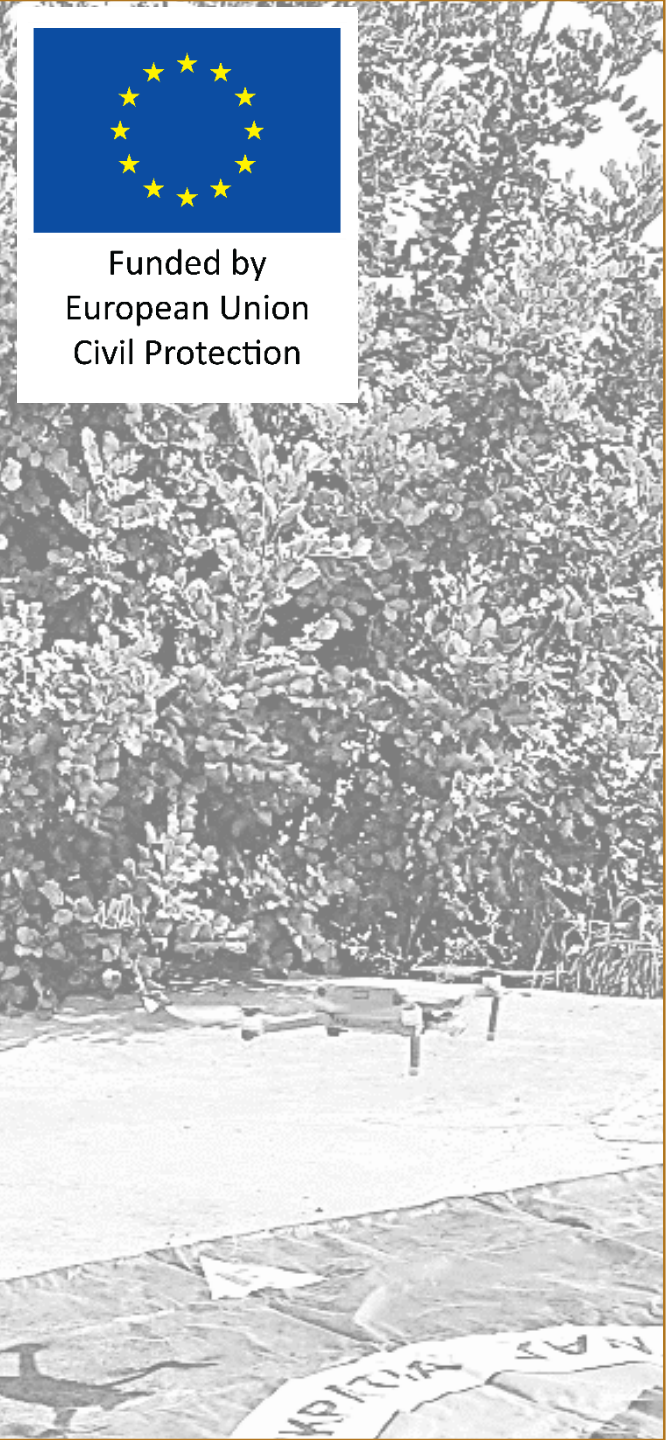


Funded by
European Union
Civil Protection

Part II
Testing and Evaluating AI technologies for disaster management

Training Workshop

Disclaimer

The project has received funding from the European Union's Call for proposals in the field of Civil Protection under the Union Civil Protection Knowledge Network under grant agreement 101017763.

Funded by
European Union
Civil Protection

ARTION

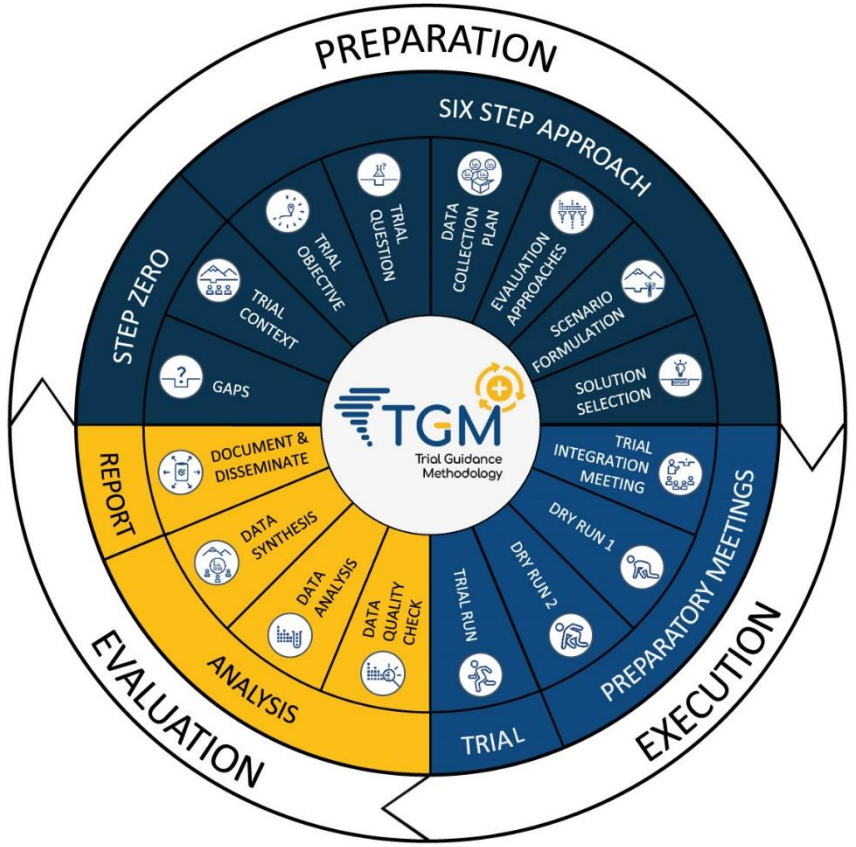
Table of contents

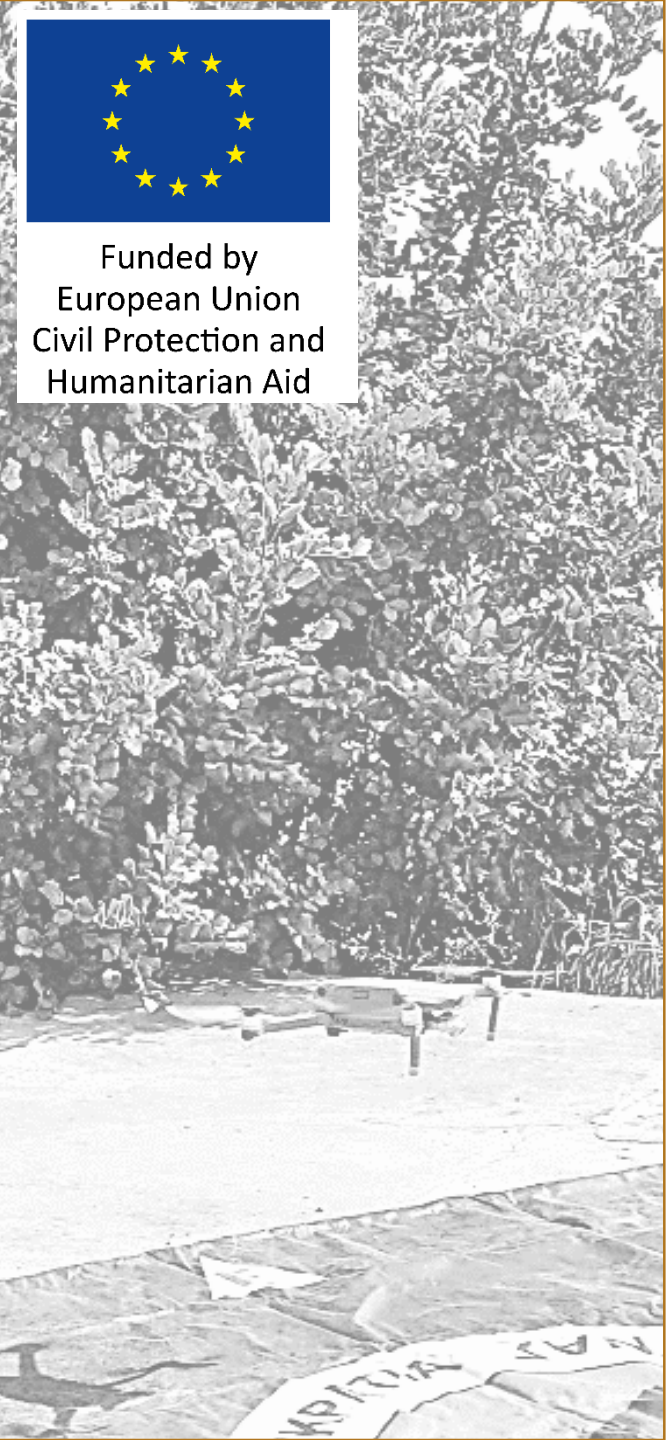
Part A – learners:

- Advancing the testing of innovative technologies
- TGM: method reccomended by ROE EC
  - About TGM by DRIVER+ project
  - Mindset, orientation and iterativeness
  - Phases and steps of TGM

Part B – doers:

- Integration meeting
- Checklists for each step
- Trial Action Plan





Funded by
European Union
Civil Protection and
Humanitarian Aid

ARTION

PART A

This part carries introductory information for better understanding of trialling: what it is, how to do this and if it is worth it?

University of Cyprus
KOÏOS
Research and Innovation Center of Excellence

CYPRUS CIVIL DEFENCE
ΠΟΛΙΤΙΚΗ ΑΜΥΝΑ ΚΥΠΡΟΥ

REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

Université de Lille
CRIStAL

C!K Centrum Informacji Kryzysowej
CBK

Introduction

Advancing the testing of innovative technologies

Why should we apply any method at all?
What is wrong with our way?

- well defined tests achieve more precise results
- structured setup benefits the reproducibility*
- a co-creative approach helps to address stakeholders needs
- knowledge-network approach – applying integrated set-up and testing methods for AI allows exchange of knowledge among different entities across Europe and sets a benchmark for future solutions.
- Your experience is key, but it may not be enough.

*especially when done by others

ARTION

Why DRIVER+ method?

- Overall robust method to evaluate innovative solutions
- Tested and refined during 5 large-scale events
- Recommended by REA – whole DRIVER+ project (which main result was the TGM and tools supporting it) was related as a “success story”
- SRC PAS coordinated all D+ Trials, witnessing all benefits and limitations of TGM
- SRC PAS is a co-creator and educator for TGM Training Module

Where you can find TGM?

- https://tgm.ercis.org/
- https://www.driver-project.eu/trial-guidance-methodology/

- English
- German – soon avilable
- French
- Polish
- Italian
- Spanish
- Dutch
- Swedish
- Estonian

Mindset, orientation, iterativeness

Principles of TGM & what is a Trial actually?

Differences between exercise and trial

EXERCISE	○ Training ○ Aim: improving operations with the status-quo equiptment and procedures ○ Focused on human behaviour & knowledge
TRIAL	○ Solution Assessment ○ Aim: capability building in Crisis Management (CM) / bridging CM gaps ○ Focused on bringing innovation, changing processes, new technologies

ARTION

WHY?
The reason to have a trial:

A rock in your shoe or a promising new solution?

To identify specific capability gaps and/or problems you want to address in your trial.

- Problem driven: Find a bridge to your gap
- Solution driven: Find a gap to your bridge

Principles of a trial: MINDSET

Do it so it is done?

or

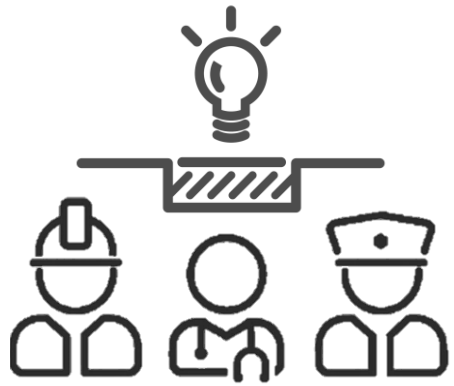
Add some extra work and do it in a way the results are not only true for me but also usefull for all my colleagues from different countries?

Do you want to conduct a simple test: validating “if the tool works?”

or

Do you want to check how a solution (a tool that was properly implemented) changes the job?

If you select latter, you will wan to have a trial: a structured and well thought out process that shows a real impact of introducing innovation to your work environment.



Orientation ->  MAIN OBJECTIVE

to assess innovative solutions

in

non-operational but realistic contexts
(such as a trial)

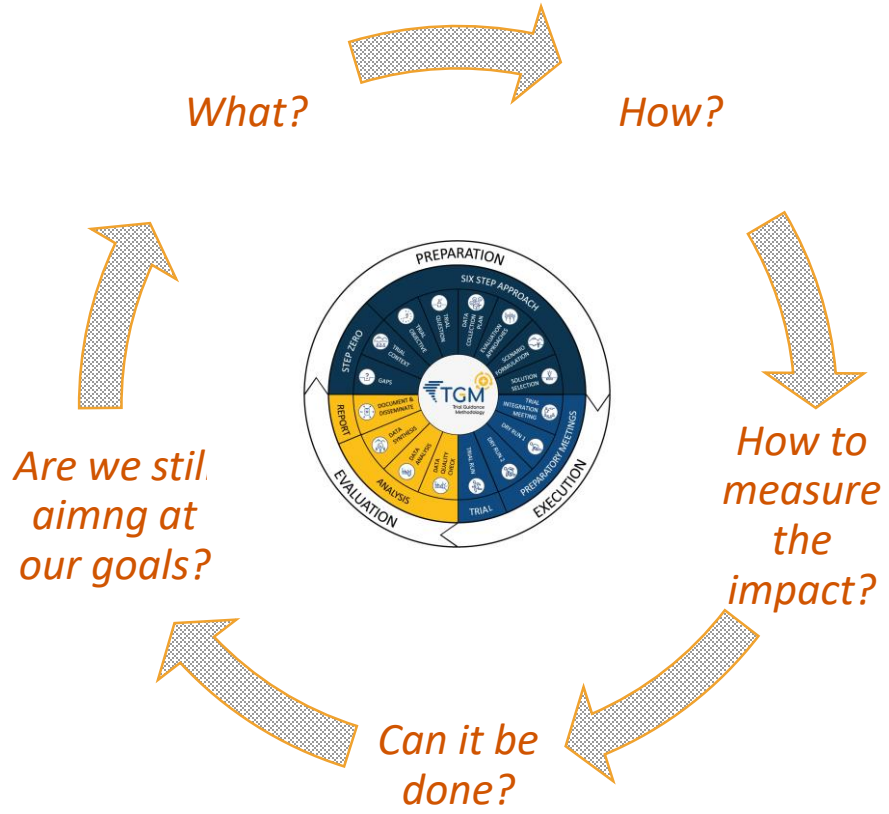
through

a structured approach.

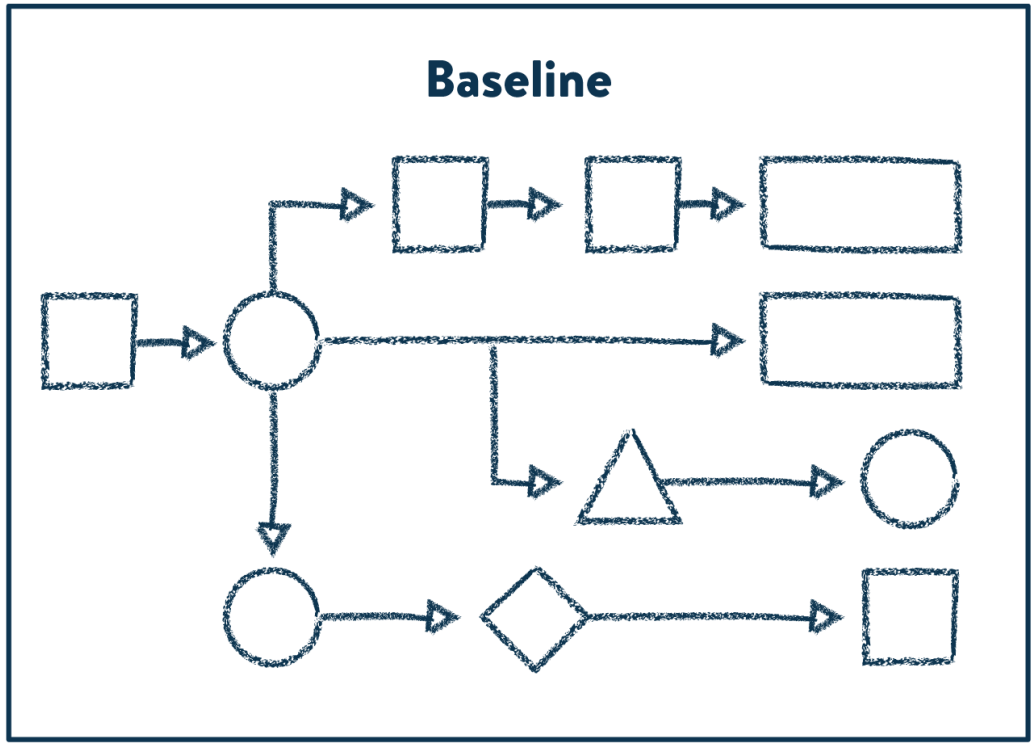
Principles of a trial: iterativeness

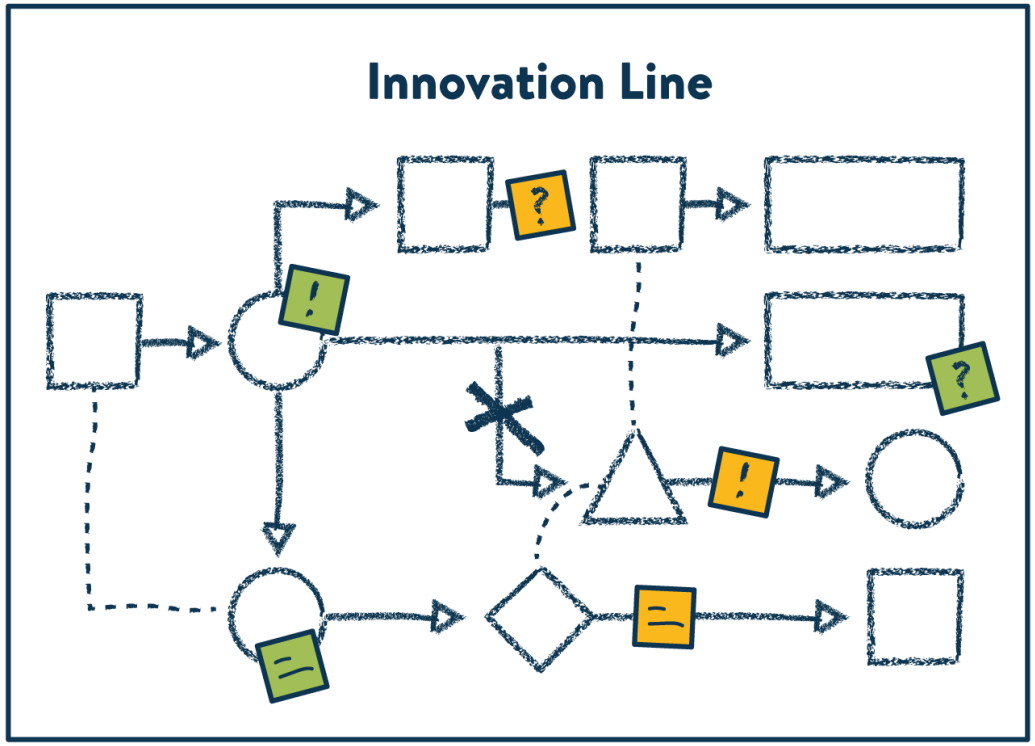
Process will not be finished in a single siting. You will need to plan it, check it, adjust it, try it and finally – run it.

In each step you are allowed to adjust previous decisions, so you finish with a realistic environment and practical metrics.



Principles of a trial:
baseline and innovation line -





Principles of a trial:
Three dimensions of a trial

Trial Dimension

To validate, if the trial you prepared was realistic enough and if it allowed solution to be tested in the eyes of participants.

