## accenture







Project no. 826278

## SERUMS

Research & Innovation Action (RIA)
SECURING MEDICAL DATA IN SMART-PATIENT HEALTHCARE SYSTEMS

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Project co-founded by the European Commission within the Horizon H2020 Programme

PU Public X

PP Restricted to other programme participants (including the Commission Services)

RE Restricted to a group specified by the consortium (including the Commission Services)

Confidential, only for members of the consortium (including the Commission Services)

## SETTING THE SCENE KPI CLARIFICATION BRAINSTORM POC APPROACH

## THE CHANGE MANAGEMENT APPROACH ENCOMPASSES INTERCONNECTED COMPONENTS

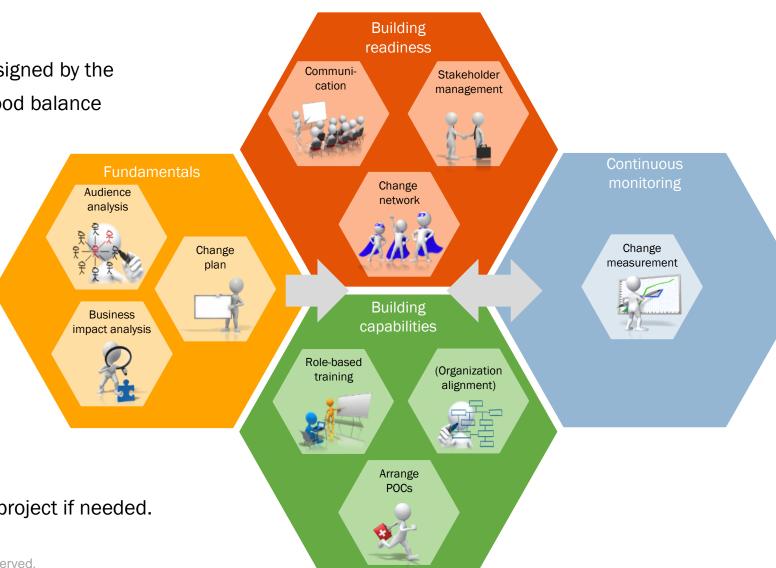
In order to effectively manage the change designed by the consortium, the approach should display a good balance

between activities that will focus on

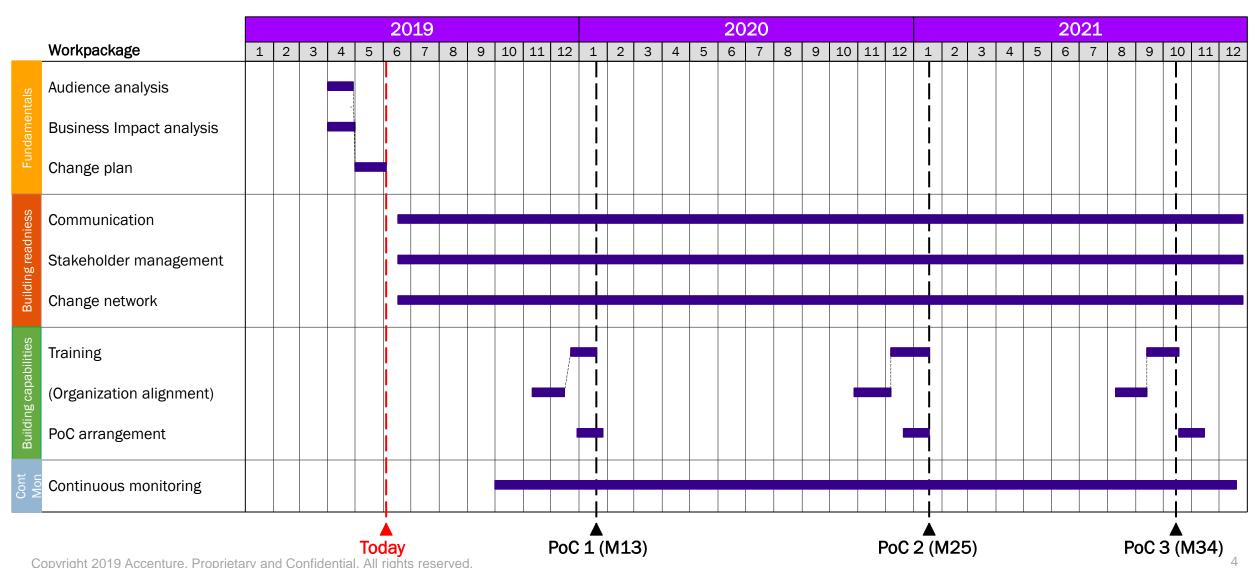
building readiness and building capabilities.

In order to start these activities, the fundamentals were collected so its known who is how impacted.

During the execution
of the POCs, it is necessary to
continuously monitor the effectiveness of the
activities, evaluate, update, and improve the project if needed.



## HIGH LEVEL PLANNING **CHANGE MANAGEMENT**



# FUNDAMENTALS BUILDING READINESS BUILDING CAPABILITIES CONTINUOUS MONITORING

## FIRST TWO ELEMENTS ARE INPUT FOR THE CHANGE PLAN



## **Audience Analysis**

## **Description**

- Identification of all people that are directly or indirectly impacted by the project, inside or outside the care organizations.
- Collection of information on impacted people about different aspects such as name, function, department, commitment, change impact, etc.
- The audience analysis is the foundation of the entire change management journey. This information is used as input for different change management activities as well as input for other work packages, e.g. IT (planning, authorization management, defining key users and testers).

