

TAKI-TAKI



A friend who listens & understands,
who motivates you for the better

PLEDGE OF SUPPORT FROM THE SOUTH WEST ACADEMIC HEALTH SCIENCE NETWORK – PREGNANT WOMEN & WELLBEING

QUESTION: How does Taki Taki as an application mentor pregnant women towards wellbeing interventions which make a positive contribution?

ANSWER: As they are devised and directed by the user, they become inherently personalised. We don't design the wellbeing interventions; the user does.

NEED: Increasing wellbeing interventions reaching pregnant women to personalise and increase the opportunities for targeted support for women and babies. This would be of interest for public health focusing on maternity and early years, supporting antenatal and postnatal care, and potentially the risks that women develop during pregnancy. This also links to patient safety issues, for example, using Taki Taki could result in early recognition of perinatal mental health deterioration which may not be revealed during antenatal appointments, or in a timely manner. Similarly, the use of health apps such as heart rate monitors may help highlight cardiac risk factors. Personalisation is essential and - to date - we don't design interventions that result in multiple targeted treatment options across physical and mental health.

HOW: We will combine a number of intelligence gathering systems coming from digital sources that are part of women's everyday lives to develop a personalised mentoring programme. To do this, we are working with researchers who have a strong evidence-base for their technologies (such as natural language analysis to identify risk factors for anxiety) and also readily available sources such as daily physical activities. We will be combining this with our expertise in user-centred design to develop the appropriate products and services.

STEPS BEING TAKEN SO FAR: I have spoken to researchers in the South West to understand the level of interest for taking this forward, and this is promising. I am also aware of other projects which are trying to look at how to use user-generated digital data to improve wellbeing. However, these products are not targeting pregnant women at the moment. Although it is early stages, we expect to have a working product within the next 20 months which will be ready for scale as the early development is taking this into consideration. We will be developing our business model in parallel to ensure that this does not hold up the key timelines.

SUPPORT BEING REQUESTED: We are seeking an initial discussion to be able to say that the AHSN is involved in the early stages. Then we would like to come back to you later this year and start to look at how you can help us develop in the right way for scale and also for being able to position ourselves to be successful with innovation funding bids.

WHO WE ARE: The researchers are mainly working within Psychology and, as the lead for this, I have experience of working within national public health projects (including digital) and in the South West for spreading technologies in primary care. I am very aware of how healthcare and wellbeing is delivered in this region but also nationally.

Dr. Rupa Chilvers, Programme Manager
The South West Academic Health Science Network



Section A: Taki-Taki three-slide pitch

What's the problem?

What is the solution?

Who is the target audience?

Who cares about the care in healthcare?

Are people connected with their health?

- Do they contextualise it with other aspects of their lives:
Their perceptions, beliefs and abilities?
- Or is health an isolated adjunct, which only becomes a problem when problems surface?

Does healthcare understand people?

- With the authority they hold, how much agency do clinicians facilitate? What do they witness?
- Are they involved with their patients, or with the parts which need fixing?
Are healthcare services simply businesses, driven by targets and focused on outcomes?

The 'care' in Healthcare is lost in the noise, and sometimes, so are we

Adaptable, behaviour-led wellness for your health



A friend in hand

- Motivating better wellness
- Incentivising achievement
- Understanding and advising
- Championing success
- Adapting as needs and situations change

For meaning and agency to thrive

Taki-Taki: Candidate maternity target markets

General wellbeing	Existing conditions	Arising health needs
<p><i>Nutrition & diet</i></p> <p><i>Activity</i></p> <p><i>Rest & sleep</i></p> <p><i>Mental wellbeing</i></p>	<p><i>Nutrition & diet</i></p> <p><i>Activity</i></p> <p><i>Rest & sleep</i></p> <p><i>Mental wellbeing</i></p>	<p><i>Gestational diabetes</i></p> <p><i>Anxiety</i></p> <p><i>Post Natal Depression</i></p>
<p><i>Supporting users to develop the means to set positive lifestyle goals and achieve them during pregnancy and post-birth</i></p>	<p><i>Monitoring specific aspects of wellness where there is a risk of complex issues developing if proactive awareness is limited</i></p>	<p><i>Monitoring key markers for early onset warning signs as well as providing contextual data to support diagnostic & clinical decision making</i></p>



Section B: Taki-Taki project proposition

Background to the purpose

Explanation of the solution

Scope of the proposition

Background: the basic need

Our lives require meaning so that we can thrive and survive.