Crisis Mgt. Dimension

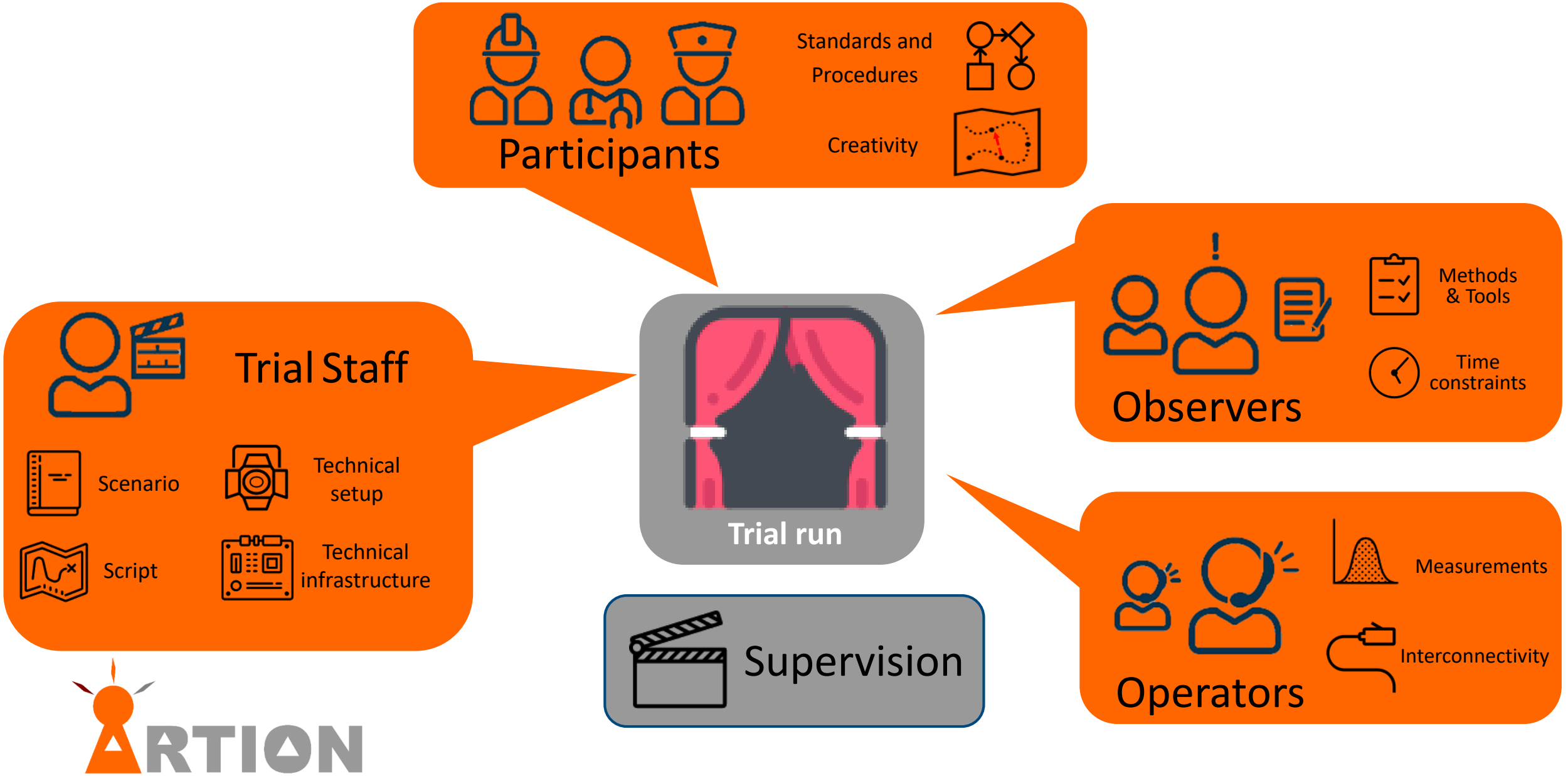
To validate the impact that trialed solution had on crisis management processes.

Tool Dimension

To validate the tool itself, its efficiency, correctness, easy of use.

ARTION

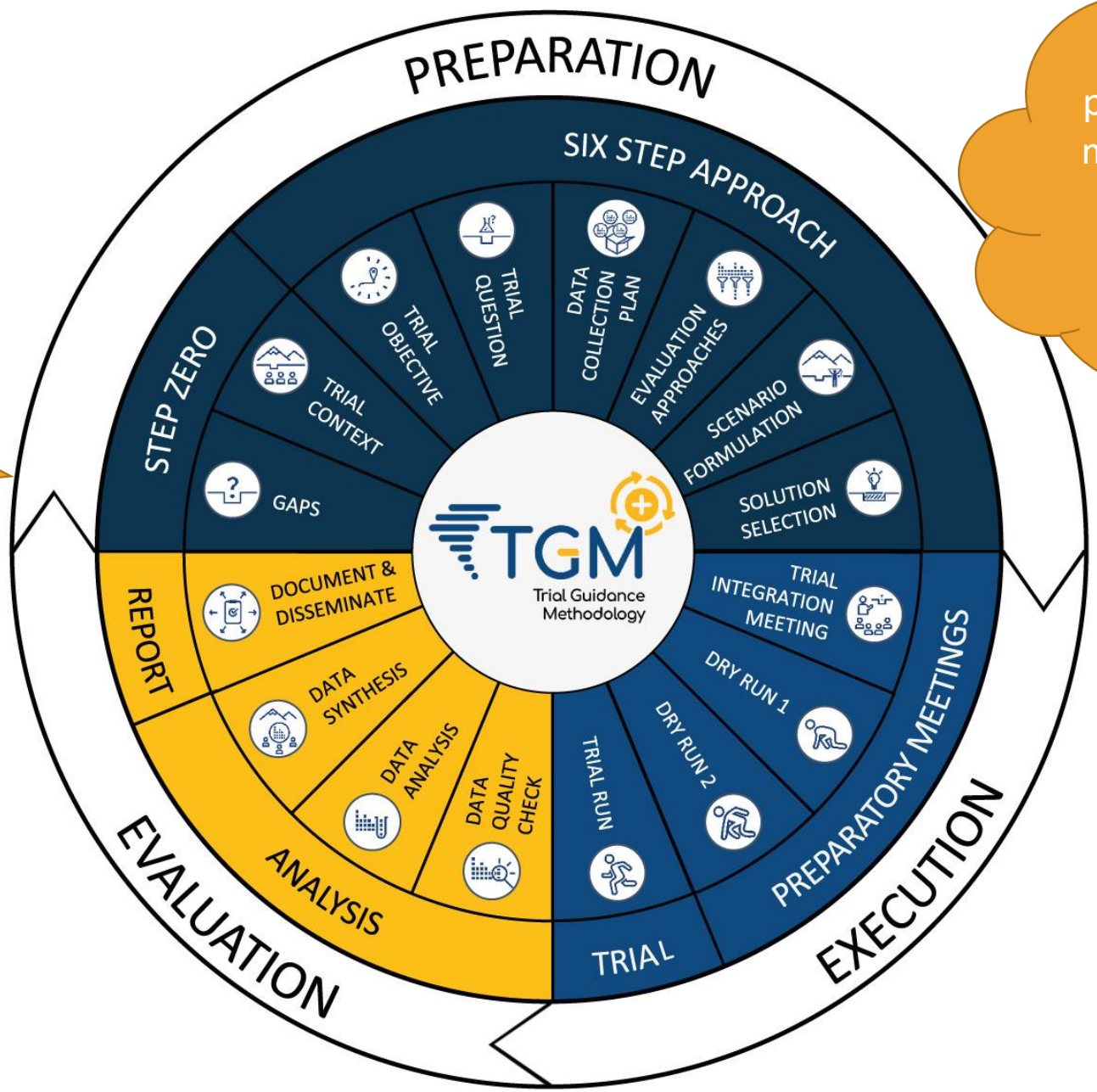
Principles of a trial: all elements infuences the outcome



Structure of TGM

Process of creating and running a trial

Start from here



Following steps in proposed order sometimes might be difficult, but what is really important is to finally end up with all elements ready

ARTION

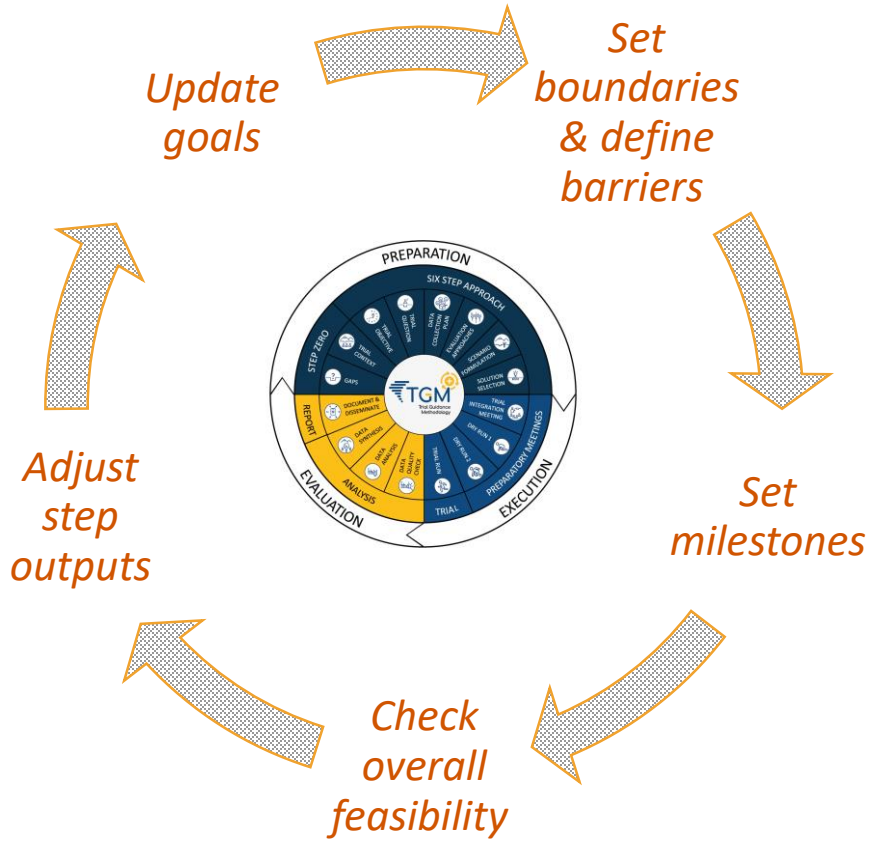
Iterativeness is a key

Every time your information changes, you might want to update other parts of this cycle.

A small change in research question?

Guess we will need to look back at KPIs, adjust data collection plan and correct the scenario to address that changes…

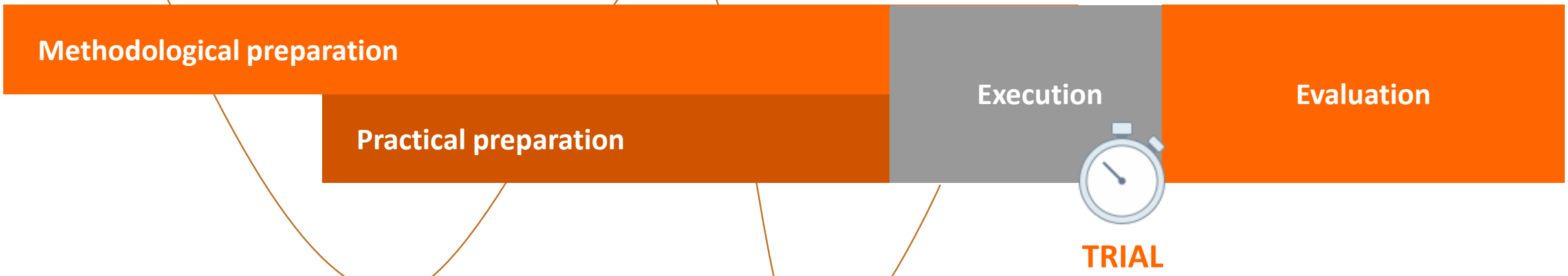
How many times?
So it adds up.



The road before you

Understanding what you want to achieve and in what direction practical implementation should go

Understanding what you can achieve and how you are going to do that

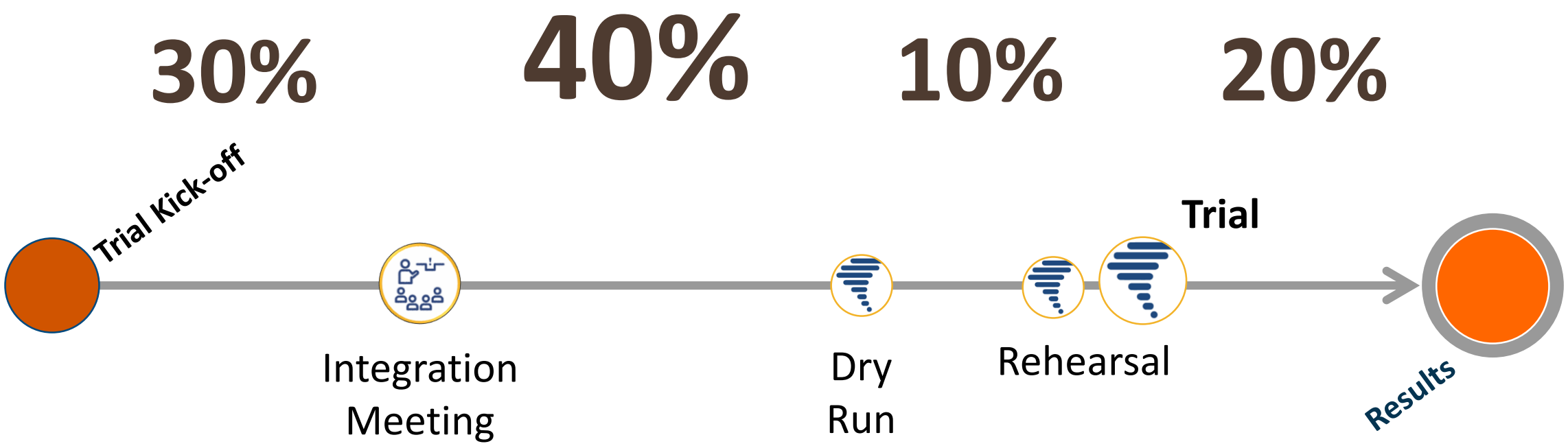


Understanding the practical limitations and maturing chosen design

Fine tuning selected method and overcoming technical issues

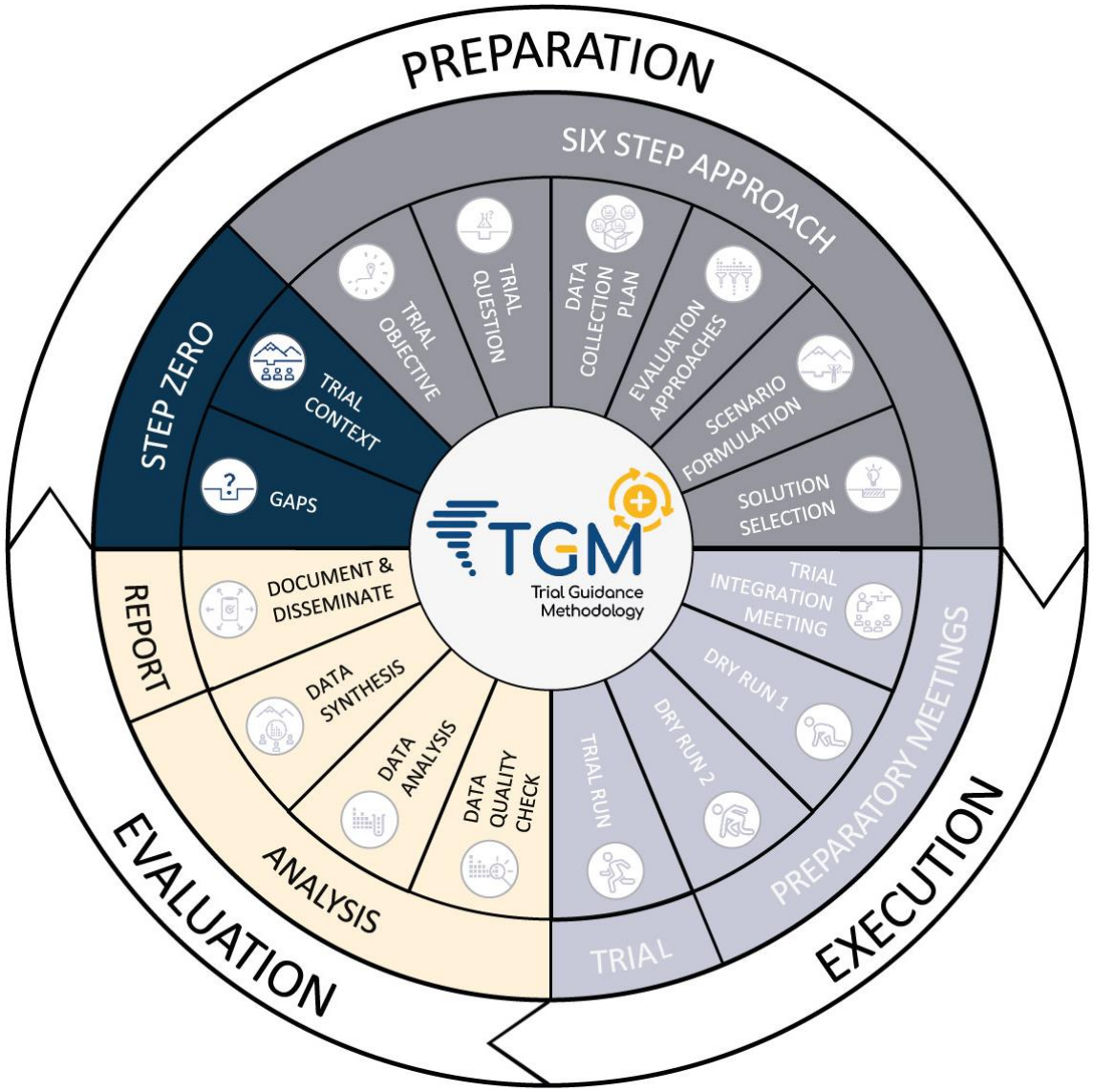
ARTION

A trial timewise



Step Zero
context and gaps

Taking course towards Trialing



Identifying your Crisis Management gap(s)

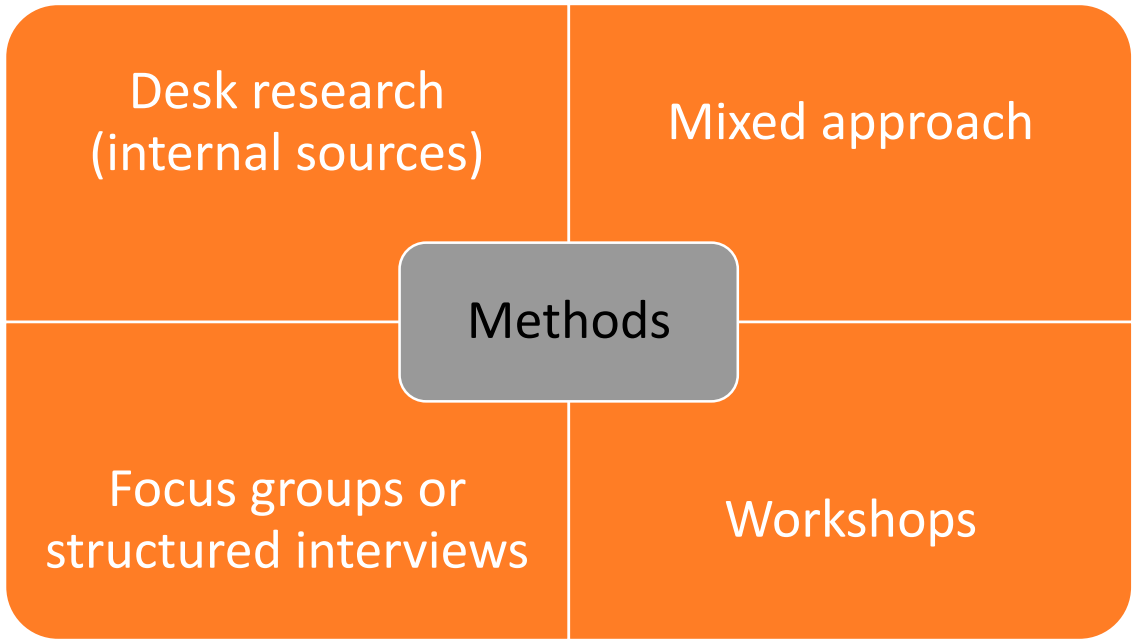
What this step is about?