### **Definition**

The audience analysis identifies all employees and other stakeholders that are impacted by the project and who will be subject to the different change management activities during the POC.

Understanding the target audience is a prerequisite to create the change management plan.

## **Output**

- · Audience Analysis
- Patient journeys

## **Business impact Analysis**

## Description

- Identification of the changes (AS IS vs TO BE):
   The changes in processes, roles, tools and of the organization itself; The link between the impacted roles and the changes;
   The scale of the impact for each role (high, medium, low, none) and for each type of change.
- An impact analysis allows the project to: Inform all stakeholders correctly about the changes resulting from the implementation; Determine and plan the POC; Develop plans to cope with local sensitivities of staff throughout the process.

## **Definition**

This analysis ensures that the impact on the affected stakeholders is well analyzed and that all involved, including the project team, have a correct understanding of POC, and the related impact on the organization and the various jobs.

### Output

- General business impact analysis per stakeholder group
- Business impact analysis per patient journey step

## **Change Plan**

## Description

This change plan is based on two main activities:

- Audience analysis
- · Business impact analysis

After validation of the change plan, the execution of the change POC can begin, starting with communication of the change plan to different parties. As the change activities have to be aligned with the actual situation, the change plan is a living document that can change over time.

### **Definition**

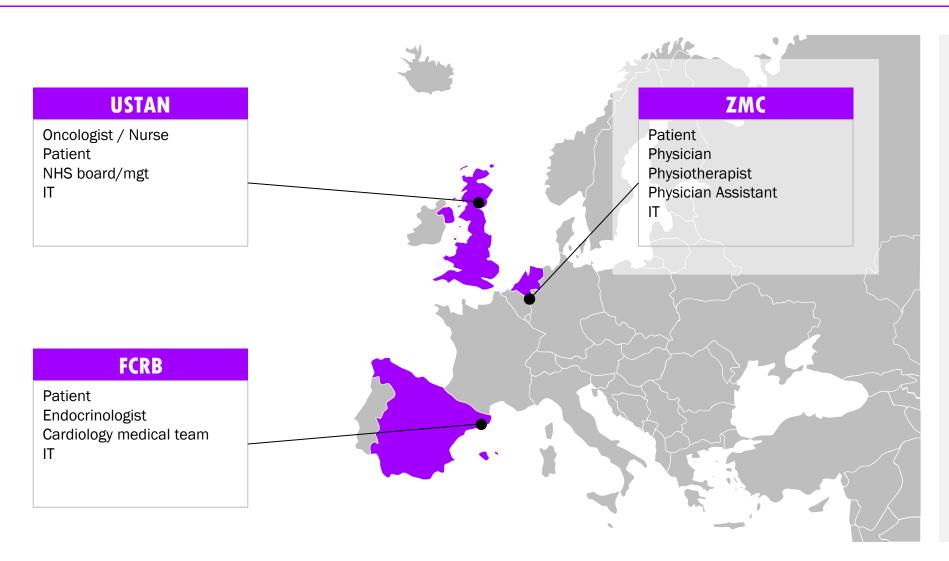
The change plan defines the solution to ensure adoption and benefits realization. It outlines the change management activities selected for the project as needed to move impacted audience along the change commitment curve

### Outpu

- Change management approach
- Change management planning

## FCRB, USTAN, AND ZMC ARE THE MAIN STAKEHOLDERS, THE OTHER PARTNERS ARE SUPPORTIVE





## **Partners**

- Zuyderland Medisch Centrum (ZMC)
- Fundació Clínic Barcelona (FCRB)
- University of St Andrews (USTAN)
- Accenture B.V. (ACC)
- IBM Haifa Research Lab (IBM)
- Software Competence Center Hagenberg (SCCH)
- Sopra-Steria Limited LTD (Sopra)
- The Université Catholique de Louvain (UCL)
- University of Cyprus (UCY)

## VISION OF EU-SERUMS



As a consortium, our aim is to enable the integration of home-based healthcare into a holistic treatment plan resulting in:

- more cost effective healthcare,
- a reduction in travel-associated risks and costs,
- a reduction in the need of hospitalization due to treatment complications (e.g., adverse drug reactions)
- an increase of the quality of healthcare provision, by allowing the incorporation of more frequent home-, work-and environment based monitoring and testing into medical diagnostics.

In other words we strive to deliver better, more efficient and more effective healthcare solutions that can achieve excellent patient-centric healthcare provision, while also complying with increasingly strict regulations on the use and sharing of patient data.

## More specific:

- Our solution improves efficiency through enabling safe and secure distributed processing of personal medical data as part of a smart healthcare system
- Increases resilience to cyber-attacks using secure authentication, data cloaking and other techniques
- Ensures the privacy of sensitive health data through privacy-preserving data analytics, data cloaking etc.
- Promotes increased trust in the safe and secure operation of the smart healthcare system

## BASED ON THE VISION A PATIENT JOURNEYS WAS DEVELOPED: ZMC - A NEW





HIP

Peter 70 year old patient

1. Peter has recently been

**3.** The physician has ordered physiotherapy and the use of an Activity Monitor (AM) with an E-Coach for 6 weeks. An AM measures if a patient is walking, sitting, lying, running, rotating

5. The Activity Monitor is a very energy consuming instrument and will last only 24 hours. The nurse at the hospital explained to Peter that he needs to charge the battery via the USB of his computer every evening when he goes to bed.

him. The physiotherapist sees that Peter 9. Two weeks before the annual checkup Peter is invited to the Peter's PHE and gives Peter a call to hospital for an X-Ray and receives the AM sensor from the PA for 1 week monitoring.

provided with a new artificial hip at Zuyderland Medical Center (ZMC), is dismissed and sent home after a short stay.