One might describe it as a journey of many interconnected steps – or dances – dances which give us agency – to be witnessed – to live the lives we want for ourselves

These dances we perform often reflect a cyclical, but otherwise stable context, of assured repeatable events and activities. They may also evolve along psychological or societal vectors, which enable us to grow and achieve ongoing balance in a changing environment and world

Background: the compromise

But where society, culture and conditioning has affected our perceptions and undermined our meaning, our dances can become stuck and meaningless, taking from, rather than contributing to our lives to our detriment.

A situation which affects both our physical and mental health and wellness.

Background: the dance of poor health

The hardest dance is perhaps health – unpredictable, often unexpected and seemingly out of our control; where choices and experiences are directed by others, with modest-to-no context of our personal needs

Healthcare is not Health + Care, but an institutional approach to managing our bodies as a set of fragmented objects. The system provides the means to manage our health as best it can, but our agency to care for ourselves is socially variable and easily compromised by our education, our wealth, our environment and attitudes

We can't expect the system to change in line with our needs, so we need a way to help us appreciate what it means to care for ourselves and ultimately contribute to our community

Background: a need of a dance for care

We need to establish a renewed appreciation of our existence individually and as part of our culture – to ensure we each have a meaning that can unite us: improving our social and personal connection and enabling us to live thriving lives in a coherent environment and community

This project cannot solve all these needs, our premise focuses on the core element:

By motivating individuals to achieve valuable, sustainable changes in their lifestyle, they can own the ‘care’ in their healthcare in ways that help them

By managing their lives well, they can discover ways to support and participate in the lives of others in their community

Background: putting the care back in

The dance we want to create through this project is the dance of wellness for the self, the individual, in the context of their environment

By elevating our cyclical pattern of existence towards something personally valuable by introducing positive changes which evolve our context repeatedly and sustainably, we can achieve goals and experiences that allow us thrive

Background: the dance of care

So we need to support personal wellness by defining and building out from a personal context:

- What kind of dancer are we?
- What kind of dance do we want to perform?
- How will we conduct our performance and who will help us?

We believe that a viable audience to work with are expectant mothers: they have a heightened sense of the need to self-care and they are more likely to be engaged in their health circumstances than for other areas of medical care. Their ability to self-care through wellness may be highly variable and associated with their social demographic status.

Background: the Taki-Taki proposition

To develop a mobile-enabled digital platform which applies proven behavioural change and reward methodologies to perform the following support process:

- Help the user identify their context and goals they want to achieve
- Support the user to break their goals into meaningful and achievable steps, determining the motivations and enablers as well as the barriers and challenges
- Deliver personalised interventions for achieving individual steps, gathering feedback on their impact and success
- Continually optimise the design and delivery of the interventions, based on feedback, such that the chances of success being achieved increase

Background: the project approach

To achieve the delivery of this product, we aim to draw on the support of ImpactLab and Exeter Science Park/Set Squared to aspire to incorporate and deliver the following elements:

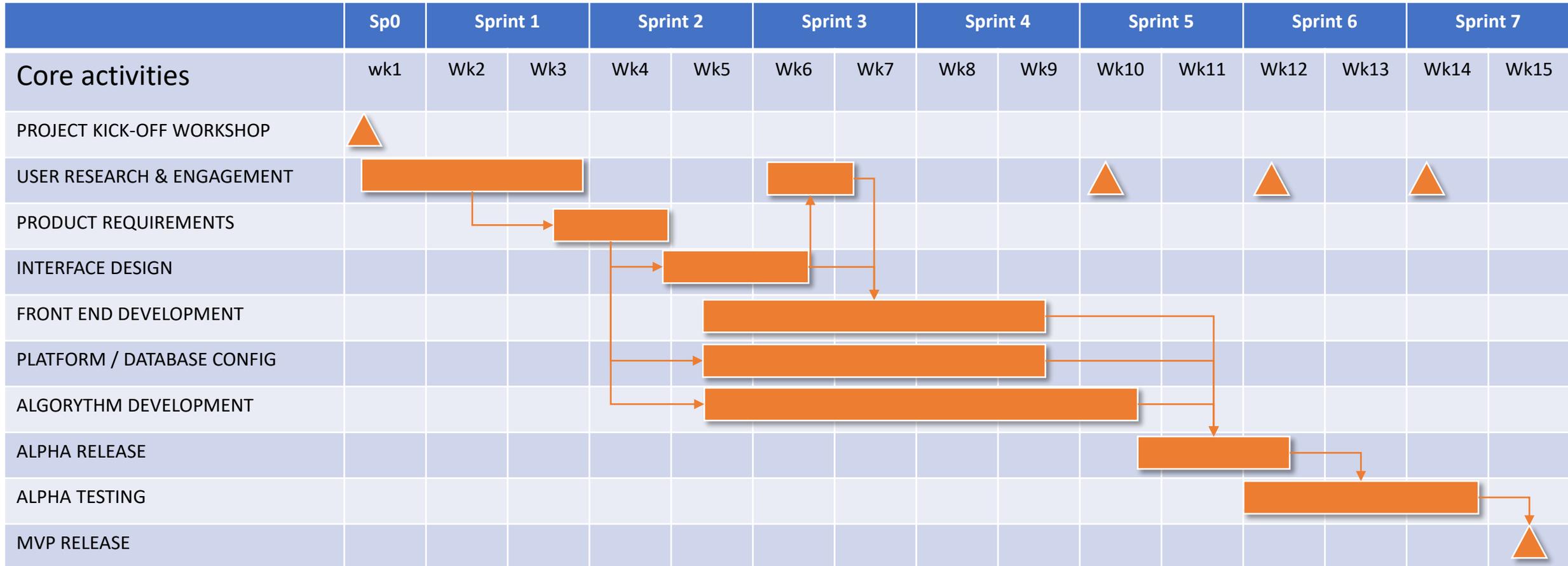
- User research to focus the delivery of an MVP for expectant mothers based in three regions with differentiated demographic segments (South West, South East, Greater Manchester)
- Collaboration with Plymouth University Behavioural Science Unit to apply Hook's theory model to design the user experience and journey
- Collaboration with Exeter University Department of Psychology to apply social identity theory in the bi-directional communication between TakiTaki and individual users
- Gather sufficient direct and indirect data passively and actively to support the longer-term ambitions of Taki-Taki