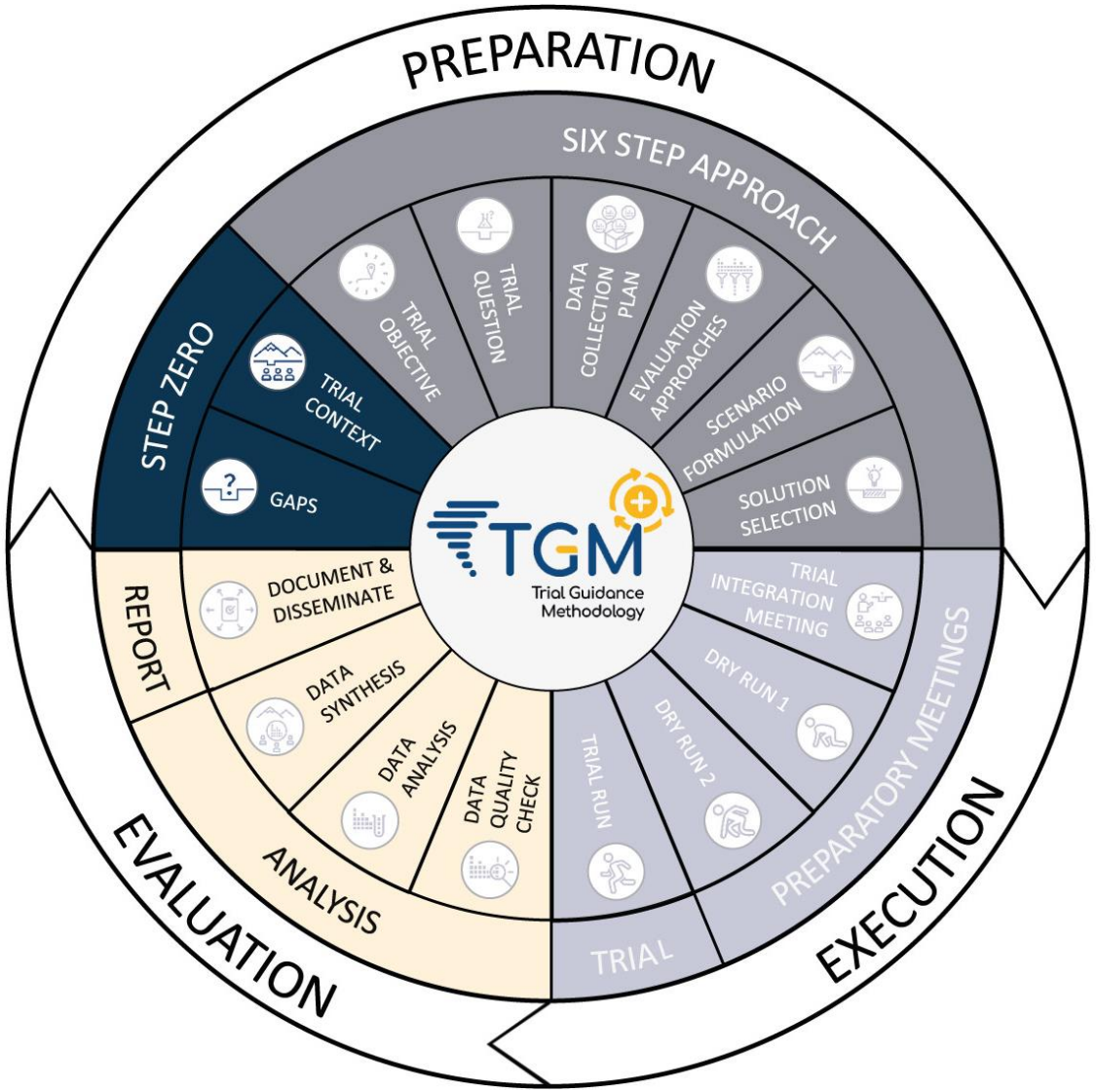
Before setting up a trial, during the step zero, you have to think about the problems you are currently dealing with and the ideal situation you are aiming at. Identifying your gaps with practitioners will help you to address relevant problems in the trial.

Aim
To identify specific capability gaps and/or problems you want to address in your trial
Time
2 days
Methods
Workshops, focus groups, interviews, baseline

Identifying your Crisis Management gap(S)

- Optimisation potential is everywhere
- Two trigger options:
  - Problem driven: Find a bridge to your gap
  - Solution driven: Find a gap to your bridge
- TGM is about **Crisis Management** gaps
- Your experience is key, but it may not be enough.





Describing Trial Context

What this step is about?

Depicting the trial context is focused on finding a sociotechnical solution that bridges your gap. You need to identify when exactly it occurs. This step has two tasks: first you have to identify your trial context and then you have to depict your “as-is-process” by creating a baseline.

Aim
to clarify all circumstances surrounding your gap
Time
3 hours + 1 day
Methods
Brainstorming and discussion, visualisation of processes and structures, baseline, societal impact assessment, research ethics

ARTION

Who am i? Where am i? What am i doing there?

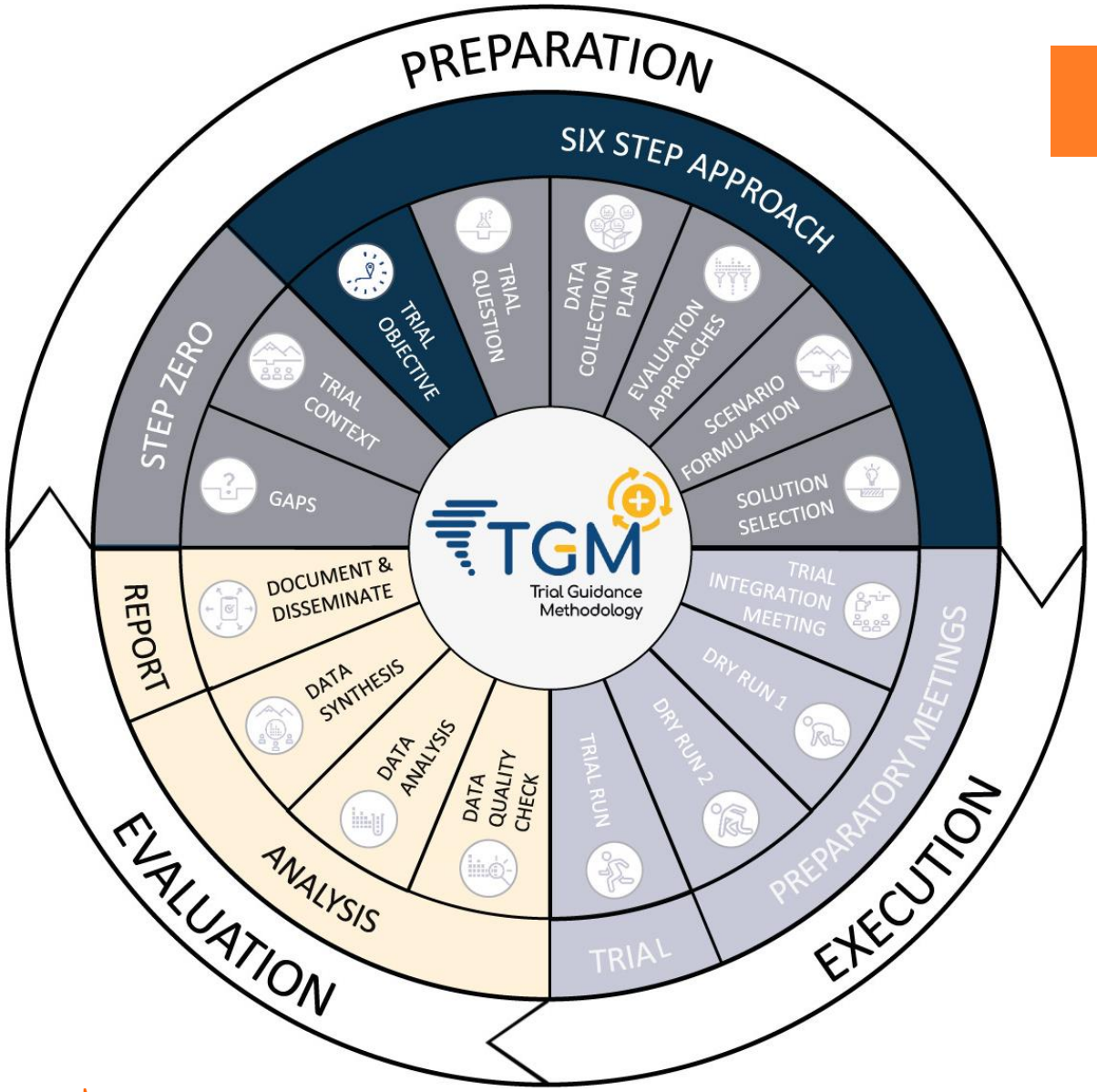
- When do the gaps appear? - In which context?
- Are there any other needs I need to fulfill? i.e. are practitioners specially interested in some threat that the trial should address?
- Or the trial will be run as a part of a bigger event, and it must somehow comply with its rules
- Trial context ≠ scenario !

Trial Context Template	Involved crisis and disaster management agencies
	Involved countries, counties, municipalities, cities
	Incident category
	Type of Trial (table top, field exercise, …)
	Facilities
	Equipment
	…

ARTION

Preparation of a trial

Six steps to perfection

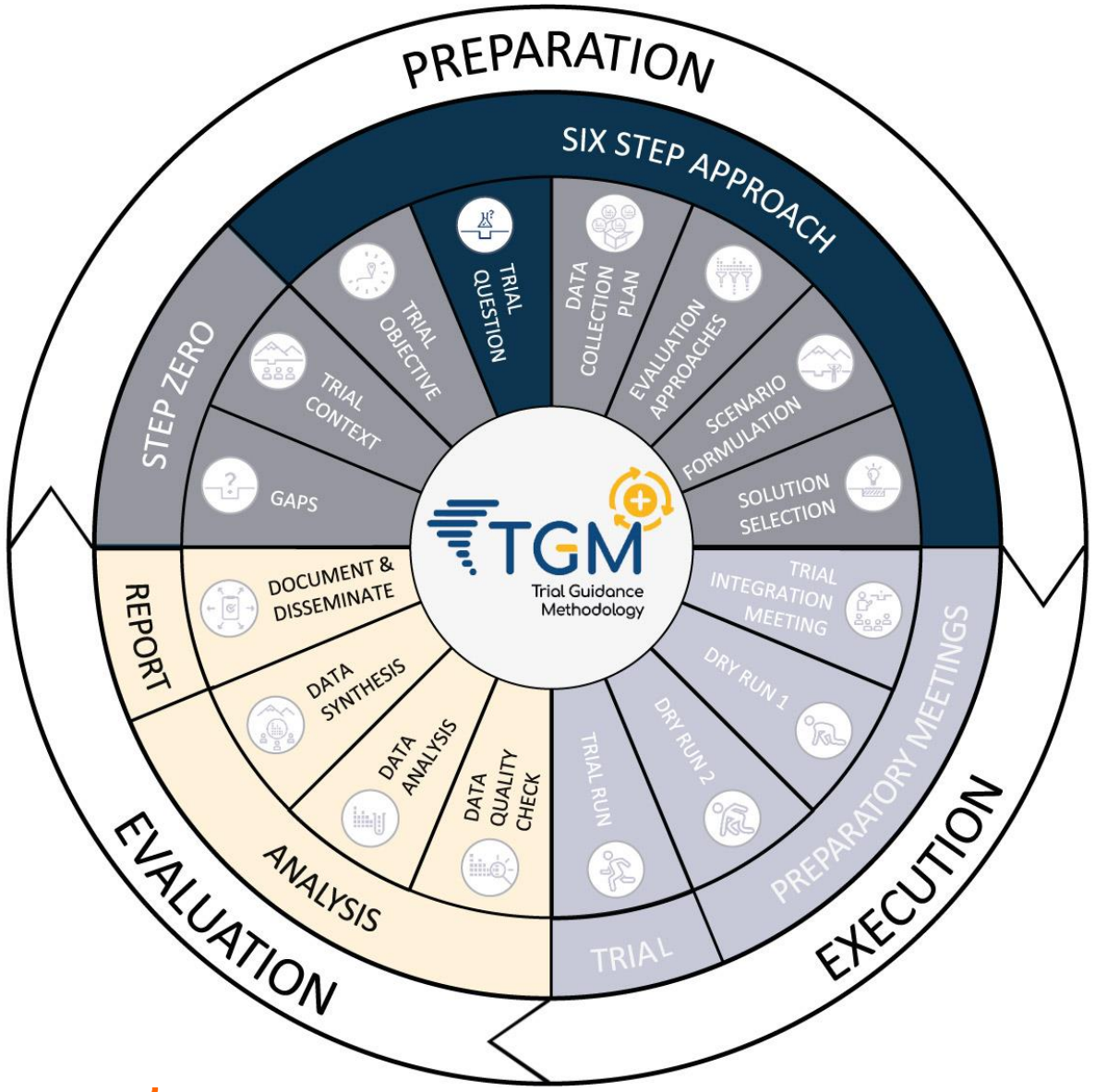


Trial Objective

What this step is about?

Your first task is to write down your goals and aspirations - something that ones efforts or actions are intended to obtain or accomplish - also known as trial objective(s). The SMART formulation can help you Specific, Measurable, Achievable, Reasonable and Time-bound.

Aim
to determine the goal(s) of your trial
Time
3 hours
Methods
Brainstorming and discussion



Trial Question(s)

What this step is about?

The aim of this step is to identify the proper mix of research methods and data analysis techniques, taking the trial context into account. Formulated research questions address what you are trying to find out in your trial.

Aim
to focus on specific aspects and determine your evaluation approach
Time
2 hours
Methods
Workshop, discussions, societal impact assessment, research ethics 3 dimensions & KPI's

Criteria to formulate a good research question

- Trial dimension
- Crisis management dimension
- Solution dimension

Needs to be a question

Needs to address a distinct gap of the trial

Needs to cover the three dimensions of trial

Must not be scenario-driven

Needs to be answered and measurable by the trial

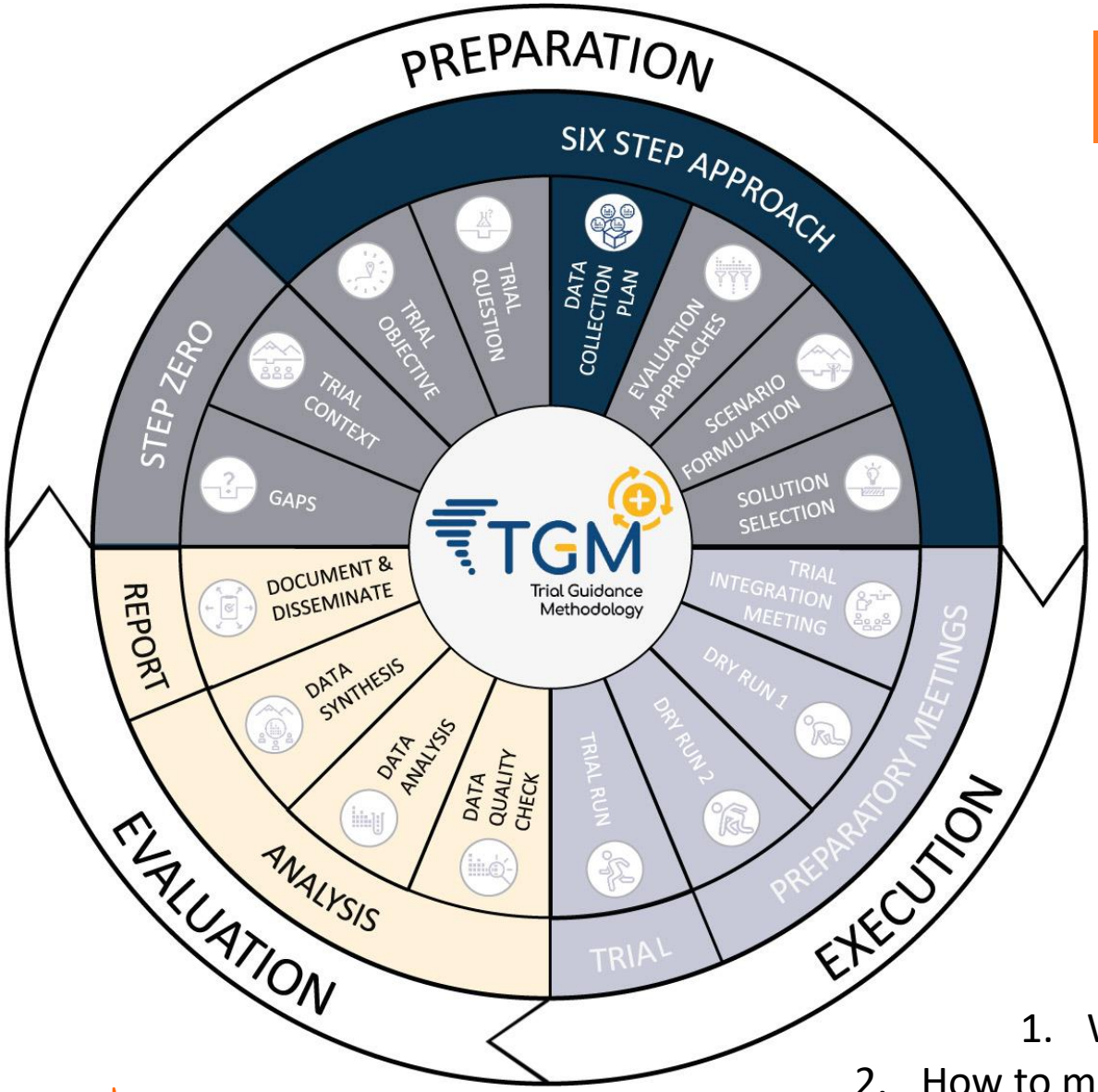
Needs to be understood and approved by all trial stakeholders

Scenario and evaluation are directly related to the research-quest

Can be organised in a multi-level hierarchical structure

Is formulated simple (but is not always easy to answer

ARTION



Data Collection Plan

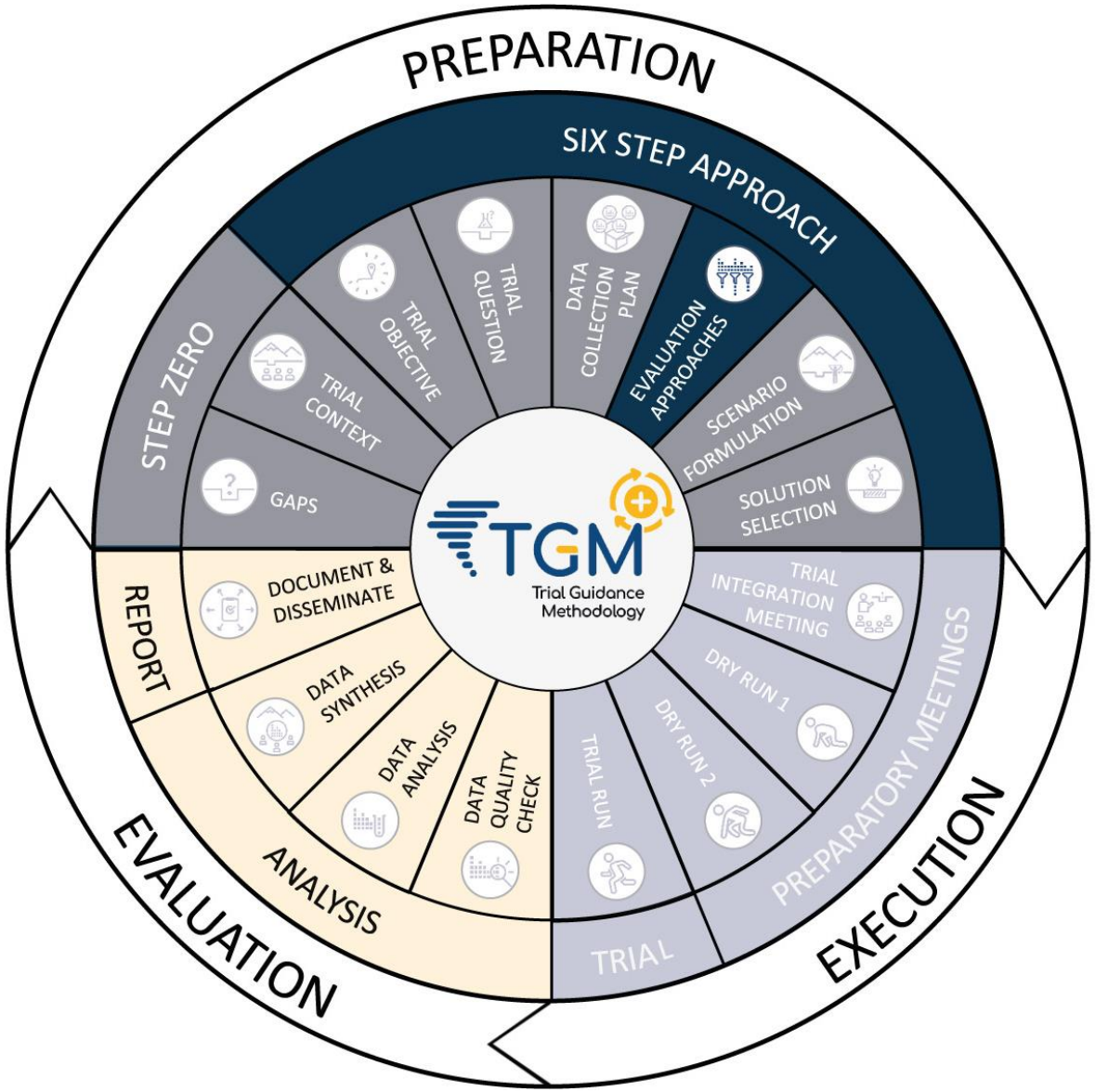
What this step is about?