6. By plugging the AM in the computer, the information is transferred to Peter's PHE. The next day its available in his patient record in the E-Coach and in the SAP system of the hospital, so there the physician can monitor progress.

7. Peter is afraid the new hip will hurt

isn't doing the exercises correctly in

consult and advice to perform his

exercises correctly.

8. Peter improves his stability. 10. The results of the weekly AM and The improvements are X-Ray are positive. The physician acknowledged by the physician orders the PA to have a digital during his 6 weeks consultation. consult since he doesn't need to see him physically



for his Personal Health **Environment (PHE).** Peter agrees on sharing his injury concerning health information during a consult with physician.

4. The physiotherapist asks Peter if he will allow him to get insights in the medical information and AM monitor results in the PHE. Peter agrees, transfers the AM results on a daily basis and gives informed

consent via PHE.

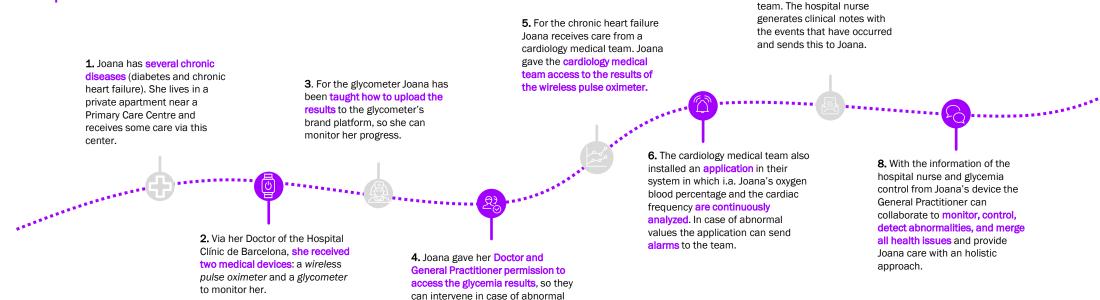
## BASED ON THE VISION A PATIENT JOURNEYS WAS DEVELOPED: FCRB - CHRONIC DISEASE MANAGEMENT

values.





Joana 85 year old patient



7. The specialists' team sends

information about de major

events to the Primary Care

## BASED ON THE VISION A PATIENT JOURNEYS WAS DEVELOPED: USTAN - CANCER **DATA GATEWAY**



**Emma** 38 year old patient

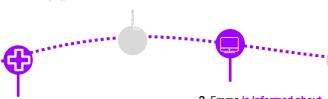
2. Emma agrees on using and sharing data in between treatment visits via the cancer data gateway and patient portal. Emma determines who in the medical team sees this information: The oncologist/nurse and 4. Via a user-friendly web application Emma can provide information on symptoms daily throughout the treatment. These **Patient Reported Outcome** Measures (PROMS) are Based on Questionnaires. Serious reported symptoms can be picked up by the clinical team and acted upon asap.

6. This combined data will help clinicians adapt treatments better to Emma as an individual patient which results in controlled toxicity levels and improved health outcomes. It uses data from several patients treated over the years with comparable characteristics.

8. One of the members of the clinical team (oncologist, specialist consultant, nurse, GP) notes in the system that there are irregularities in Emma's data and phones Emma to intervene.



her GP.



3. Emma is informed about how to use the web application and pass on relevant information to the clinical team.

**5.** The information Emma provided, data about patient characteristics, cancer information hospitalization data, and information about comorbidities are combined.

7. During the recovery at home between treatments there are signs that toxicity levels are high or that the condition of Emma is deteriorating.

9. During the phone call a decision is made for the GP/nurse to visit Emma at home and provide some additional medication to alleviate symptoms. Admission to hospital is not necessary. Patient improves.. 11. Steps (4-9) are repeated (if applicable) until the end of the treatment.

several months with treatment in hospital every 3 weeks). Emma also has comorbidity. As any cancer patient on chemotherapy, she might have higher toxicity levels as a result, but it is important to guarantee that the level does not go above level 2. Toxicity levels range from 0 (no toxicity) to 5 (so high it causes death).

1. A breast cancer patient Emma will start chemotherapy

in the Western General Hospital (WGH). A treatment plan

and regimen has been established (this will be over

## ANTICIPATED BUSINESS IMPACT FOR STAKEHOLDER GROUPS



## **Patients**

- Less need to travel to hospital
- Receive better healthcare
- More confidence due to on the spot monitoring of health/progressing
- Big brother feeling (always be monitored)
- More engaged with own health and health providers
- Easier contact via digital consult
- Patient empowerment due to control over his own medical data



## Medical personnel

- More effective time with patients
- More targeted treatment for individual patients with complex cases
- Quicker be able to give appropriate care to patients
- Be able to diagnose and predict treatment based on richer and more complete medical info
- Hospital admissions and complications are less likely
- No need to manually share medical data with the patient
- Improved quality of care



## IT department

- Increased workload
- Security risks due to more sharing of medical data and connections to other external systems
- Able to share data with external partners (e.g. patients/care organisations) within the GDPR and national laws



FUNDAMENTALS
BUILDING READINESS
BUILDING CAPABILITIES
CONTINUOUS MONITORING

## BUILDING READINESS: ACTIVITIES TO ENSURE APPROPRIATE LEVELS OF CHANGE READINESS



## Communication

## **Description**

- Managing communication helps this program to be successful. Effective communication will gradually take stakeholders through the various desired stages of awareness, understanding, and acceptance.
- Communication must be proactive and frequent. It is an ongoing process starting early in the project and continuously adapted to audience's needs.

