveries by simulating how to achieve them and then test the simulation in real life.

- If certain changes in the microbiome can provide the optimal symptom relief to IBS patients, Unseen Bio will be able to simulate it in each individual gut and recommend how to test the effect.
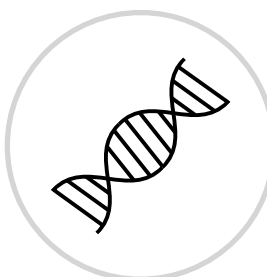
IMPACT
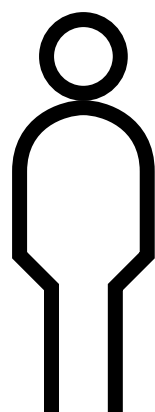
People

- Preventive and predictive healthcare
- Increased wellbeing and performance
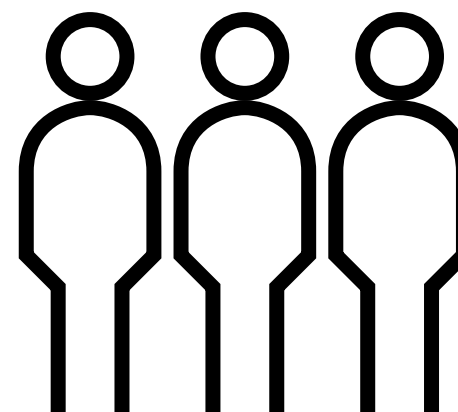- Monitoring possibilities
- Endorse healthy living

Patients

- Symptom reduction
- Self-treatment and empowerment
- Increased life quality
- Reduced time in the health care system.

Science

- Citizen participation
- Unique Data acquisition
- Large and diverse data.
- Research collaborations

Society

- Reduced cost for healthcare systems.
- eHealth and monitoring possibilities in collaborations with GPs has potential for substantial health cost reduction.3 GP visits more pr IBS patient on average and up to 7 specialists visits pr year. 2 on average.
- Reduced work absence.

The global goals

- Utilizing the gut microbes has potential to impact the #3 global goal.

3 GOOD HEALTH AND WELL-BEING

MARKET

Market description

New and underdeveloped market of great uncertainties. However, if the research trend continues and the microbiome potential is proven the commercial potential is only the tip os the iceberg as numbers shown only represent the IBS market and not other verticals.

TA-M 500 BILL DKK

Total Addressable Market.
100% of the total western IBS-segment.
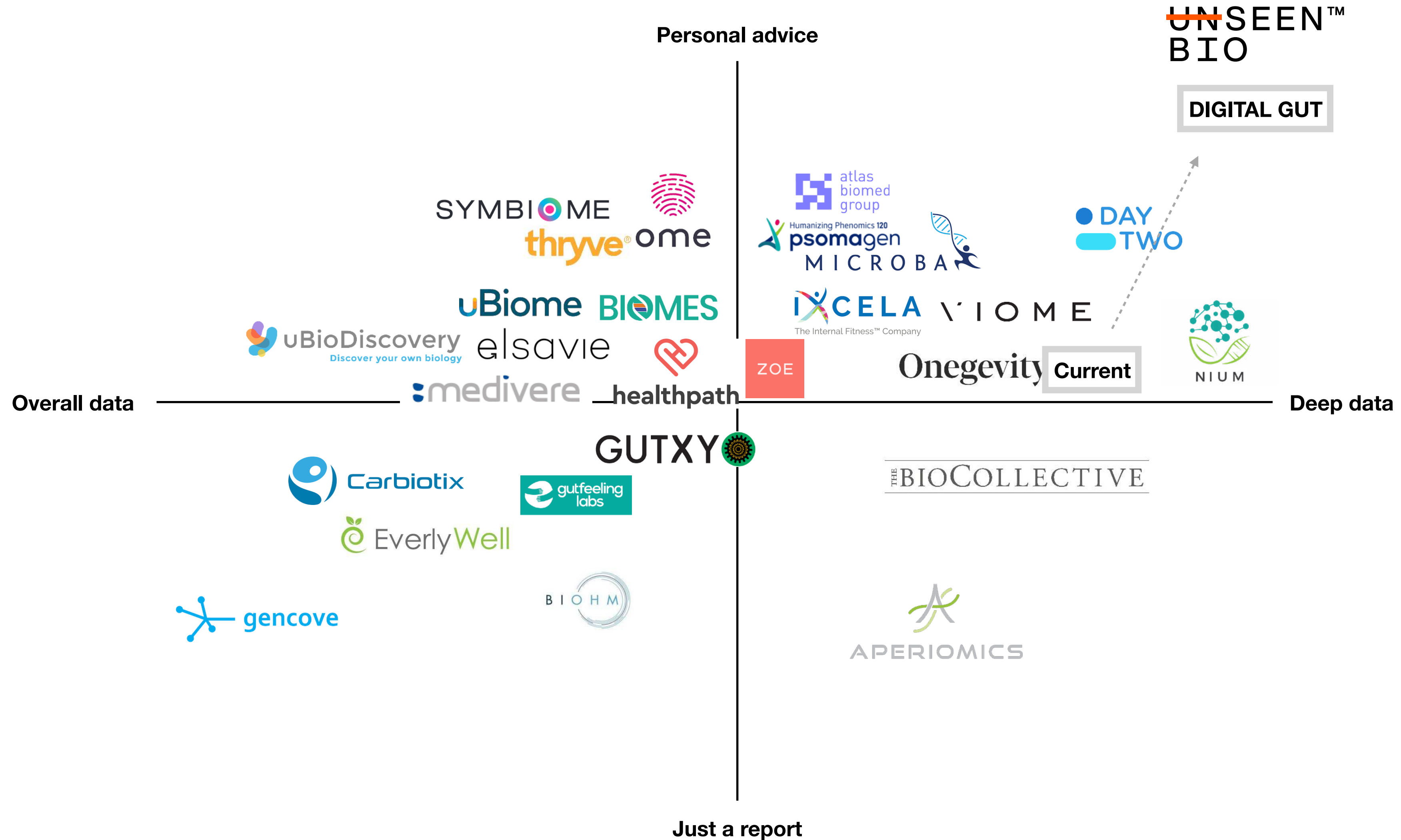
SA-M 15-25 BILL DKK