The data collection plan describes how all the data you need to answer your research question will be collected and measured, by whom and by which means during the trial. This structured plan is key to addressing the research questions.

In this moment you should simultaneously think about next step: evaluation approaches.

1. What data?
2. How to measure it in general?
3. Practically: How to measure during our trial?
4. Who does what, how, when and what for?

Aim
to collect relevant data(= the data you need) during your trial
Time
1 day
Methods
Brainstorming, process modeling, baseline, innovation line, societal impact assessment, research ethics, 3 dimensions & KPI's

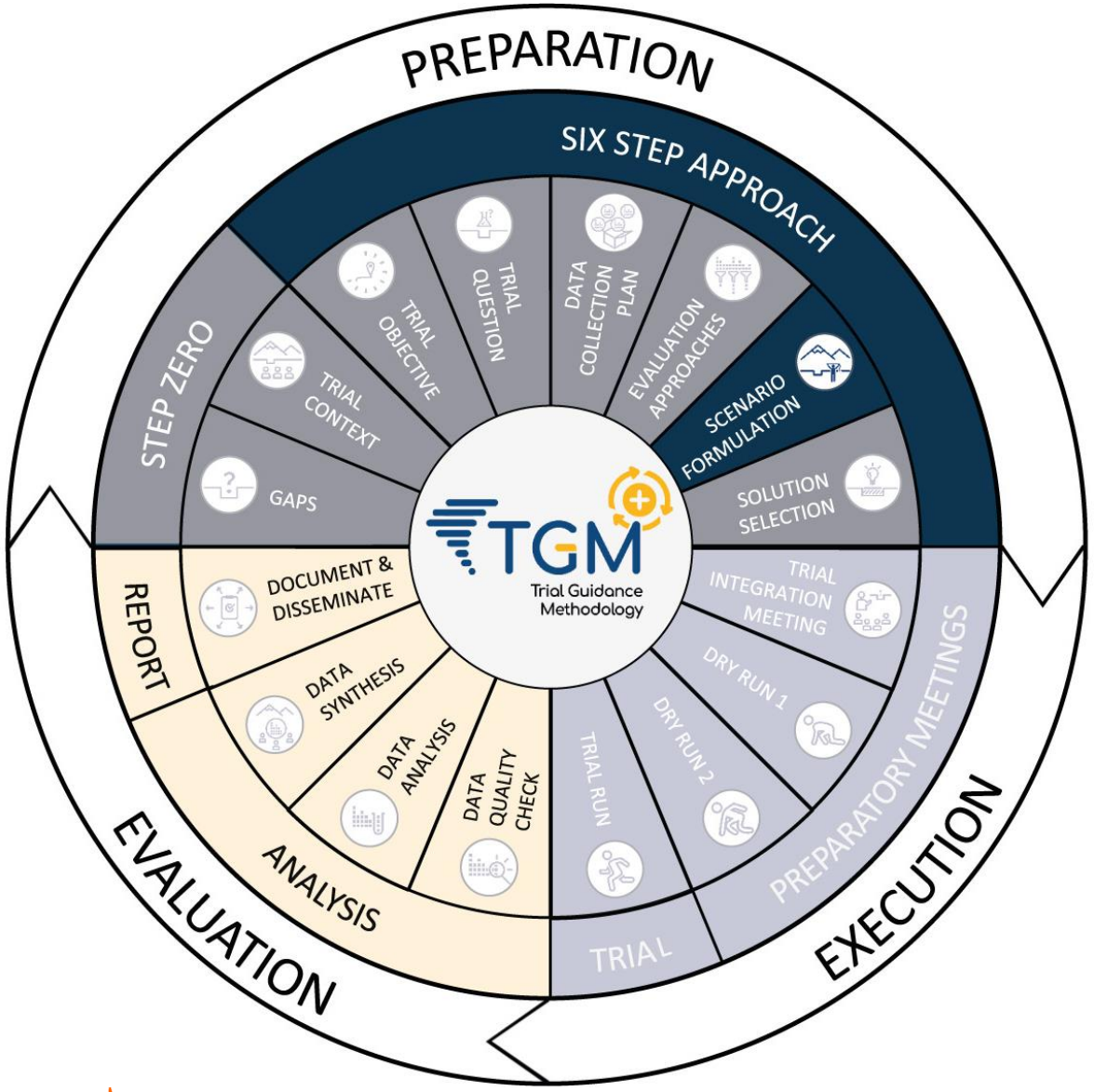


Evaluation Approaches

What this step is about?

The evaluation approach of your trial depends on the data collection plan and deals with “making sense” of the data through different techniques.
Is the data I am collecting usefull for me?

Aim
to analyse the data in a proper way
Time
1/2 day
Methods
Brainstorming, quantitative analysis techniques, qualitative analysis tech-niques, innovation line, societal impact assessment, research ethics



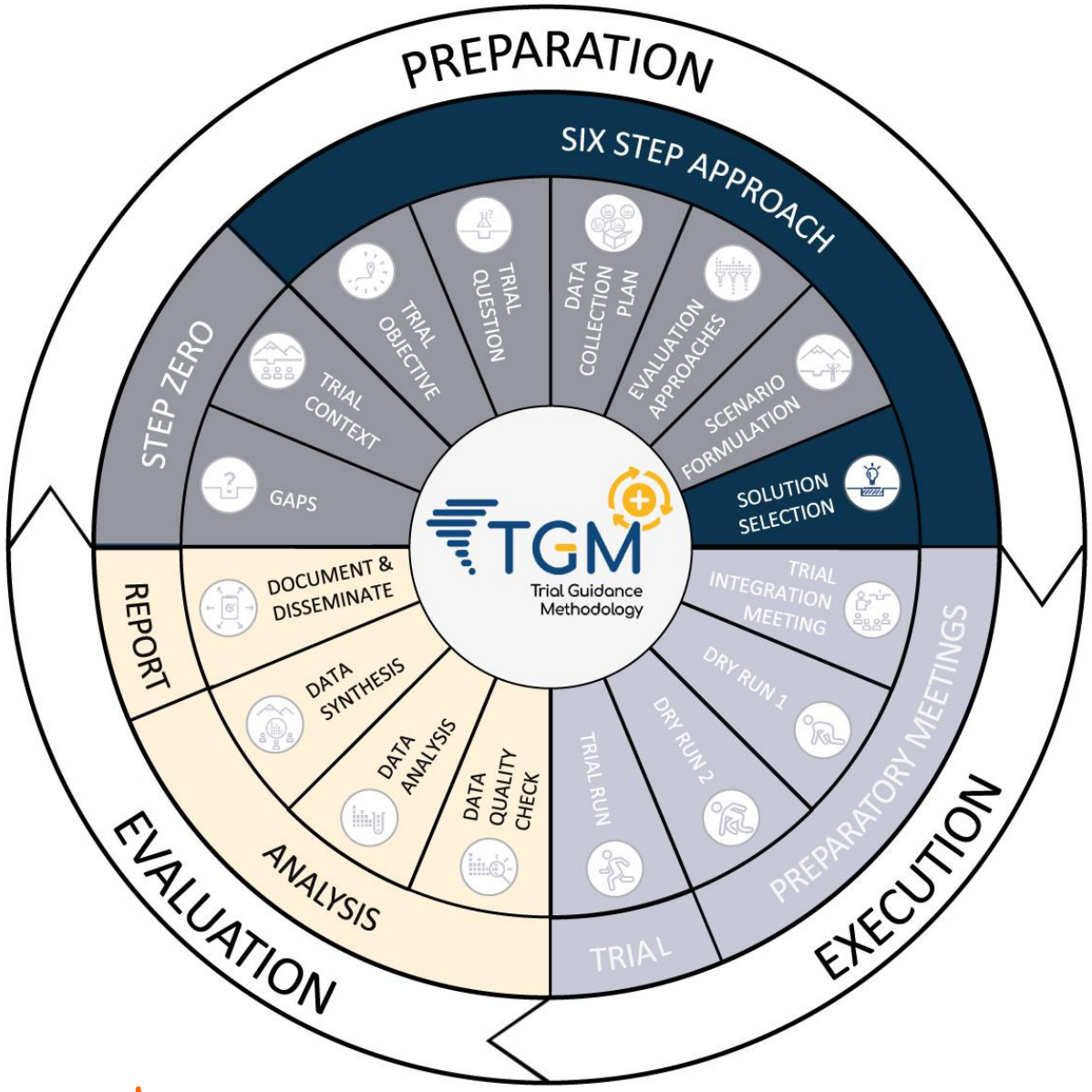
Setting the Scenario

What this step is about?

Your trial context gives you lots of opportunities to come up with a specific trial scenario – a very specific context. The scenario is dependent on gaps, available practitioners, available facilities and equipment.

Adjust everything to your needs.

Aim
to create exactly the circumstances for your trial in which the gap occurs
Time
1 day
Methods
Brainstorming & screenplay writing, baseline, societal impact assessment, research ethics



Deciding on the solution

What this step is about?

Once a potential solution is found, the process consists of two tasks. The first task is to execute a practitioner-centered review of the solution itself. In this step you decide on how to utilize the tool you have so it becomes a solution.

Aim
to choose promising innovative sociotechnical solutions
Time
3 - 5 days
Methods
Solution selection process, innovation line, societal impact assessment, research ethics

Trials selection criteria

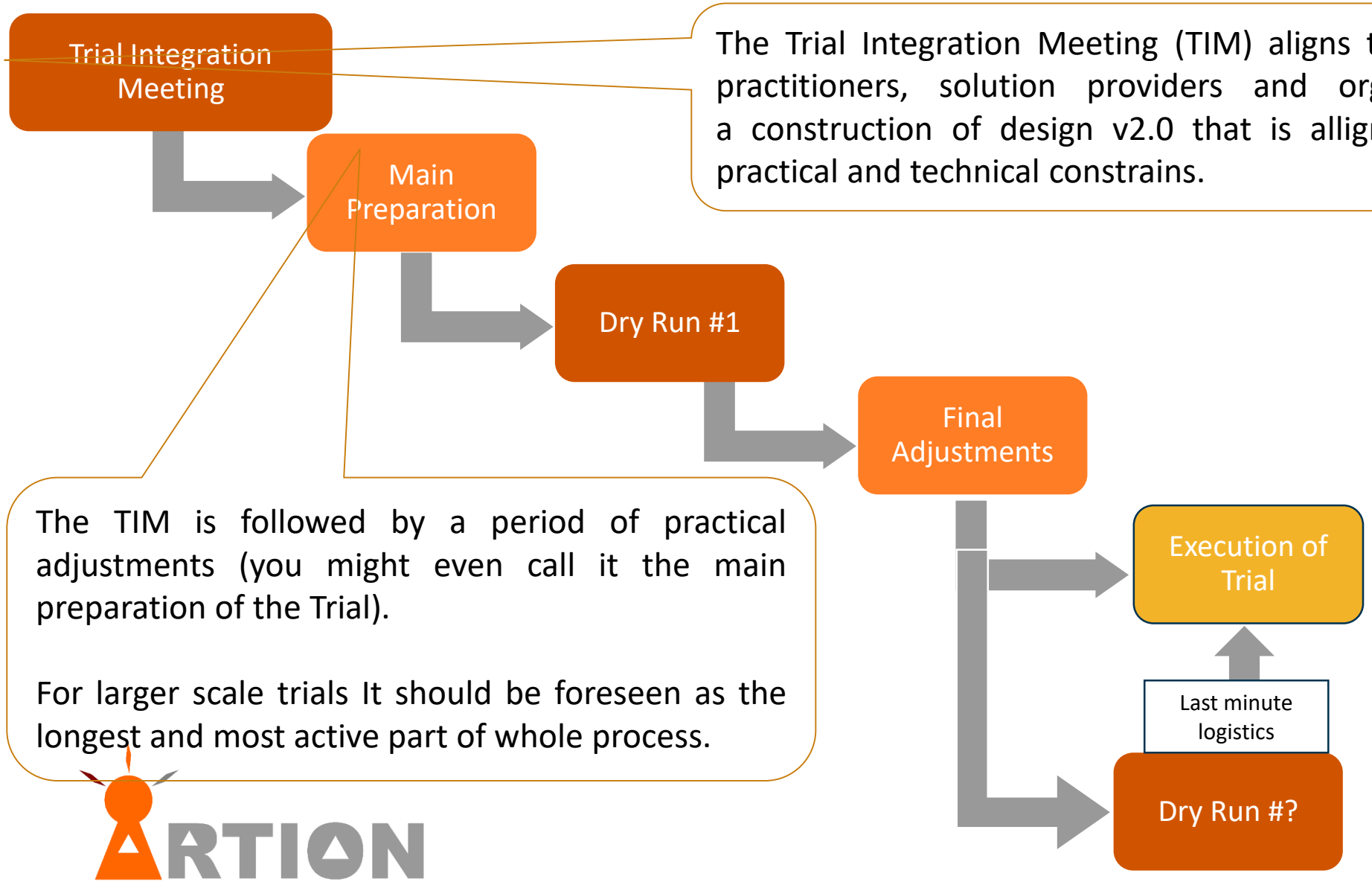
Mission	How does the solution contribute to crisis management?
Integration	How is it integrated into the existing crisis management operations?
Readiness	How mature is the solution and has it been tested or proved?
Motivation	How does the solution address the problems of practitioners?
References	Which references on the provider's experience and solution application exist?
Resources	Which resources are needed to operate the solution?
Know-How	What expertise is needed to operate the solution?
Platform	On which platforms (e.g. technical/organisational) is the solution available?
Technique	On which technique (or technology if applicable) is the solution based?
Investment	Which investments are necessary to deploy the solution?

ARTION

Execution of a Trial

How to get the Trial done?

Execution process at a glance

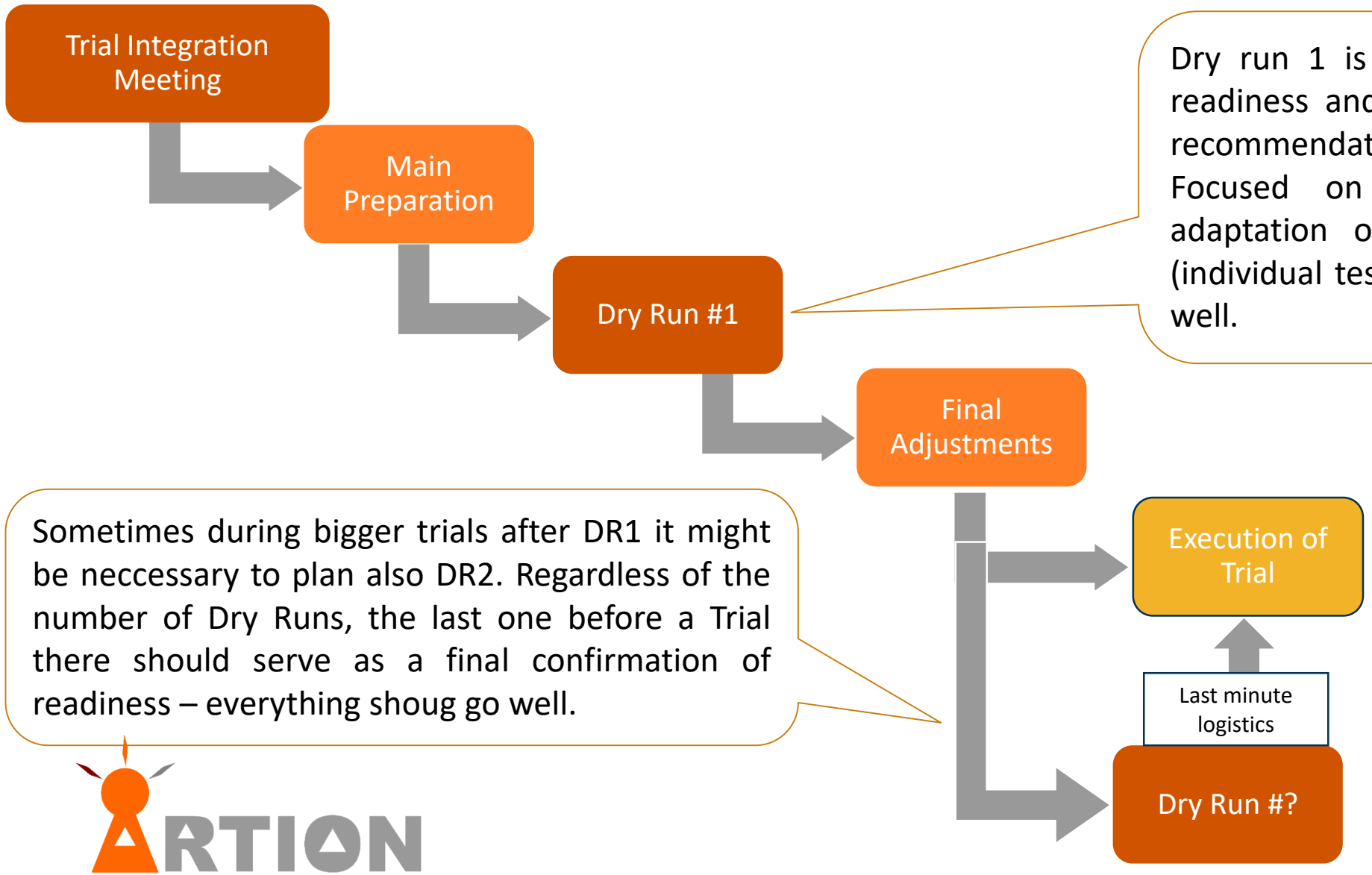


The Trial Integration Meeting (TIM) aligns the perspectives of the practitioners, solution providers and organisers. It's basically a construction of design v2.0 that is alligned to accomodate all practical and technical constrains.

The TIM is followed by a period of practical adjustments (you might even call it the main preparation of the Trial).

For larger scale trials It should be foreseen as the longest and most active part of whole process.

Execution process at a glance



Dry run 1 is the 1st confirmation of readiness and aims at preparation of recommendation for improvement. Focused on the final tests and adaptation of each Trial subsystem (individual tests). Everything should fit well.

Sometimes during bigger trials after DR1 it might be neccessary to plan also DR2. Regardless of the number of Dry Runs, the last one before a Trial there should serve as a final confirmation of readiness – everything shoug go well.