### Definition

Communication is about engaging stakeholders to live the target vision, values, strategy and behaviors.

It is the process of delivering key messages to stakeholders at appropriate times, using effective vehicles, and the collection of feedback to address concerns.

## **Output**

- Communication plan in detail
- Communication
- Pitch program story

## Stakeholder management

## Description

A stakeholder is an individual who:

 Is directly or indirectly impacted by the changes; Can support the change or oppose it; Can influence others in a positive or negative way; Can have impact on the project.

Stakeholder management involves:

 Identification of current and target change state (i.a. awareness, understanding, buy-in, commitment); Managing and plan the journey to the desired state via involvement and two-way communications;

The objectives of stakeholder management are to: Ensure that the key stakeholders understand the project and the benefits; Inform and engage the stakeholders from the beginning.

### **Definition**

Stakeholder management involves the identification of representatives for all the groups of people involved in or impacted by the change, and then managing their journey to the desired end-point via involvement and communications.

## **Output**

- · Continuous stakeholder analysis
- · Appropriate interventions

## **Change Network**

## Description

Creating a strong change network consists of implementing a support structure of individuals with strong peer influence and who really understand the changes being proposed by their active involvement. These individuals need to be ready to own the change and motivate others within their area to do the same. This helps to ensure the change will be sustained. This applies for the period before, during and after the PoC.

## **Definition**

A change network is a network of individuals who can support and defend the change throughout the organization. With a change network you install a two way communication between the program team and impacted groups in an informal way.

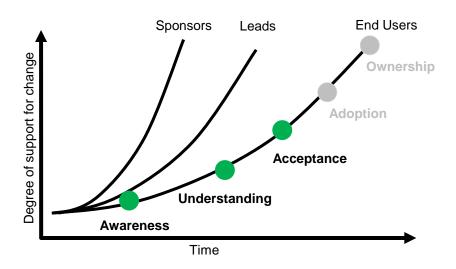
The objective is to build a support structure of motivated people who really understand the changes being proposed and are ready to motivate others within their area.

### Output

- · Change agents identified
- Change network facilitation through information sessions, face-to-face meetings, etc.

## **COMMUNICATION IS CONSTANTLY ADJUSTED TO THE PROCESS**





Enough time will be scheduled to provide room to process and understand the change, if patients, medical employees/leaders and IT specialists feel rushed at any stage, they will feel uneasy and unprepared to move forward. The communications plan is a key to keeping the momentum from start to finish.

**Awareness:** Advance notice what is expected, what is the objective and will be happening will help dispel the potency of the rumor mill. The information comes from leaders, and nobody feels left in the dark.

**General Understanding:** Rolling out information about your EU Serums in bite size pieces will provide stakeholders the ability to accurately picture what the end result will look like.

**Personal Understanding**: Once all stakeholders have an idea of what exactly can be expected, we will help them to make a personal connection to the new way working/possibilities. Role based benefits should be highlighted, as well as other advantages such as access to information that they haven't had before.

**Acceptance**: Leaders and change agents will assist end-user organizations in championing the change, and leverage their knowledge to answer any questions that come up.

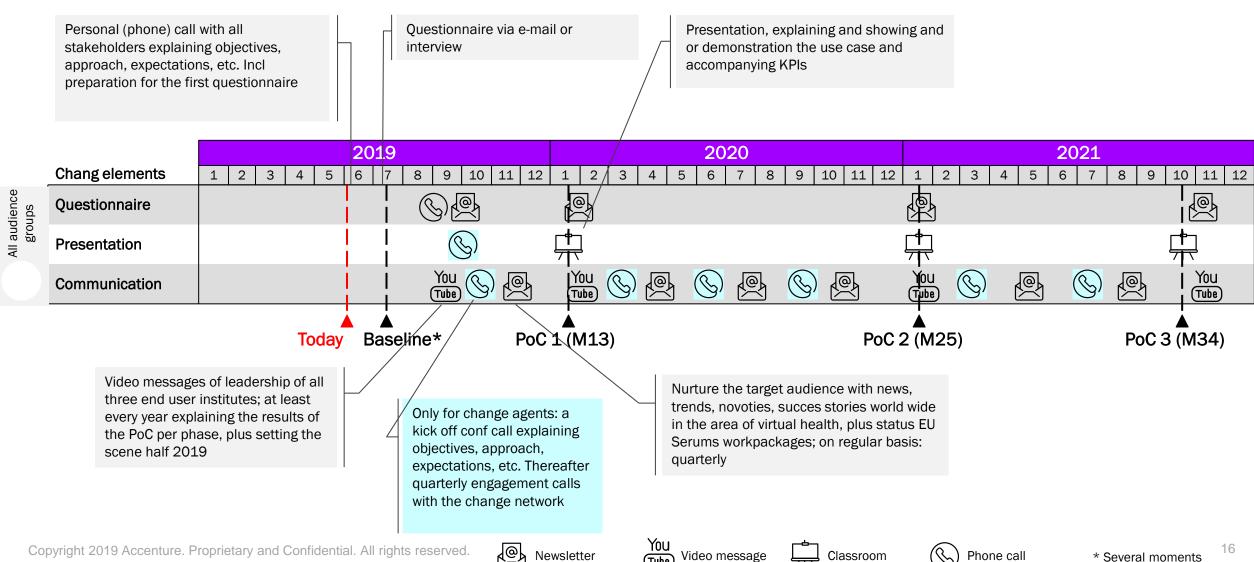
Stage explained below are not applicable for EU Serums project. This stages will become relevant and important when the proof of concept is successful and the new technologies will be implemented.