Section C: Taki-Taki project management

Estimated timelines

Estimated project timeline





Section D: Taki-Taki, the importance

A bold ambition

The future of health & care is data

What's inside Taki-Taki?

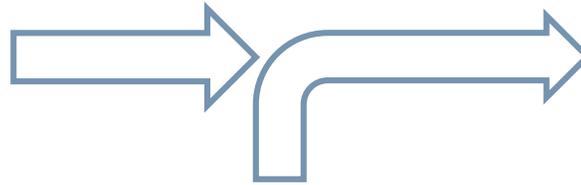
The biological and experiential basis

The bold ambition of Taki-Taki

- Determining personalised wellness and how to sustainably achieve it to bring meaning to our lives so we can thrive is the first step
- Our aim is to use this initial step to also learn how to keep users engaged over longer time periods with a digital platform by introducing a user interface that adapts to the users needs and behaviours
- Achieving this will open the door to extending the product scope in the following ways:
 - Gathering wider data sources through IoT and wearables to investigate general and personalized correlations between behaviours and their biological benefit
 - Developing advanced models based on these correlations to enable personalised co-prescribing of treatments with wellness programmes to optimise treatment and mitigate side effects
 - Using the data models to support the delivery of advanced 'omics'-type therapies by including evaluating the interaction between behaviours, biological co-kinetics and genotypes

A personal data-driven intervention that defines, monitors and influences wellness-led self-care

Models analyse behavioural effects and biological changes and iterate intervention controls