Events of the Execution Phase

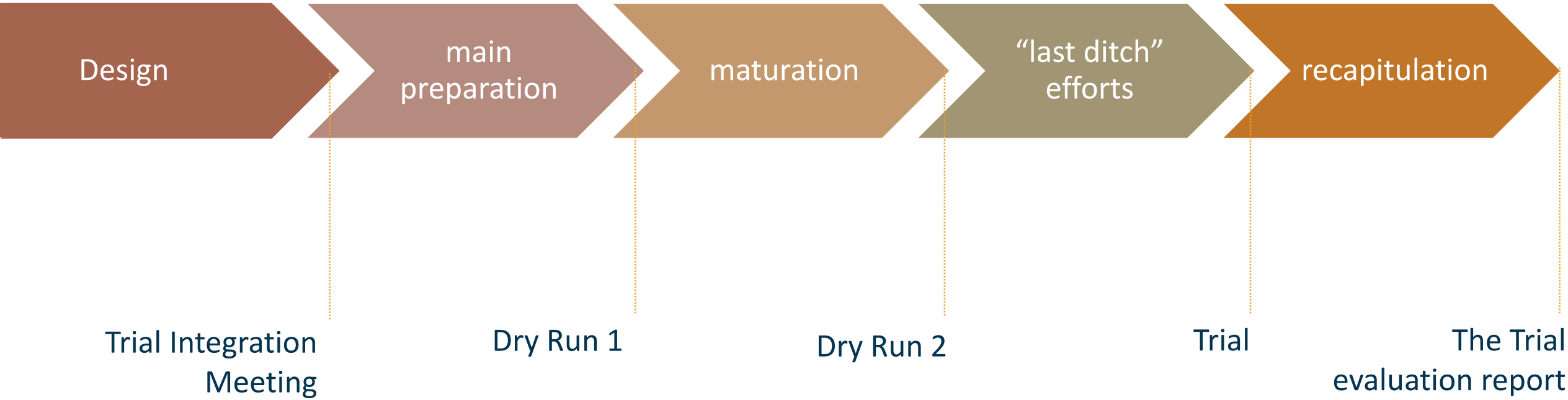
Trial Integration Meeting – the first physical meeting with all solution providers, the test-bed technical infrastructure and crisis management practitioners.

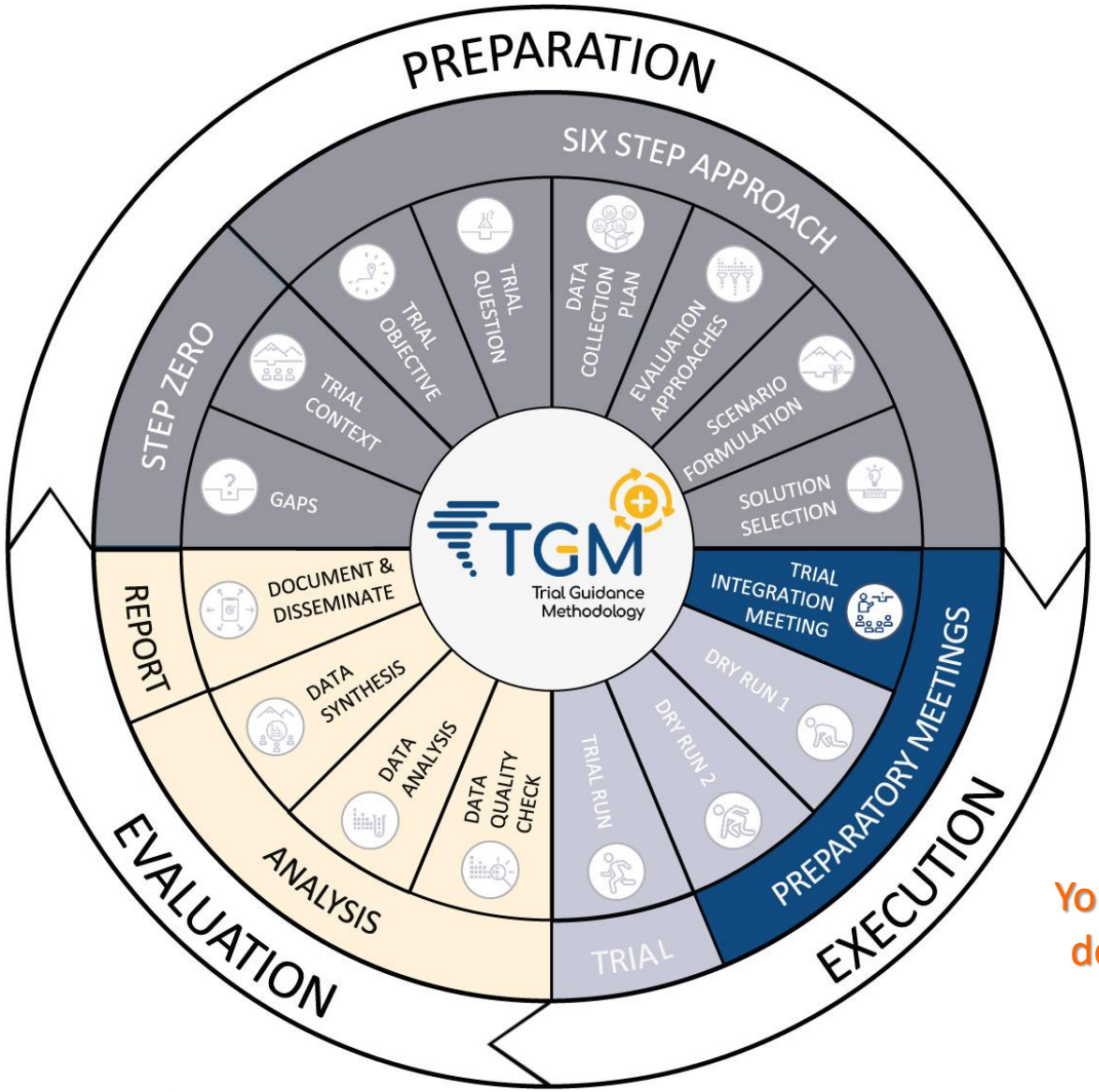
Dry Run 1 – the test of the trial design and all thest-bed technical infrastructure arrangements at the trial location(s).

Dry Run 2 – a full rehearsal of the real trial.

Trial Run – the Trial is executed and all data, as described in the data collection plan, is collected.

Events are progress checkpoints, time between should be used to carry on with work





„Total" Integration Meeting

What this step is about?

To draft the later trial script, the participants discuss the integration of solutions into the practitioners' operations, the required information exchange as well as the data collection and evaluation criteria to address the trial objectives.

You can read more about TIM in dedicated chapter in Part B of this presentation!

Aim
to make sure everyone is on the same page and all needed functionalities are described and the data collection determined
Time
3 days
Methods
Interviews, discussion, process mapping, societal impact assessment, research ethics

TIM – typ eventu oraz cele (opis)

This will be the first physical meeting with:

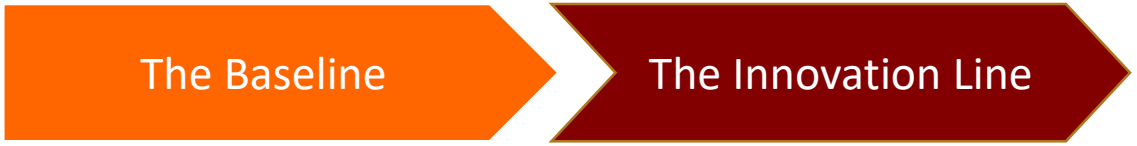
- all solution providers,
- the test-bed technical infrastructure,
- CM practitioners.

It is really important to be sure that TIM participants understand each others espacially with their needs.

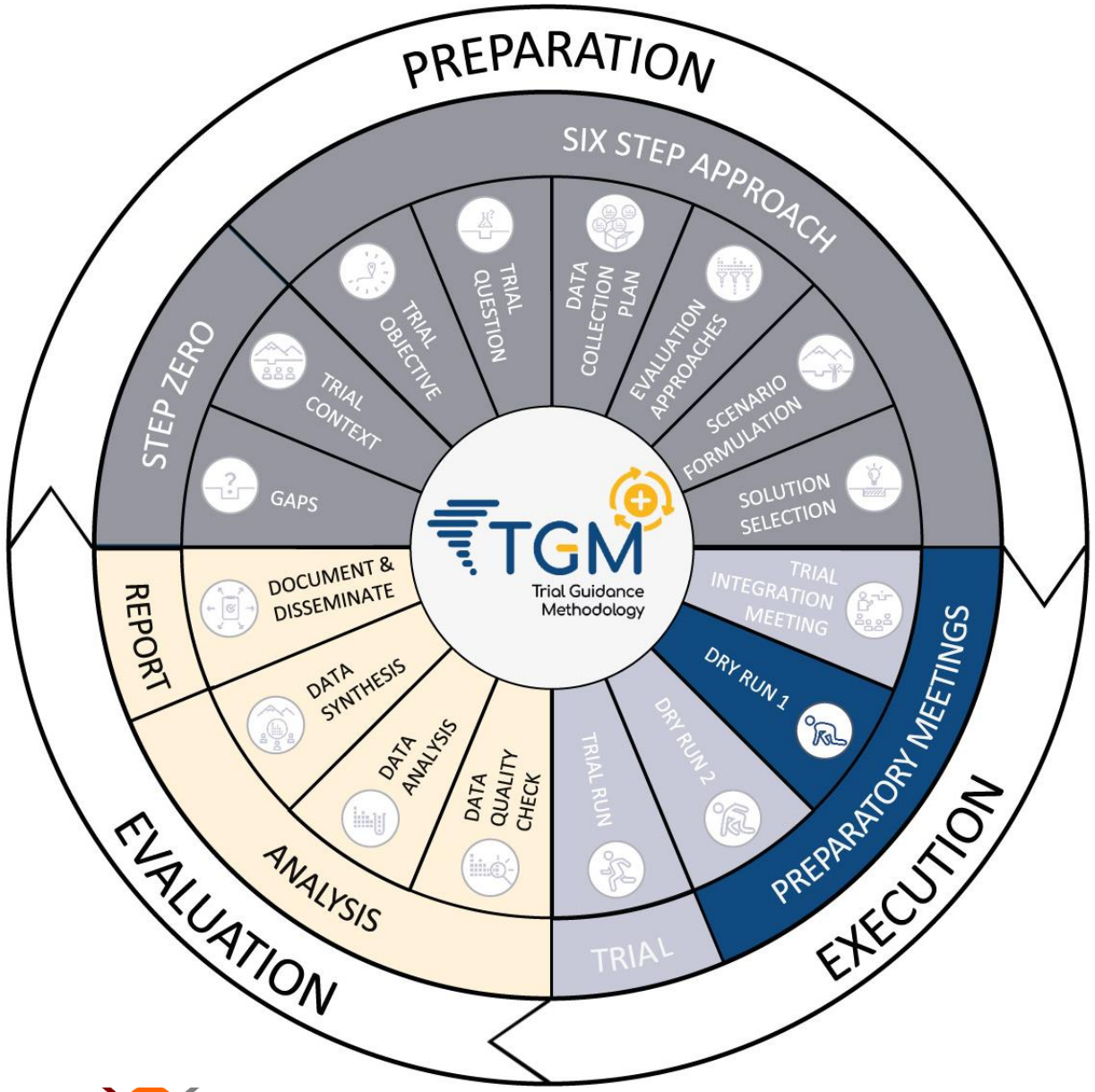
This is also time to transform the baseline to the Innovation Line.

General objectives

- Clear definition of practitioner and solution needs
- Final innovation-line
- Solution use cases
- Solution interaction scheme / plan
- Data integration plan
- General scenario narrative



ARTION



Dry Running

What this step is about?

The aim is to test whether or not the results of all six steps have been implemented correctly and are clear for the involved stakeholders and/or users. We concernes both technical and non-technical issues.

This should be carried at the location, where actual trial will take place and with a go-to staff so they are trained.

Aim
to test the technical set-up and your data collection set-up as well as to test the training on solutions
Time
3 days
Methods
Technical test, roleplay

Why to have a dry-run? – examples of detected issues / uncertainities

Task: *to observe and note the moment of receinving information by practitioner*

Problem: *should observer note the moment when message is received, practitioners sees it or practitioners reads it?*

Task: *to display a map on a wall by beamer*

Problem: *wall is light yellow, so yellow-marked areas are not visible*

Task: *Anna must observe Practitioner A and collect forms after each session.*

Problem: *not possible, if Anna goes to collect, she will not be back in time to observe.*

Task: *simulation is run by two physical servers, from two rooms, time of messaging is saved on each unit, this time is crucial.*

Problem 1: *servers must be initiated separately, it were initiated by hand (first at the moment, second with delay) , timestamps are displaced for unknown amout of time.*

Problem 2: *server team and simulation team are in distant rooms, so there is no mechanism to differentiate technical issues from delays caused by human (e.g. practitioner coming late from coffee break).*

ARTION

AIM and SCOPE of a Dry Run 1 & Dry Run 2

Dry Run #1

- Achieve full readiness!
- When you are ready, run it!
- Wrap-up the results to see what needs to be adjusted and optimized.
- Have everything ready for test!
  - Tool integrated to be a solution
  - Draft scenario and script

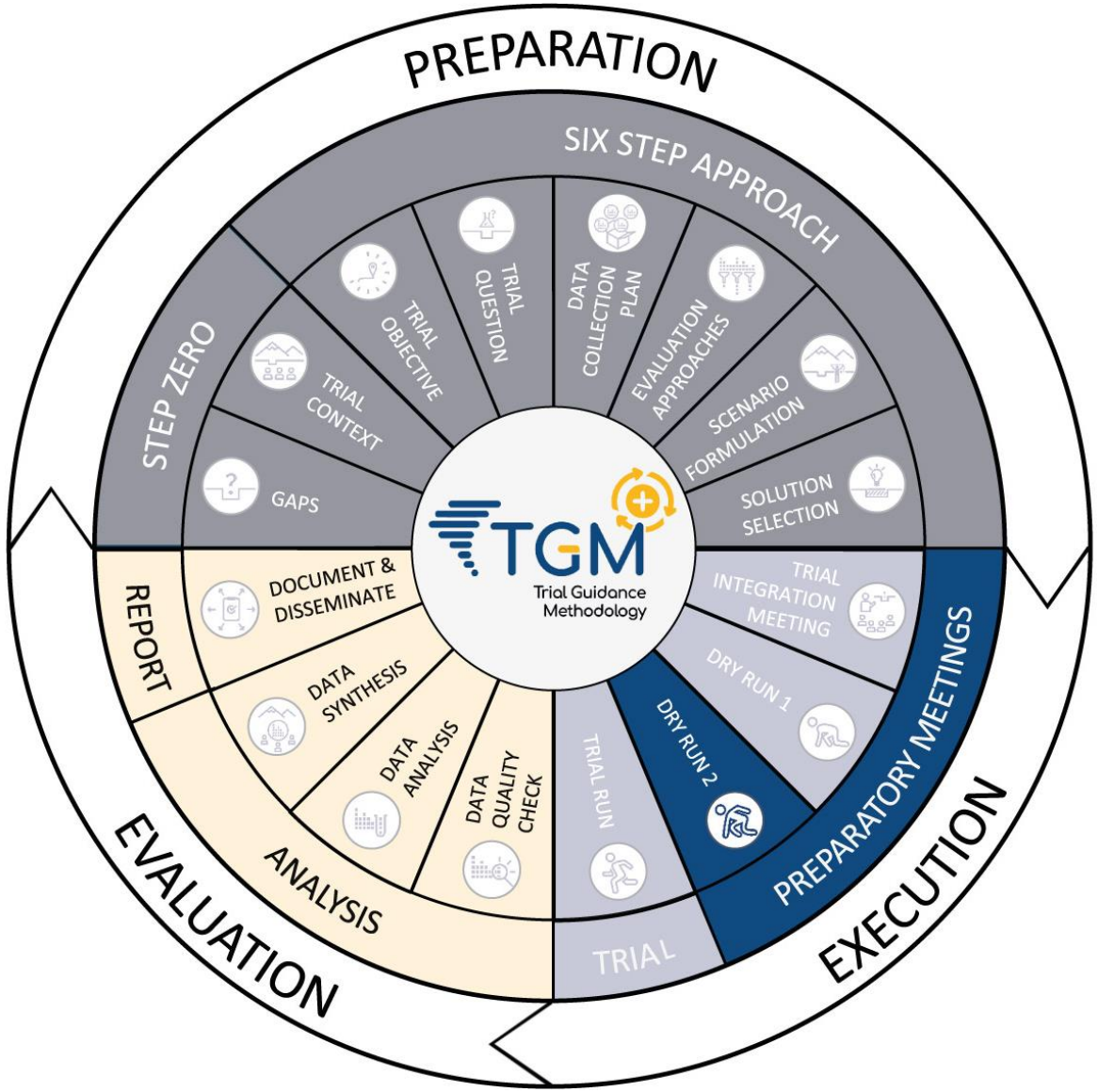
Adjustments

- Improve elements that need optimization.
- Fix elements to fit the original plan if feasible.
- Adjust the plan accordingly to DR1 results (if needed).
- Discard elements and processes that cannot be fixed before DR2.

Dry Run #2

- Confirm your readiness.
- Conduct a full Trial with participant stand-ins.
- Train all of the Trial staff team, host a safety audit, practice directing & conducting of the Trial.

ARTION



Final rehearsal

What this step is about?

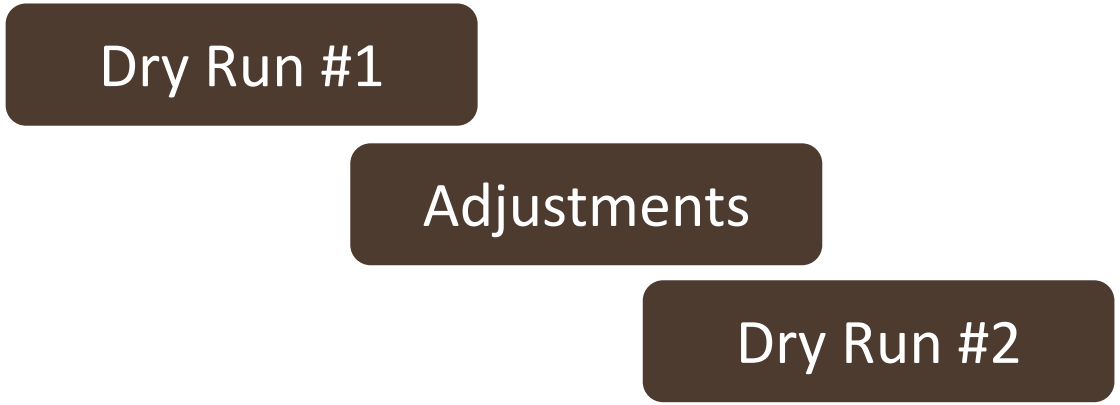
The aim is to do a final check:

- ✓ whether all the materials are ready
- ✓ whether the technique works
- ✓ whether everybody knows what to do

Aim
to make sure the data you need can actually be collected by all means necessary
Time
3 days
Methods
Role play, societal impact assessment, research ethics

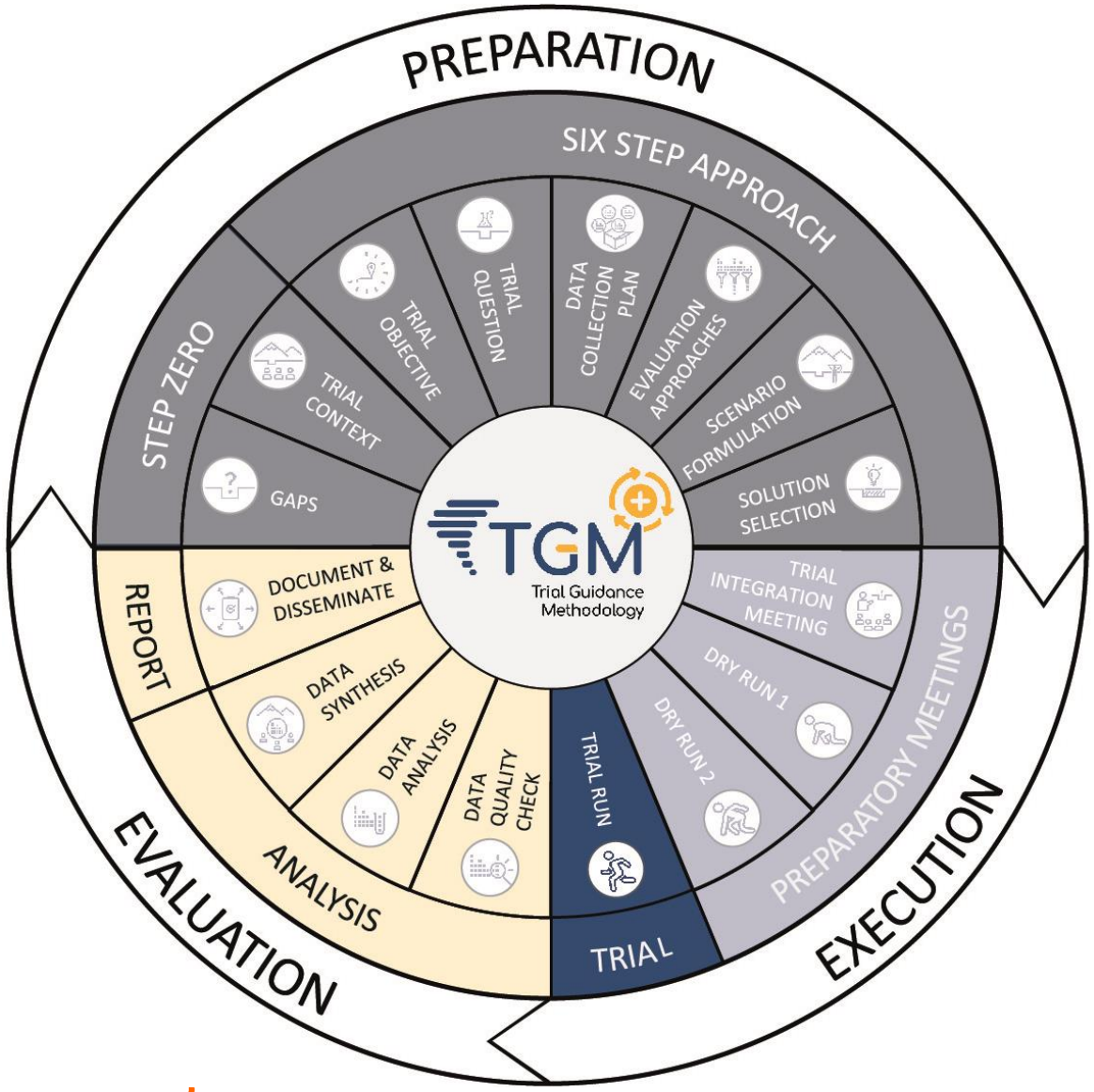
Difference between DR1 and DR2

- Achieve full readiness.
- Make changes to everything fit well.
- Test the technical and your data collection set-up.
- Make it feasible.