**Adoption**: Knowledge transfer and training ensure that the users understand the ERP, and are able to complete tasks without workarounds, enabling the software to work effectively. You are all in this together.

**Ownership:** Celebrate! Your employee and leader commitment and engagement has driven the success of this project. The ERP belongs to them now, and you will proceed into the future with the confidence required to make it work.

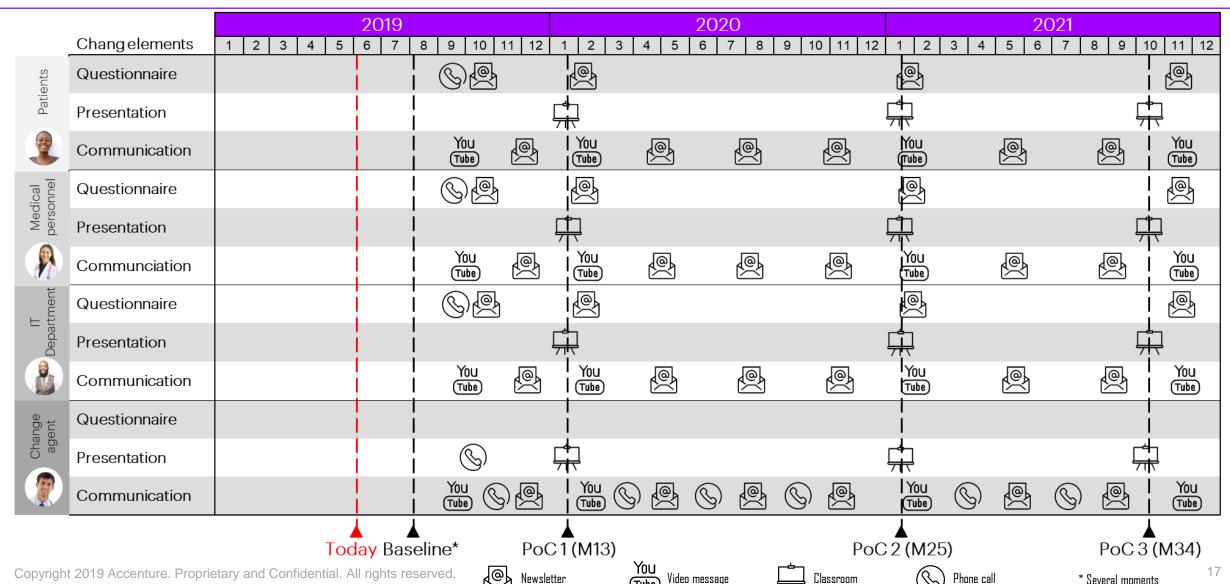
## **COMMUNICATION OVERVIEW - APPROACH**





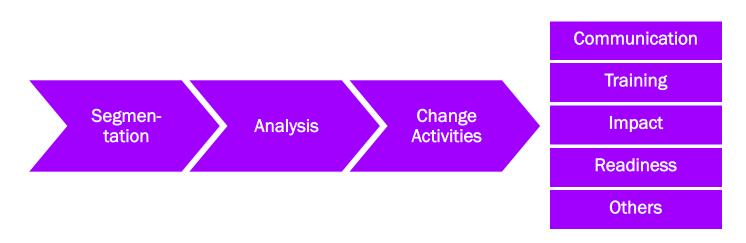
## **COMMUNICATION OVERVIEW**





## ONGOING ANALYSIS OF READINESS BY STAKEHOLDER GROUPS AND APPROPRIATE INTERVENTIONS





Stakeholder segmentation is carried out to identify the **WHO**, i.e. the target audience, who are affected by EU Serums project.

Stakeholder analysis is carried out to understand **HOW** the respective stakeholder groups are affected by the new technologies/possibilities.

The results of the analysis will provide a basis for planning the change activities such as communication, training, impact, readiness, and user support etc.