Iterative behaviour interventions invoke changes, altering biological conditions



Personal genotypes & biological data schema
base-line system conditions

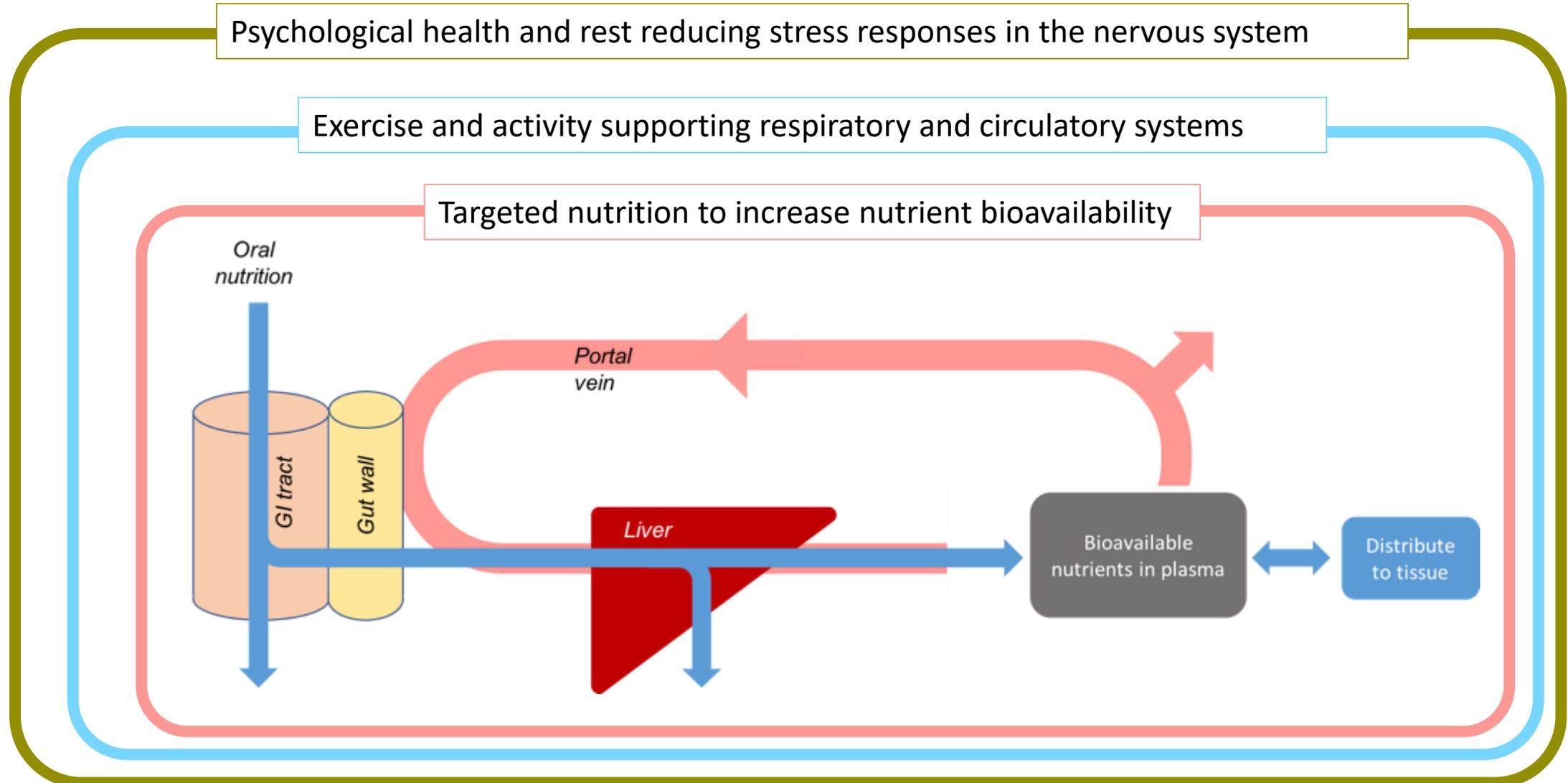
Sensors measure biomarkers and quality of behaviour interventions



Biomarkers are used to monitor trends, patterns and changes to system biology

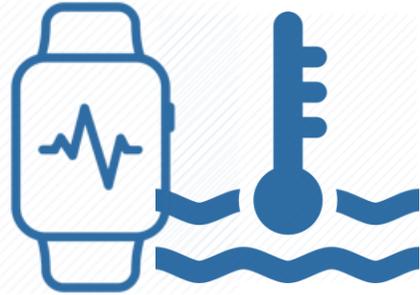


The measurable effects on system biology and gene expression of these interventions (involving psychological health, activity, sleep and nutrition), will be achieved by monitoring relevant biomarkers



What's will be inside TakiTaki?

Sensors measuring biological and physiological changes resulting from interventions and environmental factors



Analysis mechanisms for assessing sensor and biomarker data resulting in an iterative wellness model



An adaptive, digital interface, with the interaction woven into the user's lifestyle and health status



An intervention motor, fueled by biological feedback and behavioural feedback

An iterative wellness model, defined by large data sources and refined individually

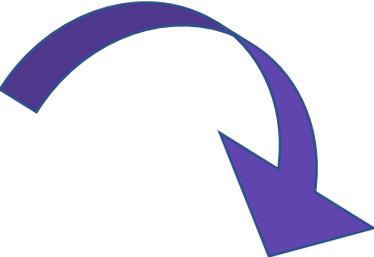
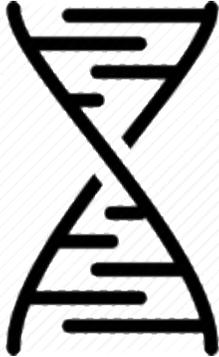


TakiTaki will rely on the following design and development roadmap



Design a viable 'digital skin' and understand how to achieve sustainable use

Validate a data schema and its relative and absolute meaning in our biological hierarchy



Model and validate how biological dynamics are altered by internal and external factors and interventions

Verify how these dynamics are measured using the data schema