- Confirm your readiness.
- Complete episode realisation – no shortcuts
- No big changes in planning after Dry Run 2 – it either runs or is discarded.
- If you decide to implement a change, communicate it well, as nobody is expecting any changes at this stage.

ARTION



Trial Run

What this step is about?

Now, it is the time to collect your data in order to assess the solutions that promise to bridge your gap.

Aim
To assess solution(s) by gathering objective data
Time
1-3 days
Methods
Approved script, tested data collection, approved technical set-up

Trial major elements

Team briefing

- ❑ Allow the team to be sure that they understand their roles and are prepared to use the tools that are at their disposal

Participants introduction, briefing and other sessions

- ❑ Do introductory part to explain everything (please be concise)
- ❑ Training with tools (if necessary, if applicable)
- ❑ Share narrative, roles and initial tasks for participants

Trial Runs

- ❑ Do everything as described in the end version of trial design (in one or more stages)
- ❑ Follow playbook
- ❑ Collect observations

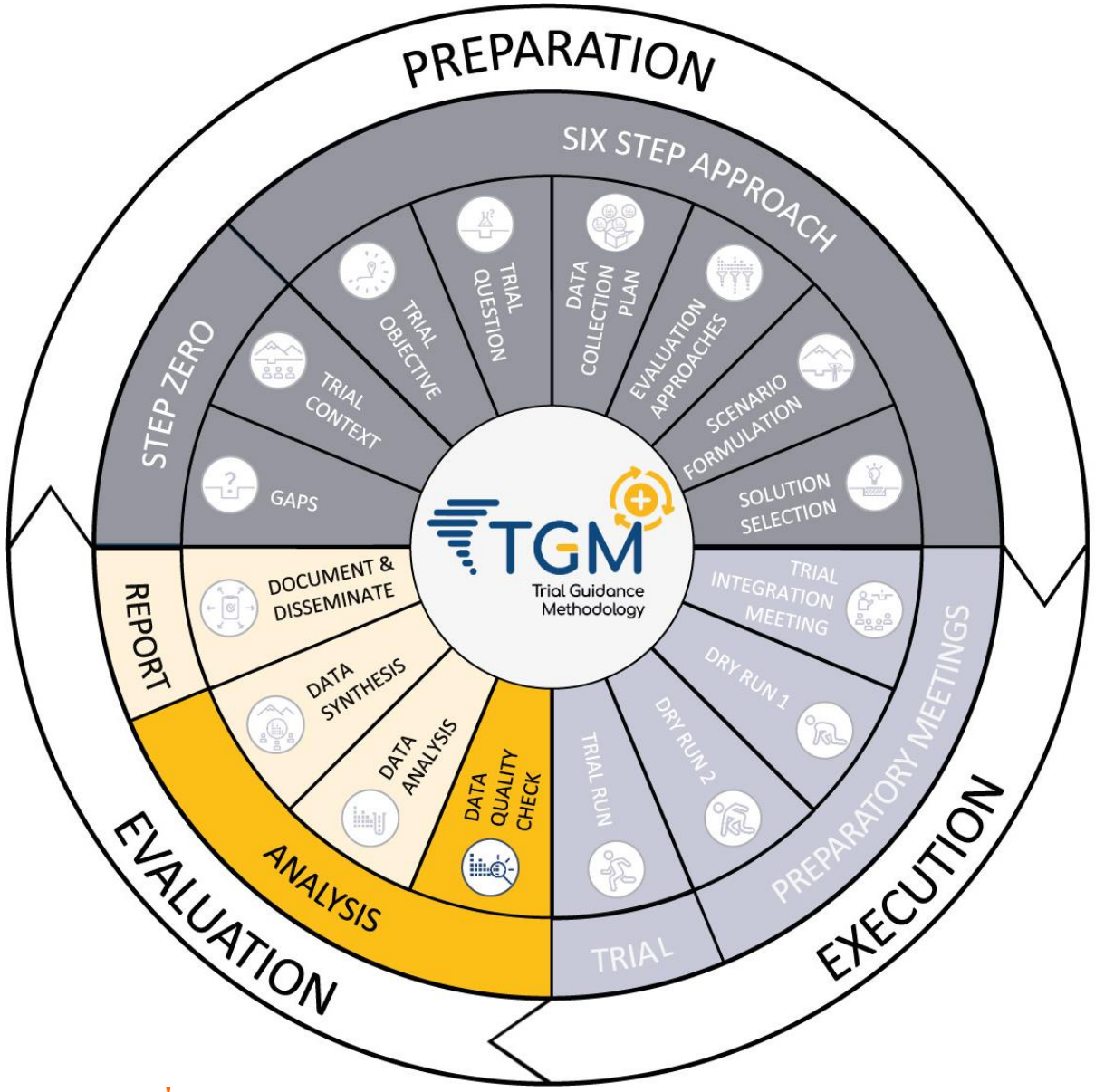
Wrap it up

- ❑ Do a hot feedback collection
- ❑ Don’t forget about a final wrap-up session to collect initial conclusions from the whole trial.

ARTION

Evaluation

LEARNING FROM THE TRIAL

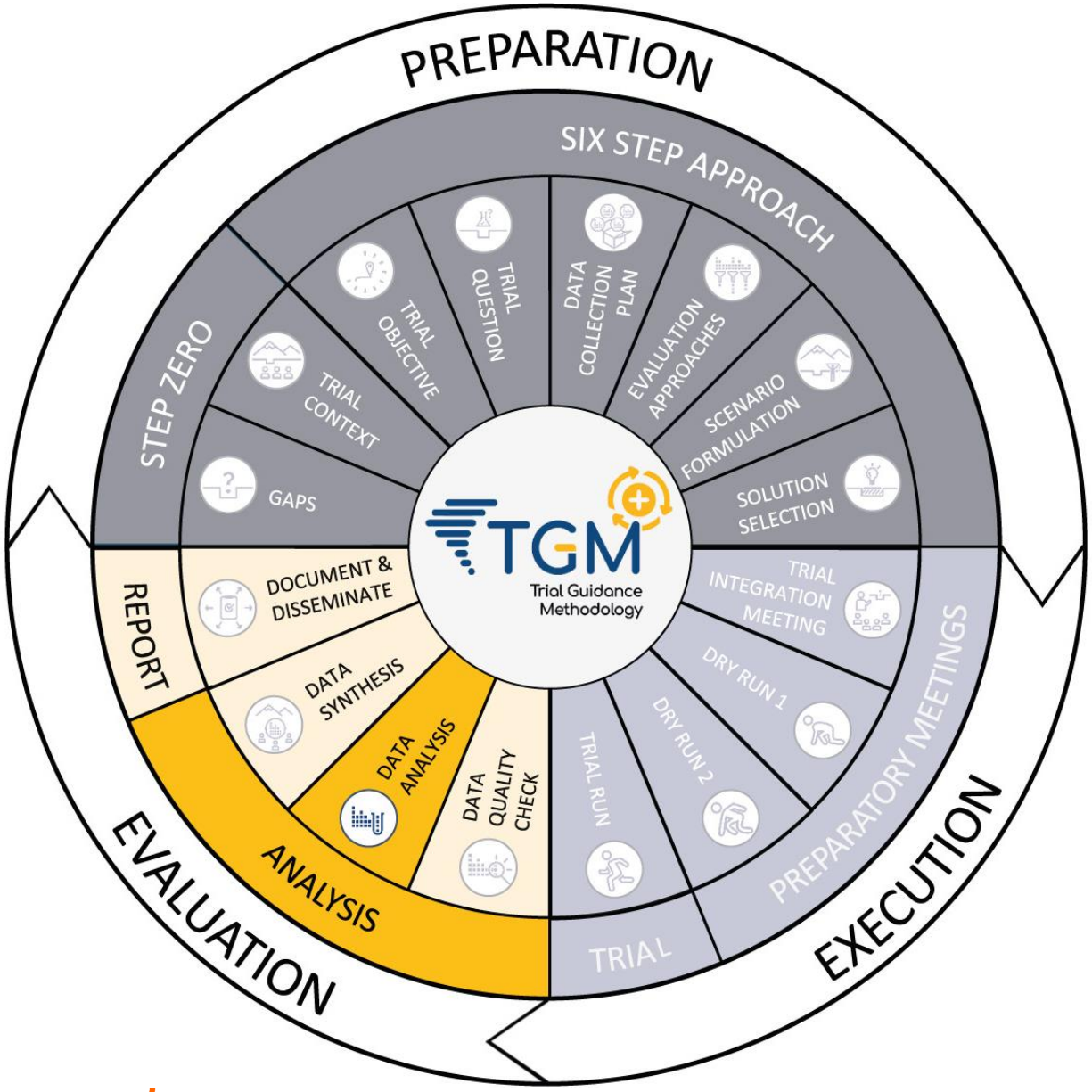


Data quality check

What this step is about?

During your trial you gathered a lot of different kinds of data with various means (observer, test-bed technical infrastructure, questionnaires etc.). This was done according to your data collection plan. Now plans are always just ideal imaginations of how the reality should work.

Aim
to make sure your evaluation is based on high-quality data
Time
1 day
Methods
Structuring & organising, societal impact assessment, research ethics

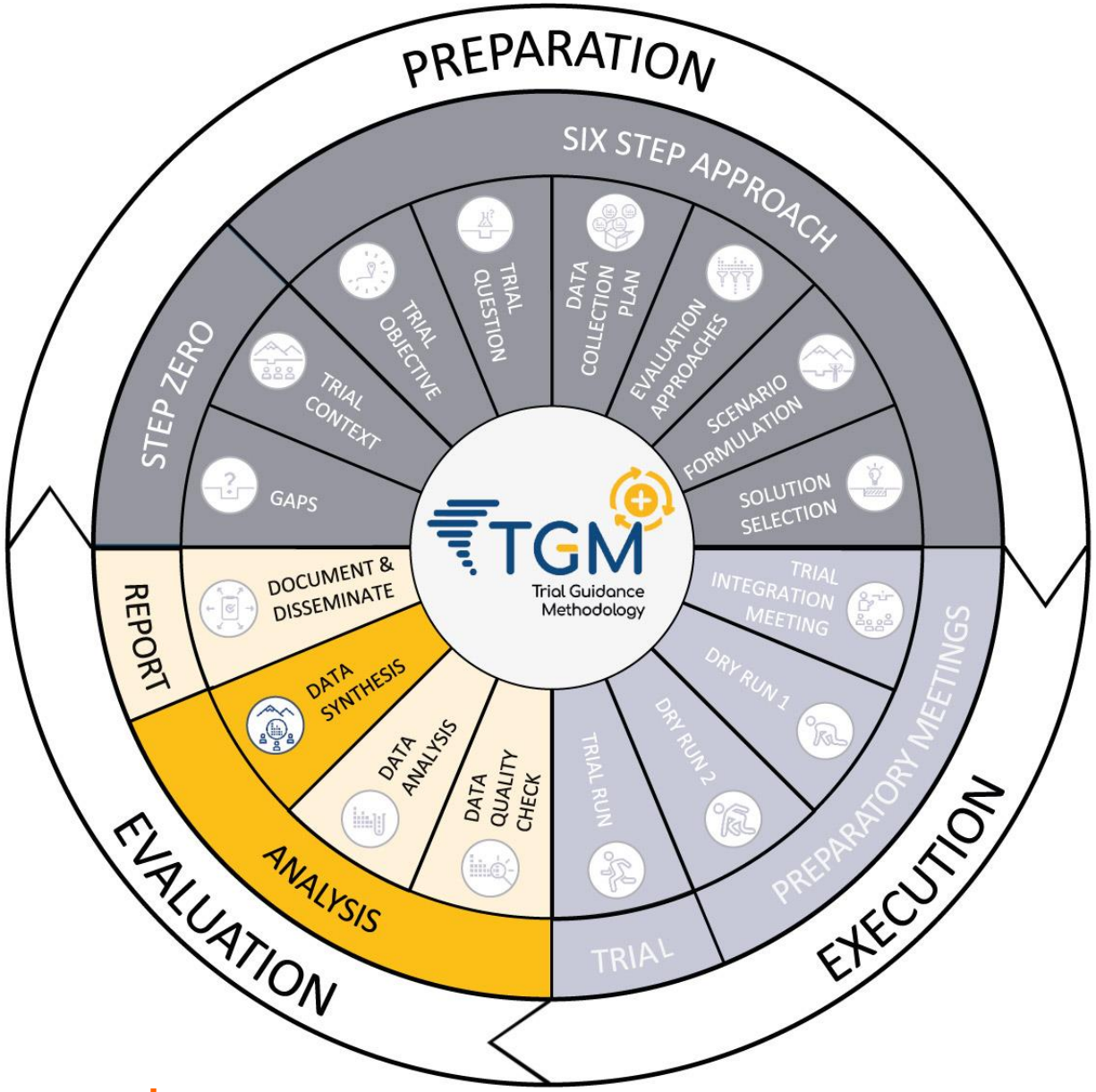


Data analysis

What this step is about?

About data analysis! Start with the sessions of your trial, the three dimensions and outcomes for the solutions. Second step is to aggregate and visualise data; create relevant graphs or pie charts.

Aim
to aggregate and visualize your data set in order to prepare the synthesis
Time
3 - 5 day
Methods
Data aggregation, visualisation, comparative analysis, if appropriate further specific qualitative and quantitative data analysis techniques, societal impact assessment, research ethics

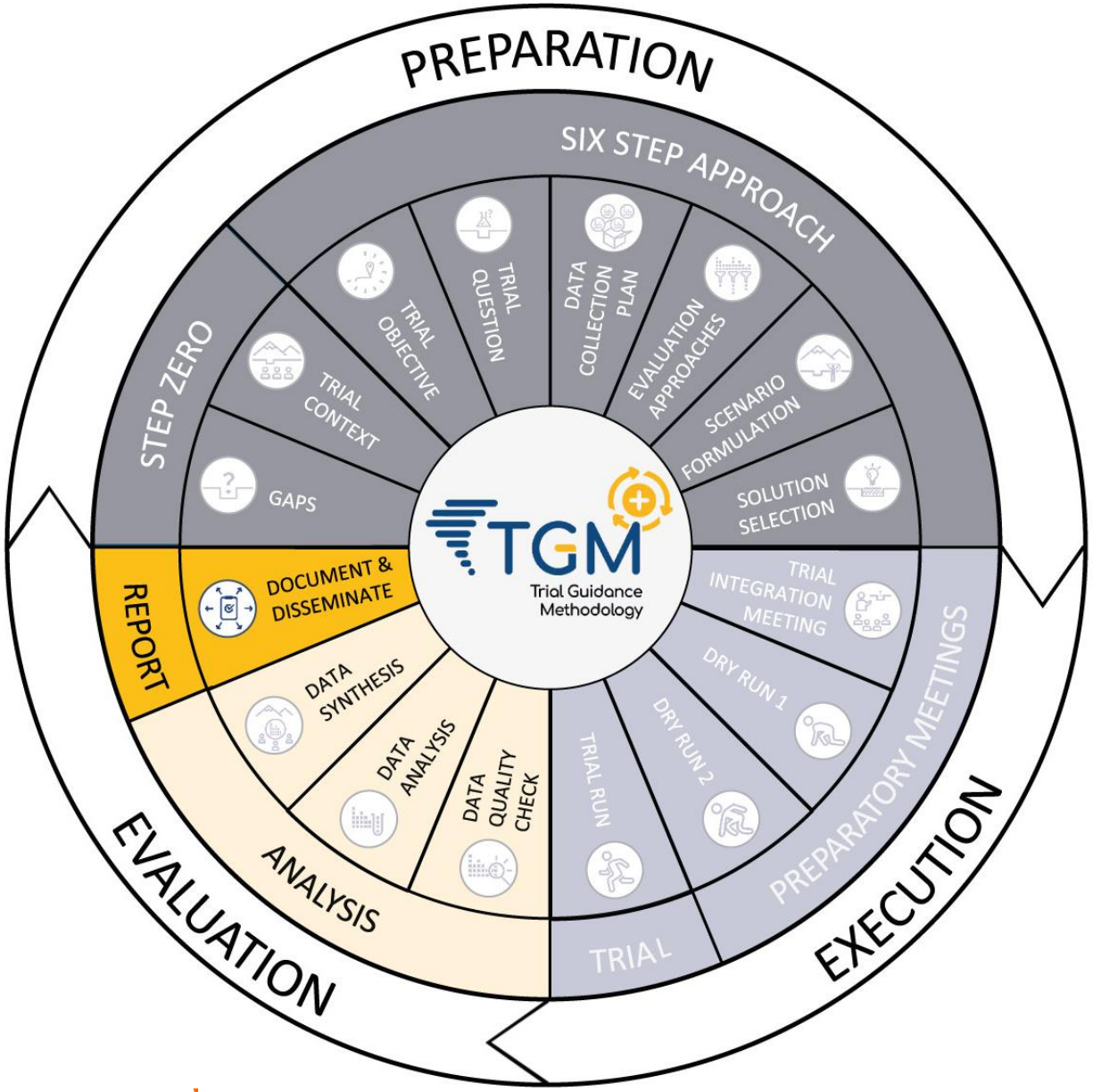


Data synthesis

What this step is about?

The data you gathered and already analysed now needs to be put into the right context.