Approach is iterative and cyclical and provides insight to stakeholder groups in order to develop, execute, and measure change activities

## THE CENTRAL TEAM GUIDES/FACILITATES LOCAL CHANGE NETWORKS ON CHANGACTIVITIES

## Change sponsor

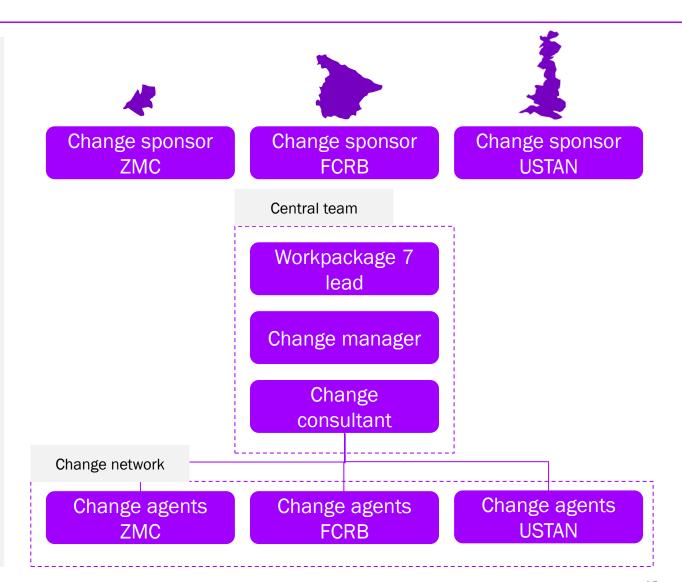
- Advocates of the EU Serums objectives
- Recognises participation
- An internal figurehead for the EU Serums objectives

## Change manager/consultant

- Develops approach and defines and executes the change plan
- Identifies, mobilises and educates the change agents
- Develops or help develop and deliver PoC

## Change agent

- Internal sponsor of the EU Serums objectives
- Facilitates in delivering change Interventions
- Monitors and promotes the thinking steps by communication, coaching/training
- Creates enthusiasm, change energy and shares success stories amongst co-workers
- Eyes and ears of the project team
- · Go to person for questions of particular location
- Main contact to arrange PoCs onsite
- Has important role before, during and after the different Proof of concepts



CONTEXT
FUNDAMENTALS
BUILDING READINESS
BUILDING CAPABILITIES
CONTINUOUS MONITORING

## BUILDING CAPABILITIES: ACTIVITIES TO PREPARE THE ORGANIZATION FOR CHANGE



## **Role-based training**

## **Description**

 The PoC approach is to explain and show (demo and/or presentation), therefor no training is required. The change team, local and central will prepare the presentation and demo's together.

## (Organization alignment)\*

## Description

During the organization alignment, the impact of an implementation on the roles and responsibilities of the people will be analyzed. When the results of the PoCs are positive the way of working will change in the future and the organization needs to be adapted to this. For stakeholders, this might be the reason for Questions. The project team should be prepared to answer these questions in order to take uncertainty of the stakeholders away. The project team will have to work with i.a. HR, IT department and management anticipate on questions that might come and think of answers that show these changes typically happen in care organization environments.

## **Definition**

It is likely that system and process changes have an impact on the roles and responsibilities of the people impacted. A clear high level, typical, design of the future organization should be developed to make sure questions concerning the changes in the organization can be addressed.

### Output

- Prepared questions on anticipated questions concerning the impact on the new organization.
- \* The actual alignment is out of scope

## **Arrange POCs**

## Description

During the execution of the PoCs, the project team will be intensely called upon to provide support to end-users. This support will be time consuming and should not be underestimated.

This change plan and the activities and output that are the result of this change plan will be the structure to prepare for the execution of the PoCs. By leveraging the knowledge of the change network in first line, the project team will populate the 2nd line where they can focus on bug fixing, change requests, etc.

### Definition

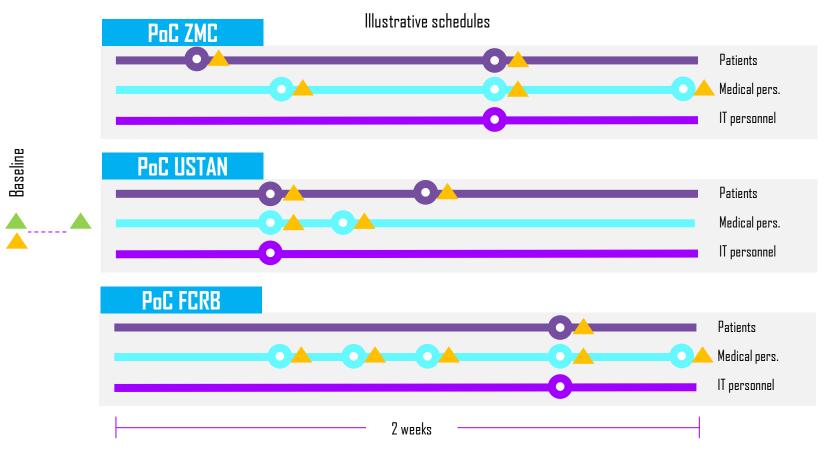
During the execution of the PoCs, support will be provided. The objective of the support structure is to answers questions of endusers and to resolve any issues that may arise.

## Output

Well-organized PoC

## POCS WILL BE AN EXPLANATION & DEMO/PRESENTATION PER USES CASE DURING A CONDENSED PERIOD OF 2 WEEKS





## Pre-requisities PoC

- Presentation/demo of uses case & quantitative KPIs have been tested and are final
- All quantitative KPIs have been measured before the start of (each) PoC
- PoC meetings have been planned and attendance is according to guiding principles

## **Guiding principles**

- $\bullet$  Baseline measurement for all KPIs have been executed before the start of the first PoC
- As much as possible a PoC will be done on 1 day for all stakeholder groups.
   Otherwise separate meetings will be planned
- Max duration per PoC is two weeks; the same two weeks for all end users
- Only experienced\* users (patients, medical personnell)
- KPIs will be measured at at least two end users, preferably at all three end
  users
- Quantitative measurable KPIs...
  - will be measured upfront of the PoC meetings
  - will be explained and presented during the PoC meeting; preferably in demoformat
  - will be explained with use of the appropriate use case
- Qualititative measurable KPIs will be measured right after (or during) the PoC meetings
- Inclusivity for all stakeholder groups is essential
- # of patients per PoC per location is minimal 30; more is welcome
- # of medical personnel per PoC per location is minimal 10; more is welcome
- We strive to have as much as possible to have the same individuals per stakeholdergroup at all PoCs of the project, idem for the change team (local and central)



<sup>\*</sup> To be defined what criteria (duration of using the application(s), inclusion, etc.