Serviceable Addressable Market.
3-5% of the total western IBS-segment.

SO-M 420-700 MILL DKK

Serviceable Obtainable Market
3-5% of the Scandinavian IBS-segment.

GLOBAL COMPETITORS

BUSINESS MODEL

P —014

Direct sale & retail

Private sales channels

Ambassadors & counsellors

Reimbursement

Online

DIGITAL GUT - Sample Kit

DIGITAL GUT - Standard subscription

DIGTAL GUT - Premium subscription

Clinical dietitians

New analysis to their toolbox and option to becoming Unseen Bio certified.

General practitioner

A new offering to IBS patients instead of "Sorry, can't help you".

Public hospitals

Service provider of microbiome data analysis.

Private health care

- Private practitioners
- Private hospitals
- Health care insurances

Key opinion leaders

Scientists, Health care professionals influencers etc.

Database

Database for
- Research use
- Therapeutics and diagnostic methods.
- Personalized foods and supplements.

COLLABORATORS

P —015

Design, Identity & Legal	Research proposal	Mentor and office	Collaborative scientific and development projects	User groups / Letter of interest	IP-Strategy
BWD™	Nordsjællands Hospital	DTU Science Park	ABSALON UNIVERSITY COLLEGE / DTU Compute Institut for Matematik og Computer Science	Colitis-Crohn Foreningen / LANDSFORENINGEN FOR OVERVÆGTIGE	CHAS.HUDE

Soft funding agency	Android development	Advisor team	Microbiome network partner	Case study for bio-entrepreneurship
NORDIC INNOVATORS	DTU	✅	GREATER CoPENHAGEN	CBS COPENHAGEN BUSINESS SCHOOL

GREAT POO-TENTIAL
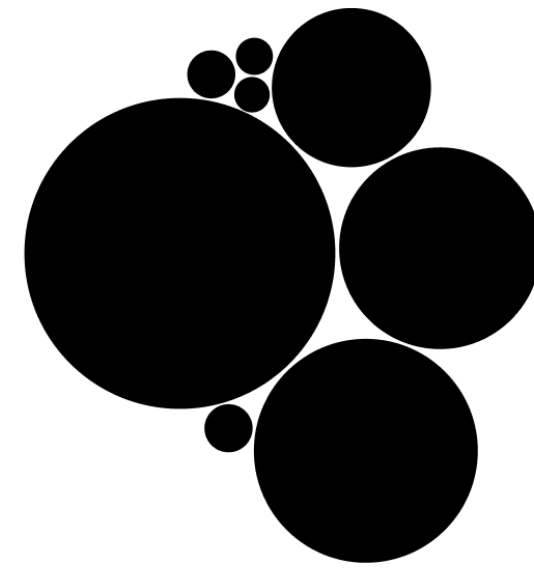
ENDORSEMENT MODEL

Our software engine - the digital model for microbial ecosystems are widely applicable for expansion into other Unseen verticals.
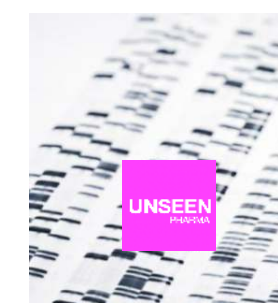

| Human | Pet | Vet | Pharma | Food | Agriculture | Sustainability |

UNSEEN Life

Pet health & well being

Horse performance
Pigs antibiotics use
Cows methane production

Production

Fermentation

Fertilising
Pest control

UNSEEN Waste

Treatment of waste water and sewage

IBS
IBD
Obesity
Diabetes
Atherosclerosis
Depression
Antibiotics

Performance
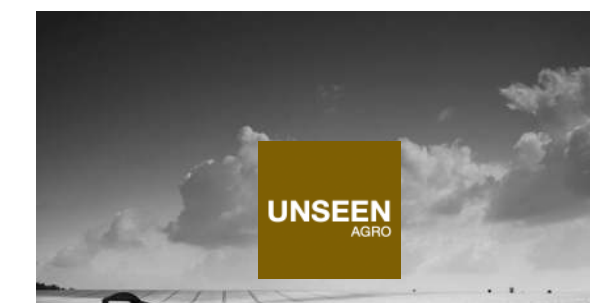Endurance

General health
Wellbeing
Body resilience