Aim
to draw valid conclusions and assess the solutions within their specific contexts
Time
1 – 2 days
Methods
Sense-making, discussion, physical meeting, societal impact assessment, research ethics

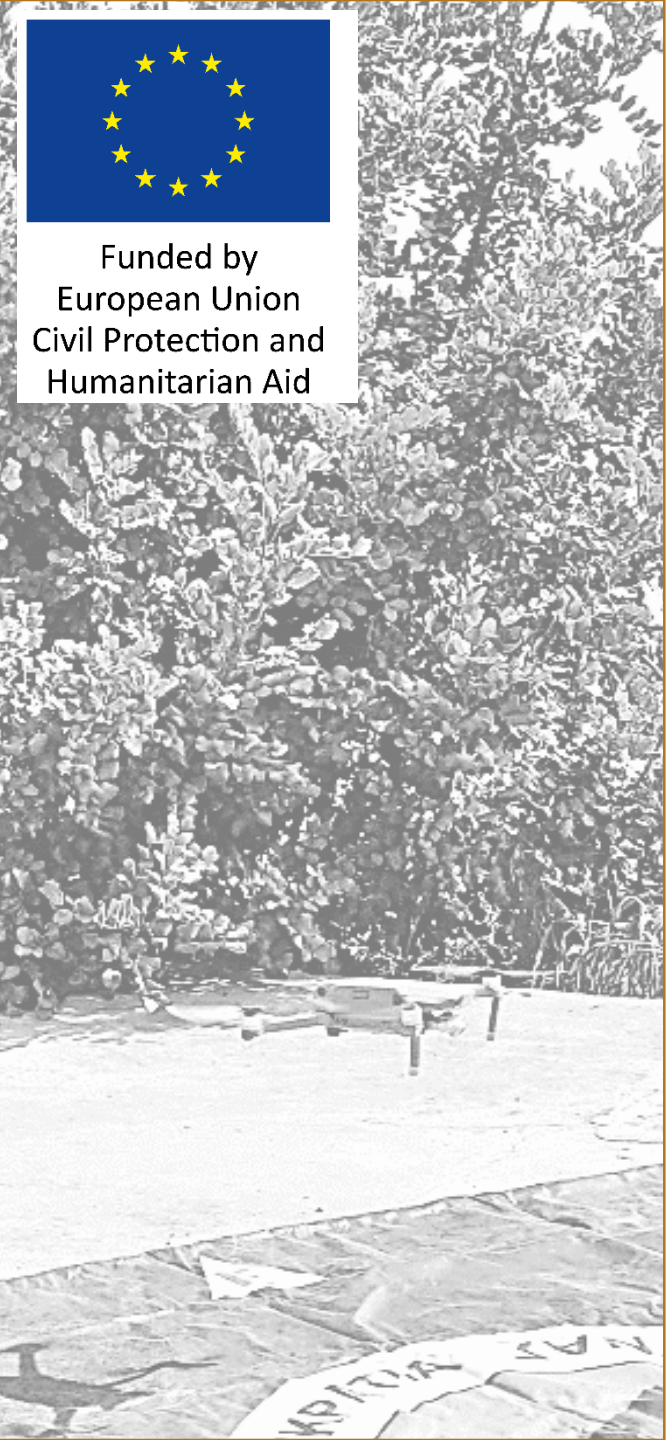


Documentation and dissemination

What this step is about?

Let people know what you learnt. About your gaps and how to bridge them but also about trials. Prepare them to use in the future!

Aim
to make sure the gained knowledge is sustained
Time
2 days
Methods
Meeting, social media, website, newspaper article, conferences, societal impact assessment, research ethics



Funded by
European Union
Civil Protection and
Humanitarian Aid

ARTION

PART B

Part is dedicated for personel that wishes to apply TGM practically, by organsing their own trial. It explains selected practicalities of carrying a trialing event of significant scale.

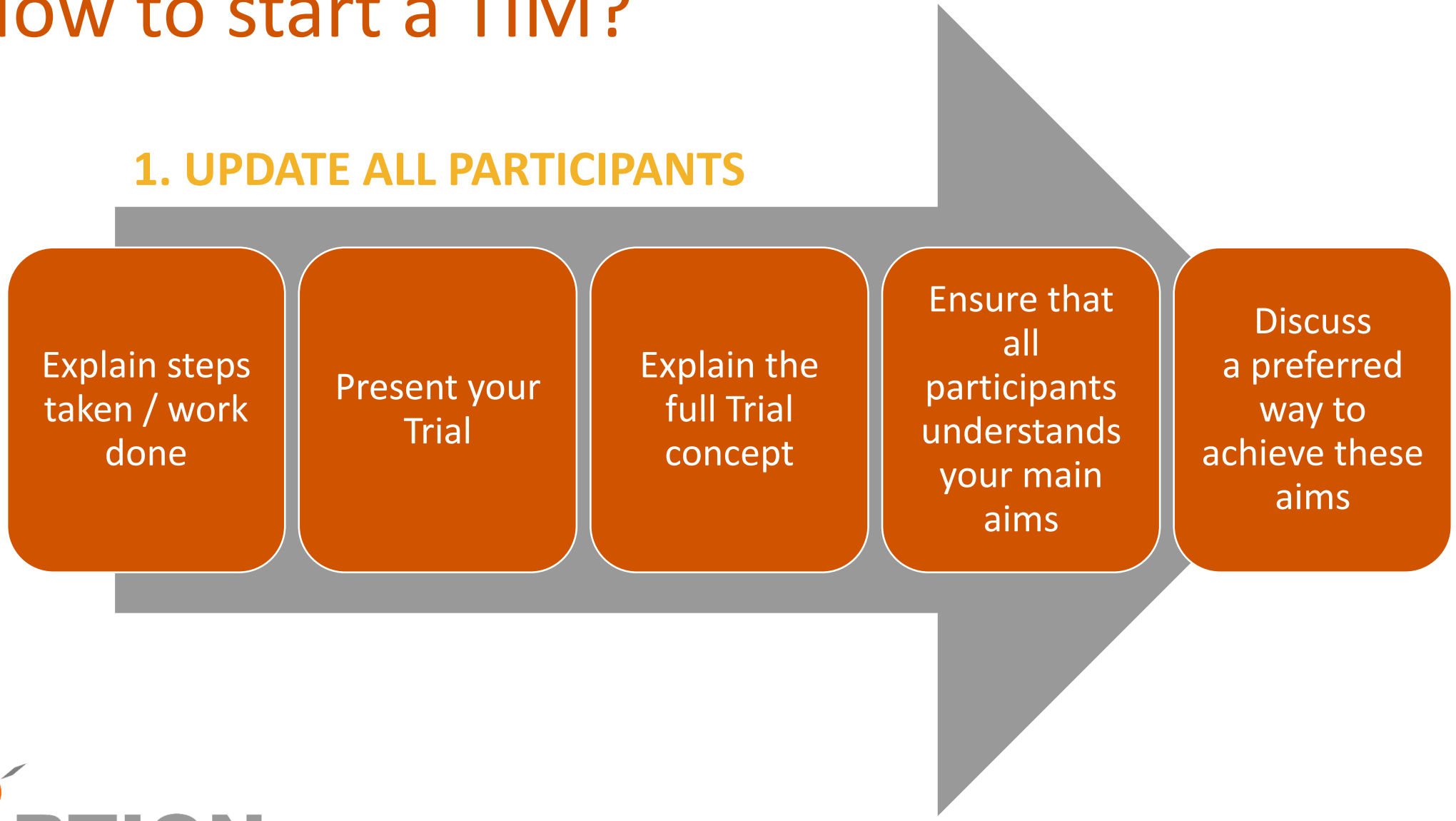
University of Cyprus
KOÏOS
Research and Innovation Center of Excellence
CYPRUS CIVIL DEFENCE
ΠΟΛΙΤΙΚΗ ΑΜΥΝΑ ΚΥΠΡΟΥ
REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA
Université de Lille
CRIStAL
C!K Centrum Informacji Kryzysowej
CBK

Integration Meeting

Most critical moment of a Trial

How to start a TIM?

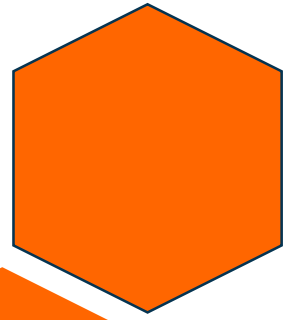
1. UPDATE ALL PARTICIPANTS



How to start a TIM?

2. ALIGN YOURSELVES

The main roles in Trial



Trial owner

- Developing a proper scenario
- Hosting the Trial
- Directing the Trial

Technical Coordinator

- Application of testing infrastructure
- Managing solution providers

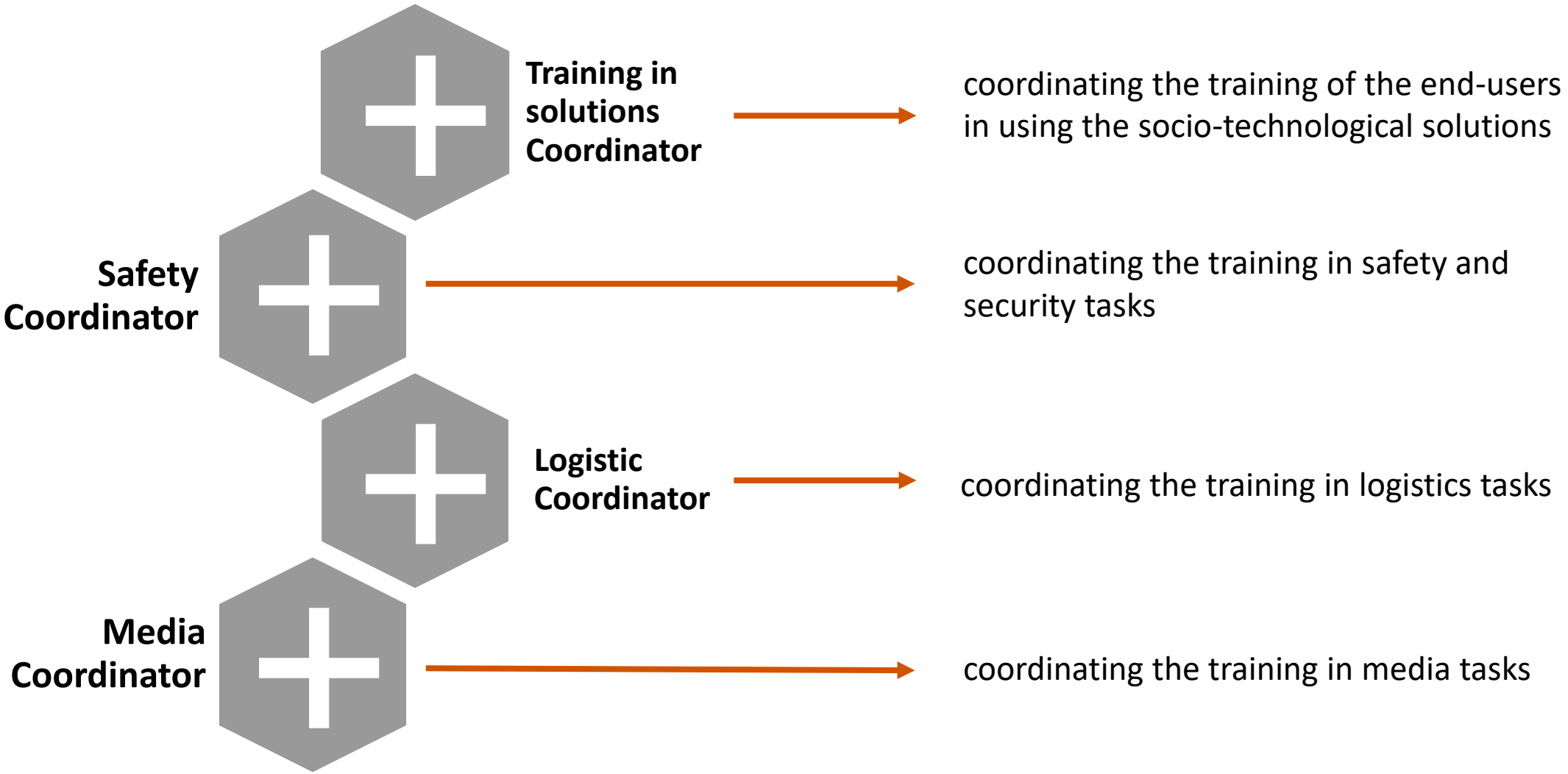
Practitioner Coordinator

- Covering the (co-)participation of CM practitioners in the respective phases and steps of the TGM application
- Managing CM practitioner relationship

Evaluation Coordintor

- Ensuring a high evaluation quality
- Managing the Trial evaluation
- Managing the Solution evaluation
- Managing the CM evaluation

ARTION

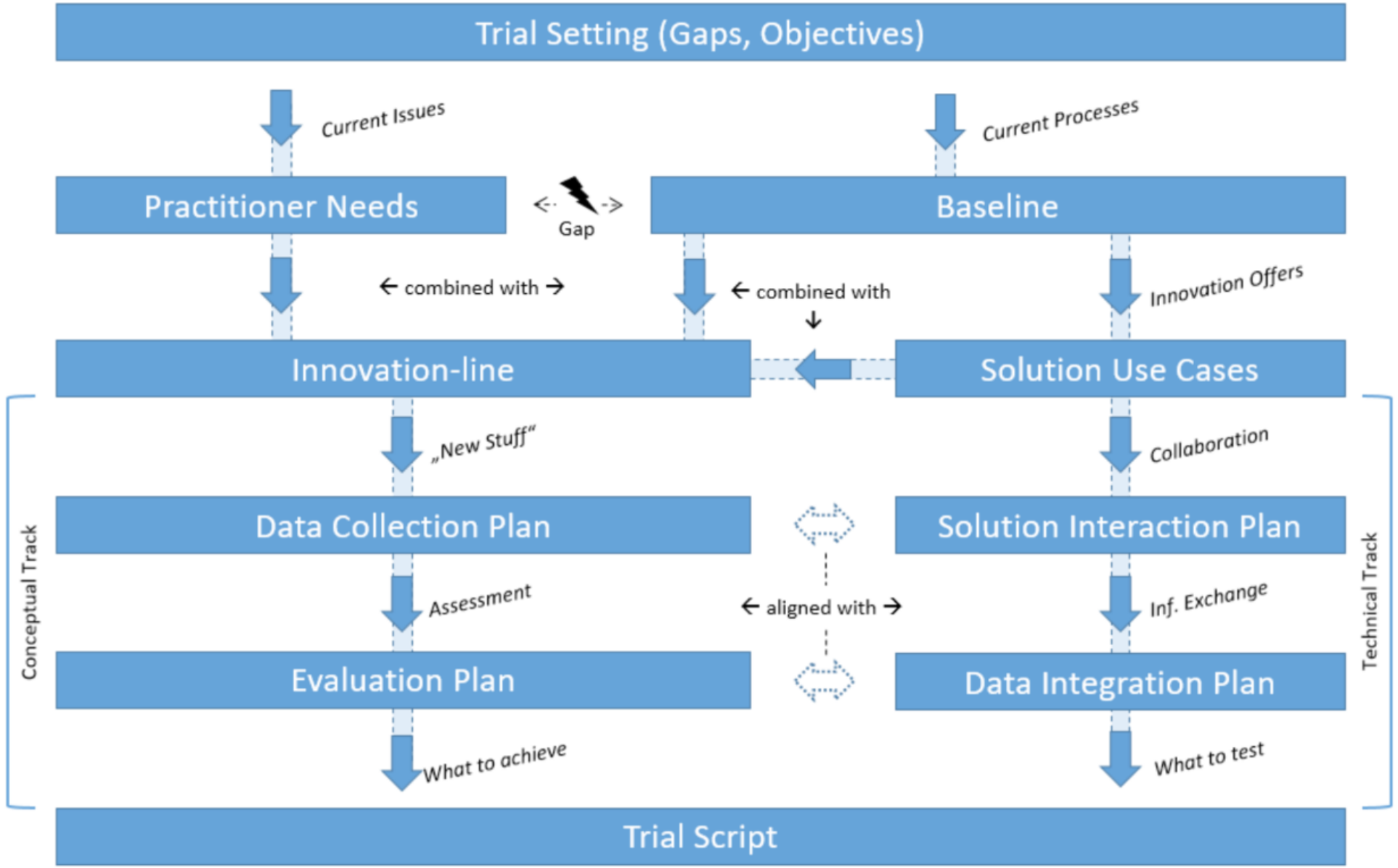

Training in solutions Coordinator
coordinating the training of the end-users in using the socio-technological solutions
Safety Coordinator
coordinating the training in safety and security tasks
Logistic Coordinator
coordinating the training in logistics tasks
Media Coordinator
coordinating the training in media tasks

Two parts of TIM

Collective part:
- ✓ Communicating
- ✓ Presenting
- ✓ Explaing
- ✓ Agreeing

Technical track
- ✓ Data exchange
- ✓ Discussing and testing integrability

Conceptual track
- ✓ Innovation line
- ✓ Data collection
- ✓ Assessment plan


Trial Setting (Gaps, Objectives)
Current Issues
Current Processes
Practitioner Needs
Gap
Baseline
← combined with →
← combined with
Innovation Offers
Innovation-line
Solution Use Cases
„New Stuff“
Collaboration
Data Collection Plan
Solution Interaction Plan
Assessment
← aligned with →
Inf. Exchange
Evaluation Plan
Data Integration Plan
What to achieve
What to test
Conceptual Track
Technical Track
Trial Script

ARTION

Detailed Objectives of a TIM - example

- **Solutions (technical aspects)**
  - First solutions integrations and (part of) the initial scenario run,
  - Creation of initial technical set-up and test-scenarios,
  - Solution organizational & technical constraints analysis,
  - Discuss where solutions are used in the scenario.
- **Scenario aspects**
  - Explanation of the initial trial scenario and trial constraints,
  - Explanation and check on the baseline,
  - Creation and discussion on the innovation line,
  - Discussion over KPI's for the trial.

Food for thoughts?

- ❑ Is the initial technical set-up important?
- ❑ Do participants of TIM need to know the scenario?
- ❑ Should they have influence on it?
- ❑ Which aims are the most important?

ARTION

Objectives of A TIM - example

- **Training**
  - Training for participants – verification of what kind of training is needed to be organized and planning for it (solutions, simulators, testing infrastrucutre components, other),
  - Plan training for practitioners,
  - Set complete training requirements.
- **Solutions (and their scenario aspects)**
  - Explanation on the Trial assessment and evaluation aspects,
  - Discussion on solutions test cases,
  - Discussion on solution based evaluations and assessments.
  - Planning for initial tests and possible additional workshops
- **Trial planning and organization**
  - Trial set-up and agenda discussed
  - Dry Runs 1 and 2 set-up and agenda discussed.

Food for thoughts?

- What training for participants must be provided? What training is optional?
- Who sholud discuss evaluation aspects? Why?

Objectives of A TIM - example

- **Managing the risks**
  - List the risks together with impact,
  - Propose minimalizing, mitigation or insurance efforts.

- **Trial Management**
  - Communication and dissemination planning
  - Identification of follow-up action items: detailed planning for upcoming months

- **Dissemination and communication**
  - VIP presentations / VIP ovservers discussed.
  - Invitation of high-level guests (DG ECHO, DG HOME, JRC, others)
  - Selection of event anchorman
  - General areas of interest of FD movie / photography

- **First readiness review on Trial realization (TIM CLOSING SESSION)**

ARTION

The TIM Challenges

Whatever can go wrong, will go wrong.

Do a list of risks associated with the TIM organization.

Think about the TIM quality on execution of a Trial.

Find a way to manage all risks.

ARTION

The TIM Challenges

- **"Hofstadter's Law: It always takes longer than you expect, even when you take into account Hofstadter's Law."[1]**

- Gather all the risks of delay will be. Include:
  - the size of the project,
  - Time buffers in your Trial planning,
  - Way to implement suitable attention towards meeting small individual milestones in your project management.

[1] Gödel, Escher, Bach: An Eternal Golden Braid. 20th anniversary ed., 1999, p. 152.