CONTEXT
FUNDAMENTALS
BUILDING READINESS
BUILDING CAPABILITIES
CONTINUOUS MONITORING

## **CONTINUOUS MONITORING— CHANGE MEASUREMENTS**



## **Continuous Monitoring**

## Introduction

There are different ways to measure the readiness and acceptance for changes. Considering this is a proof of concept, and not a implementation of a change, the continuous monitoring differs slightly from a 'regular' change. Still, with the overall objective in mind key parameters like: audience's engagement level with the objective, KPIs, and change readiness will be monitored over time.

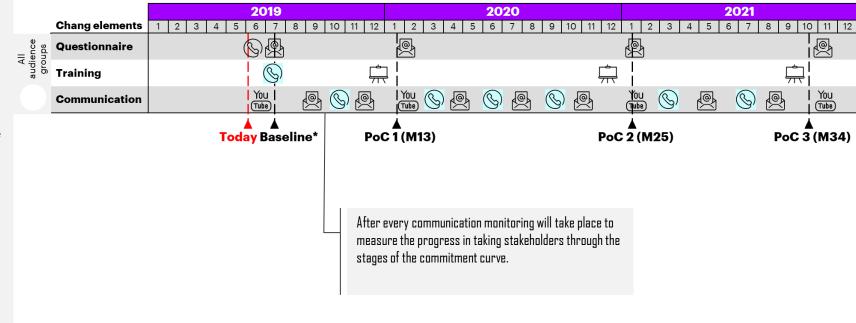
## **Definition**

Change readiness and acceptance measurement measures and tracks the change progress to ensure maximum absorption of the change by the target audience. It is a key activity that must be carried out to ensure that the program is on track and the change plans adjusted if not.

The measurement will focus both on the readiness for and the acceptance of the changes by the impacted stakeholders.

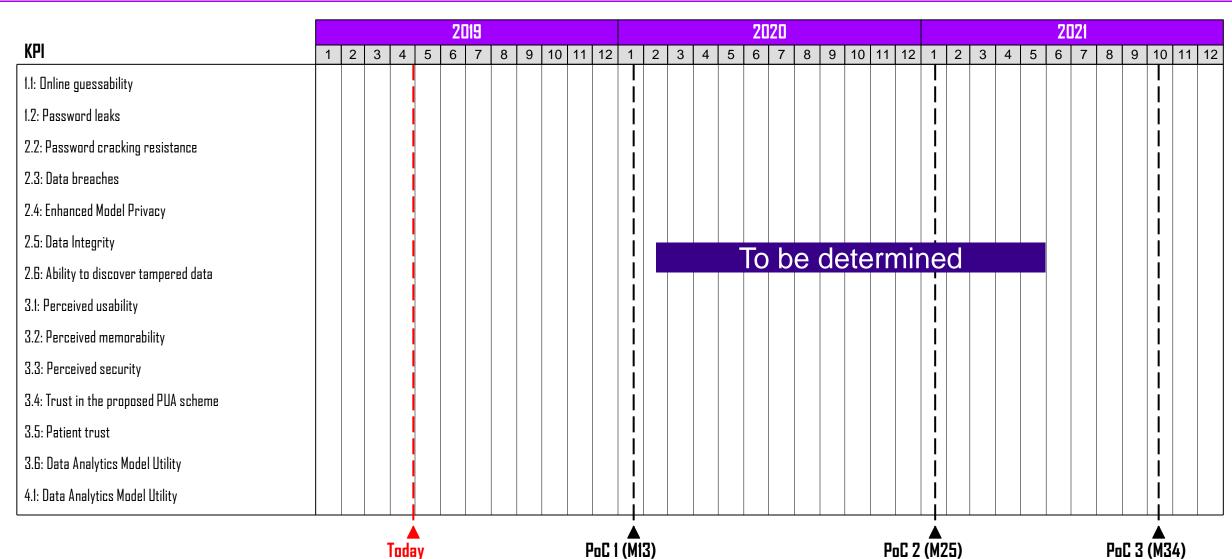
## **Output**

- · Detailed continuous monitoring approach
- Monitored results and appropriate actions/interventions



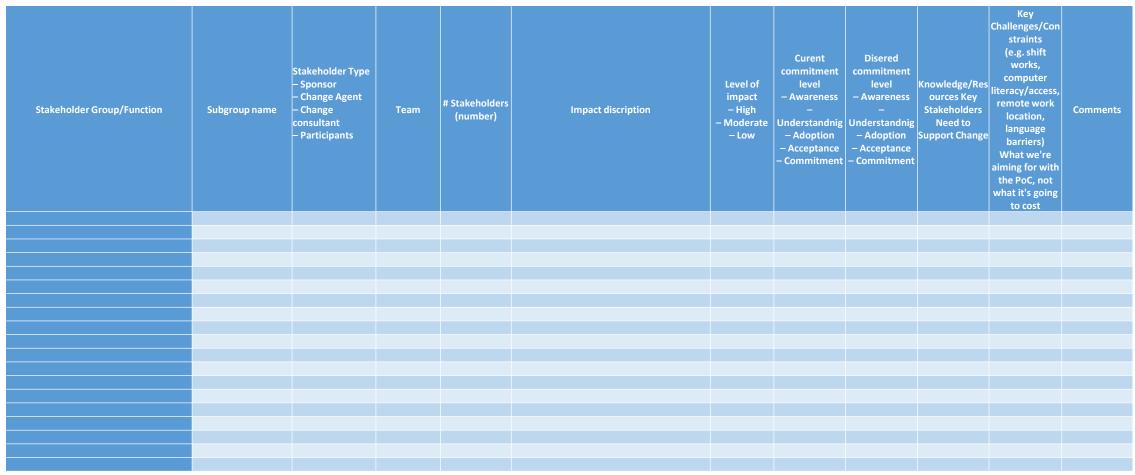
## **APPENDIX**

## HIGH LEVEL PLANNING KPI MEASUREMENT TIMING FOR ALL USE CASES



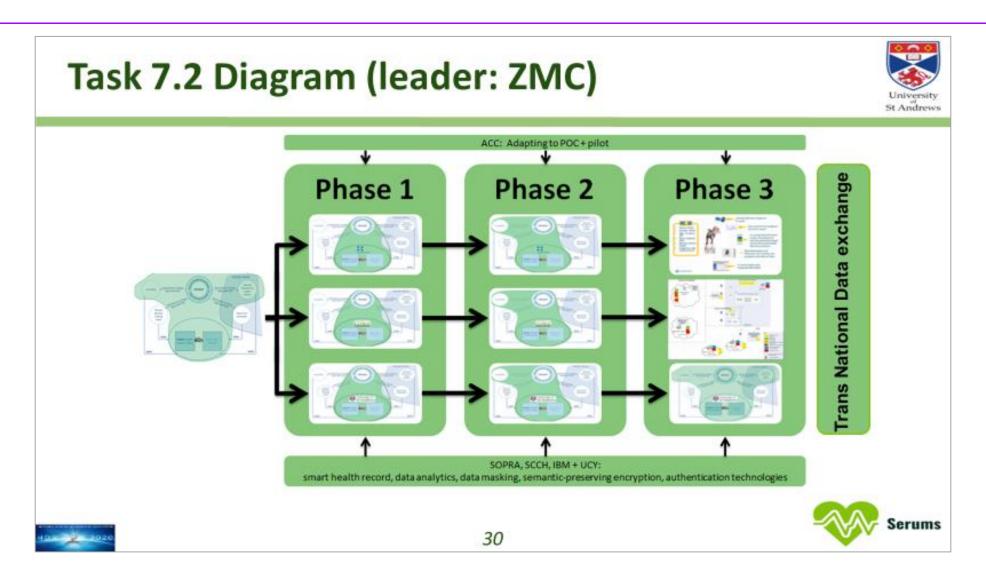
## STAKEHOLDER ANALYSIS TEMPLATE

## For illustration purposes



Stakeholder analysis template link

## PHASES OF THE EU SERUMS PROJECT AS STATED DURING THE KICK OFF IN JANUARY 2019



## ANTICIPATED IMPACT STAKEHOLDER GROUPS USE CASE 1. ZMC



## **Patients**

- Less need to travel
- More health insight due to availability of outcomes of onthe-spot monitoring of health/progressing
- Easier health insight due to direct access in hospital record
- Big brother feeling (always be monitored)
- Easier contact via digital consult
- Patient empowerment due to control over his own medical data
- Improved quality of care



## Medical personnel

- Be able to diagnose based on richer and more complete (realtime) medical info
- More effective consultation after 1 year
- No need to manually share medical data with the patient
- Improved quality of care

## IT department

- Security risks due to more sharing of medical data and connections to other external systems
- Able to share data with external partners (e.g. patients/care organisations) within the GDPR and national laws





## ANTICIPATED IMPACT STAKEHOLDER GROUPS USE CASE 2. FCRB



## **Patients**

- Decrease number of visit to the Hospital
- Improve the patient empowerment due to check and control his own medical data
- Feels a better carefulness by his medical team
- Easier contact feeling to the Hospital
- Improve adherence to medical treatments

## Medical personnel

- Optimize the number of necessary hospital encounters
- Better patient diseases outcomes with the data nearly online
- Medical team and patient share relevant patient data
- Improve the quality of medical care

## IT department

- Security risk due to more online traffic of medical data inside-outside hospital network
- Share data within GPDR
- Take care of the patient as another user of the system
- Manage and control the patient medical devices







## ANTICIPATED IMPACT STAKEHOLDER GROUPS USE CASE 3. USTAN



## **Patients**

- Less likely to suffer severe toxicity or complications as a consequence of the chemotherapy treatment and complications related to her comorbidities
- Healthier and more confident in between treatment sessions due to on the spot monitoring of health/progressing
- More engaged with own health and health providers
- Big brother feeling (always be monitored)



## Medical personnel

- More targeted treatment for individual patients with complex cases
- Quicker to be able to give appropriate care to patients and intervene as needed
- Be able to predict treatment evolution and fine-tune given treatment to a patient based on richer and more complete medical info
- Hospital admissions and complications are less likely



## IT department

- Increased workload