ARTION

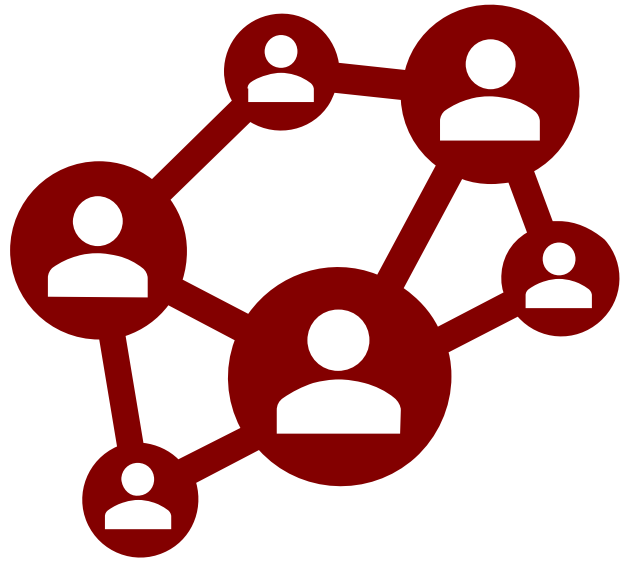
The TIM Challenges

Managing towards the outcome rewards experience…

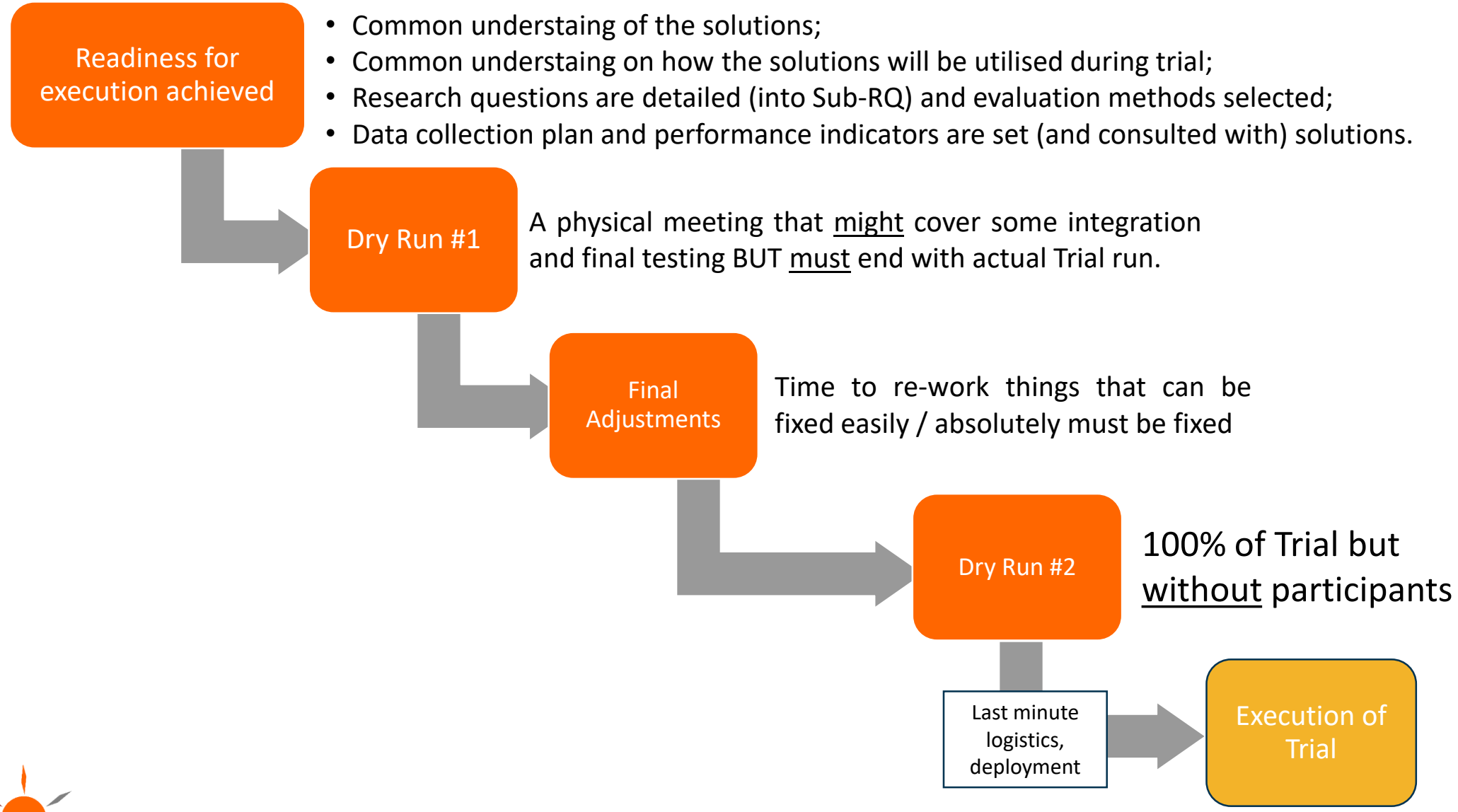
…but things can get tricky, if your team lacks that.

For a mission-focused tasks to succeed:

- The coordinators understand the intent of their task,
- The coordinators need have proper guidance,
- The coordinators need to be trained to act independently,
- The Trial Committee needs to be extremely rigorous, absolutely clear,
- Give only essential directions.

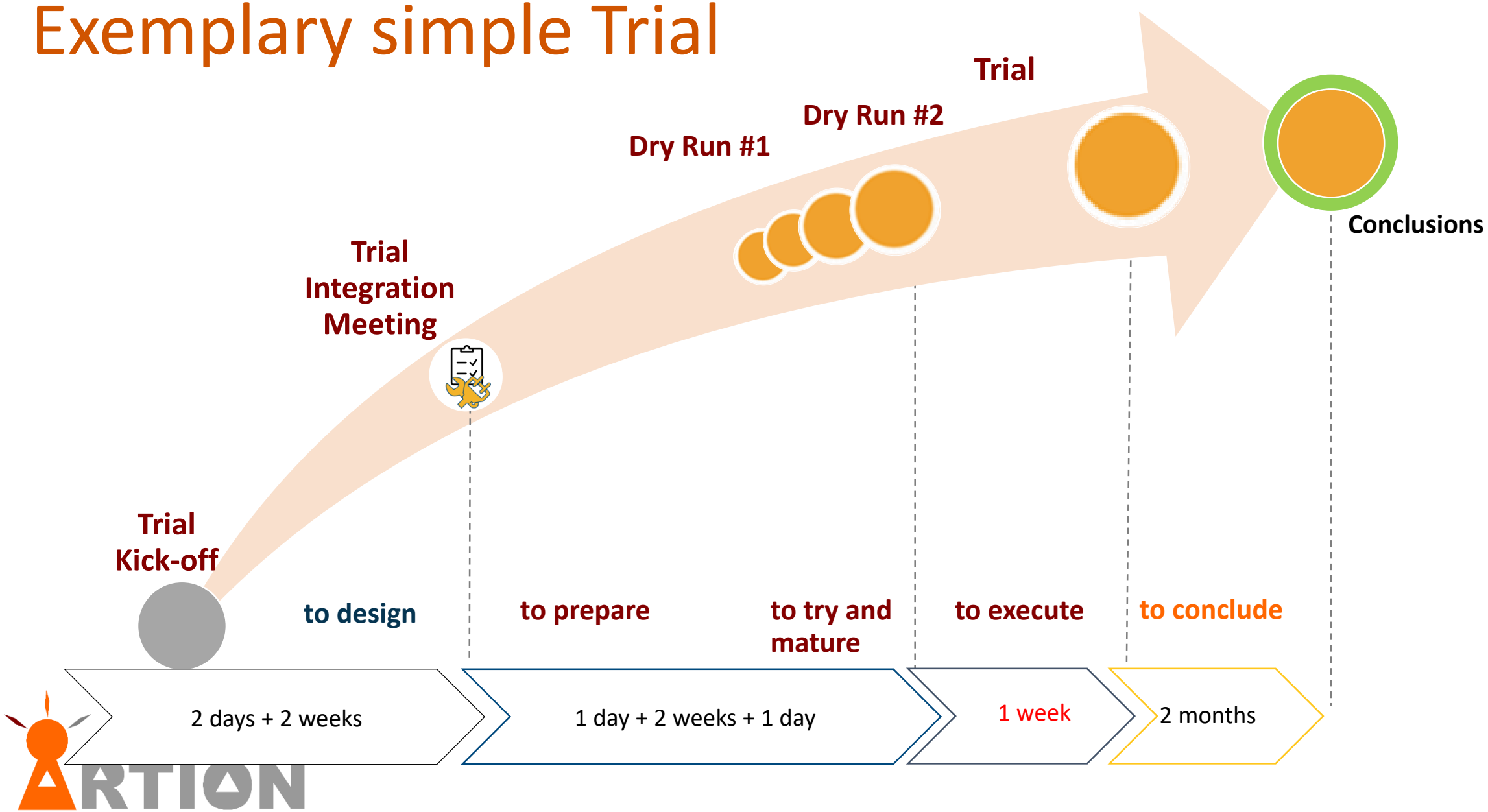


ARTION


Readiness for execution achieved
• Common understaing of the solutions;
• Common understaing on how the solutions will be utilised during trial;
• Research questions are detailed (into Sub-RQ) and evaluation methods selected;
• Data collection plan and performance indicators are set (and consulted with) solutions.
Dry Run #1
A physical meeting that might cover some integration and final testing BUT must end with actual Trial run.
Final Adjustments
Time to re-work things that can be fixed easily / absolutely must be fixed
Dry Run #2
100% of Trial but without participants
Last minute logistics, deployment
Execution of Trial

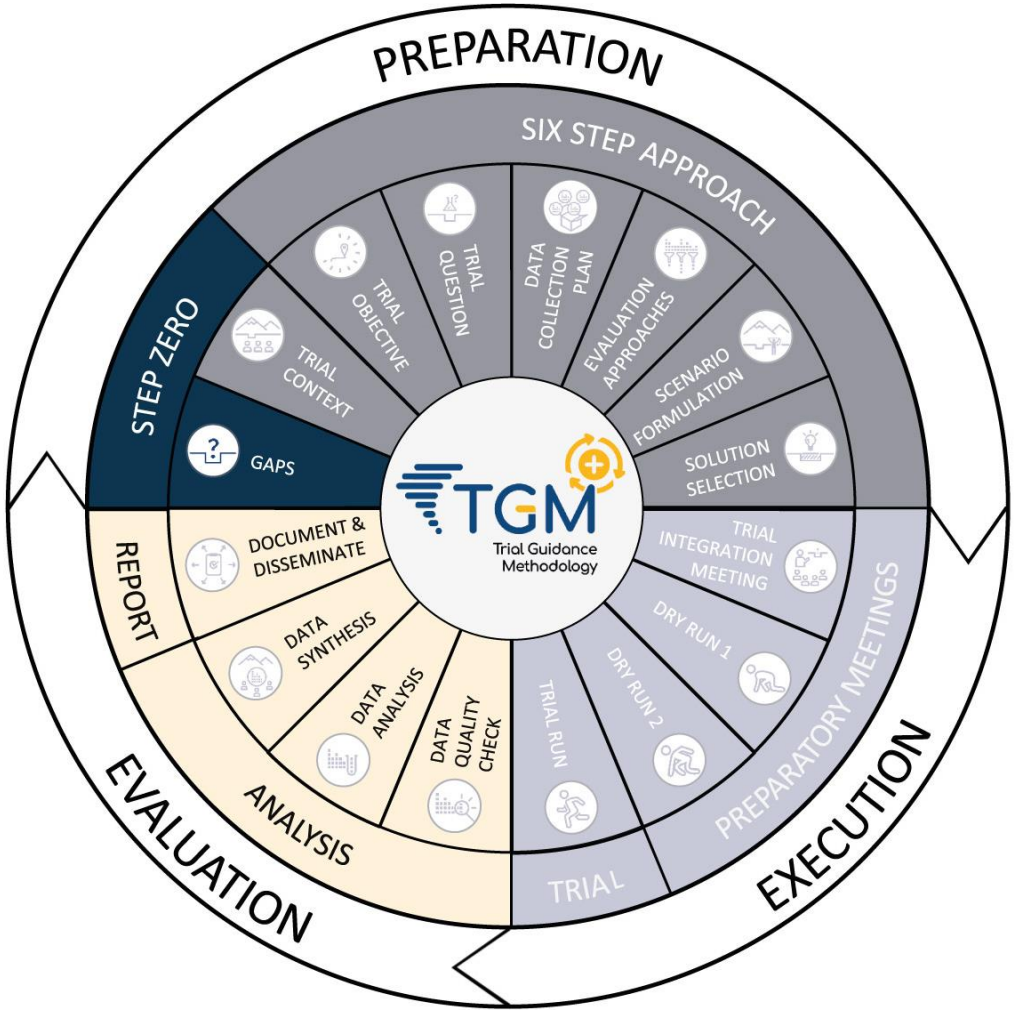
Checklists for each step

Exemplary simple Trial



Inputs and Outputs

DRIVER+ CM gaps



Context-specific validation of DRIVER+ CM gaps

Useful Methods and tools

Workshops

Focus groups

Interviews

Baseline

DRIVER+ gap list, CM taxonomy, online survey tools, Excel, trial action plan, L3, trial guidance tool, knowledge base, portfolio of solutions

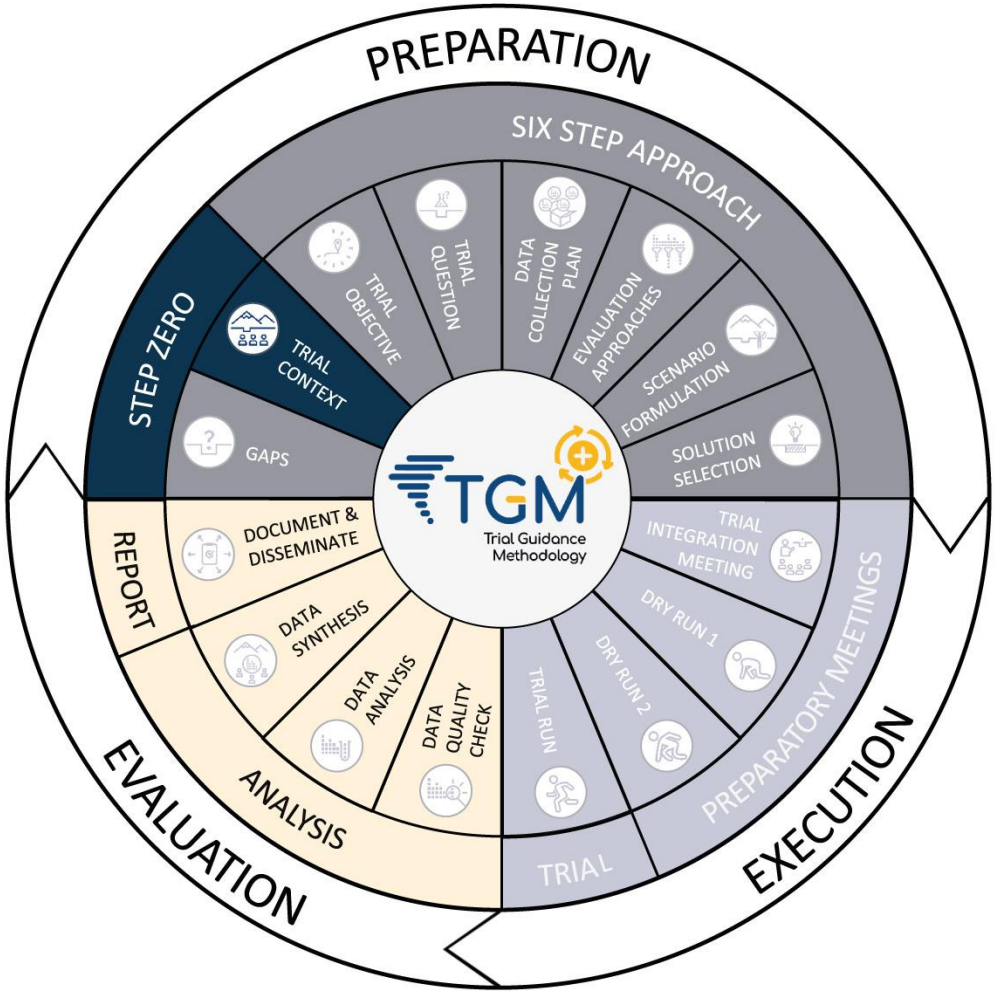
Checklist

- Gaps selected from 21 DRIVER+ gaps
- Gaps discussed with practitioners
- Additional gaps identified (optional)

TIP: https://www.driver-project.eu/wp-content/uploads/2018/08/DRIVERPLUS_D922.11_List-of-CM-gaps.pdf - list of 21 DRIVER+ gaps

Inputs and Outputs

Gaps & trial context



SMART trial objective(s)

ARTION

Useful Methods and tools

Brainstorming and discussion

Visualisation of processes and structures

Baseline

Societal impact assessment

Research ethics

Sticky notes

Whiteboard

Mind maps

Process models

Organigrams

Trial guidance tool

Trial action plan

Knowledge base

Portfolio of solutions

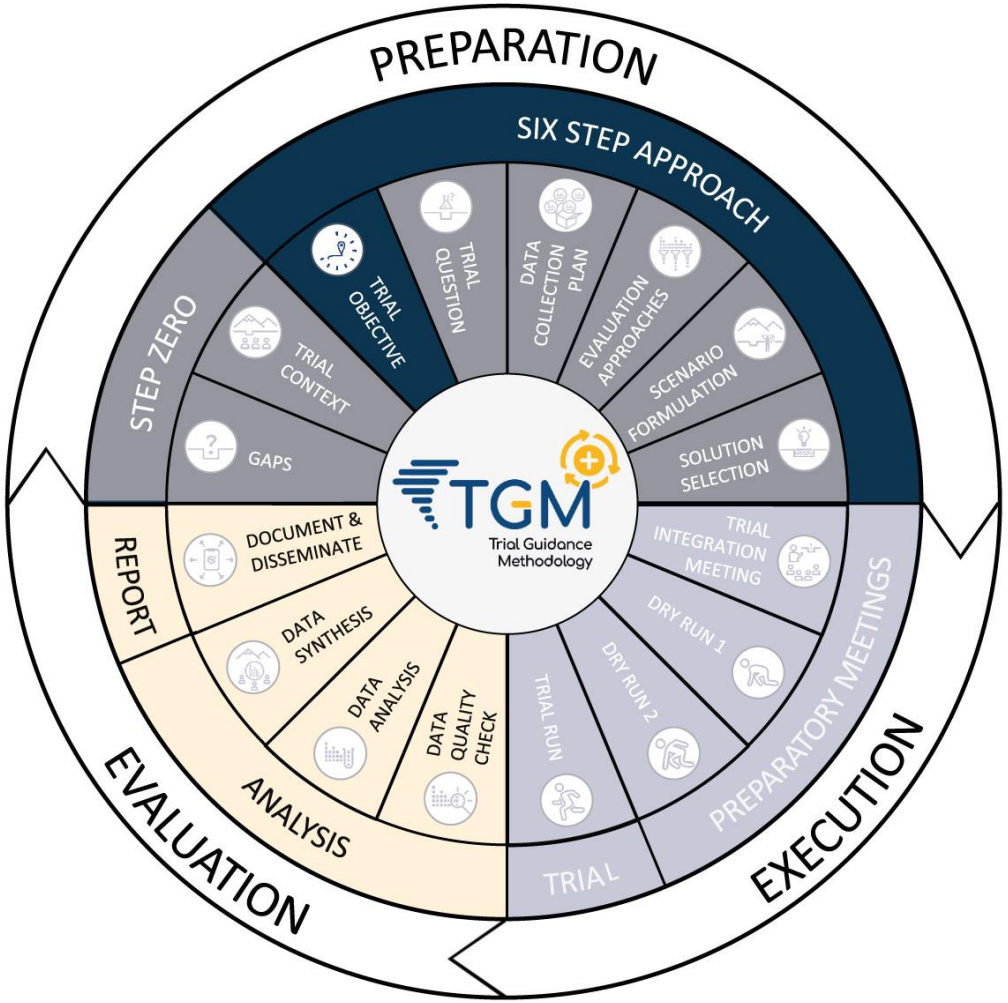
Checklist

- Trial context template downloaded
- Trial context template discussed
- Trial context template fi lled in completely
- First baseline draft depicted
- Your gap might touch on ethical issues (e.g. CBRNe or data privacy related topics).

Trial Objective

Inputs and Outputs

Gaps & trial context



SMART trial objective(s)

ARTION

Trial Objective

Useful Methods and tools

Brainstorming and discussion

Pen & paper
Mindmaps
SMART-defi nition
Trial guidance tool
Knowledge base
Trial action plan

Checklist

- Aim/goal for improvement per gap written down
- Each objective is formulated in a SMART way
- SMART objectives discussed with practitioners
- Objectives are all feasible
- Overall objective of the trial (“slogan”) formulated and discussed

TIP:
SMART – Specific, Measurable, Achievable, Relevant, Timebound
SMARTER - Specific, Measurable, Achievable, Relevant, Timebound, Evaluated, Reviewed

Trial Question

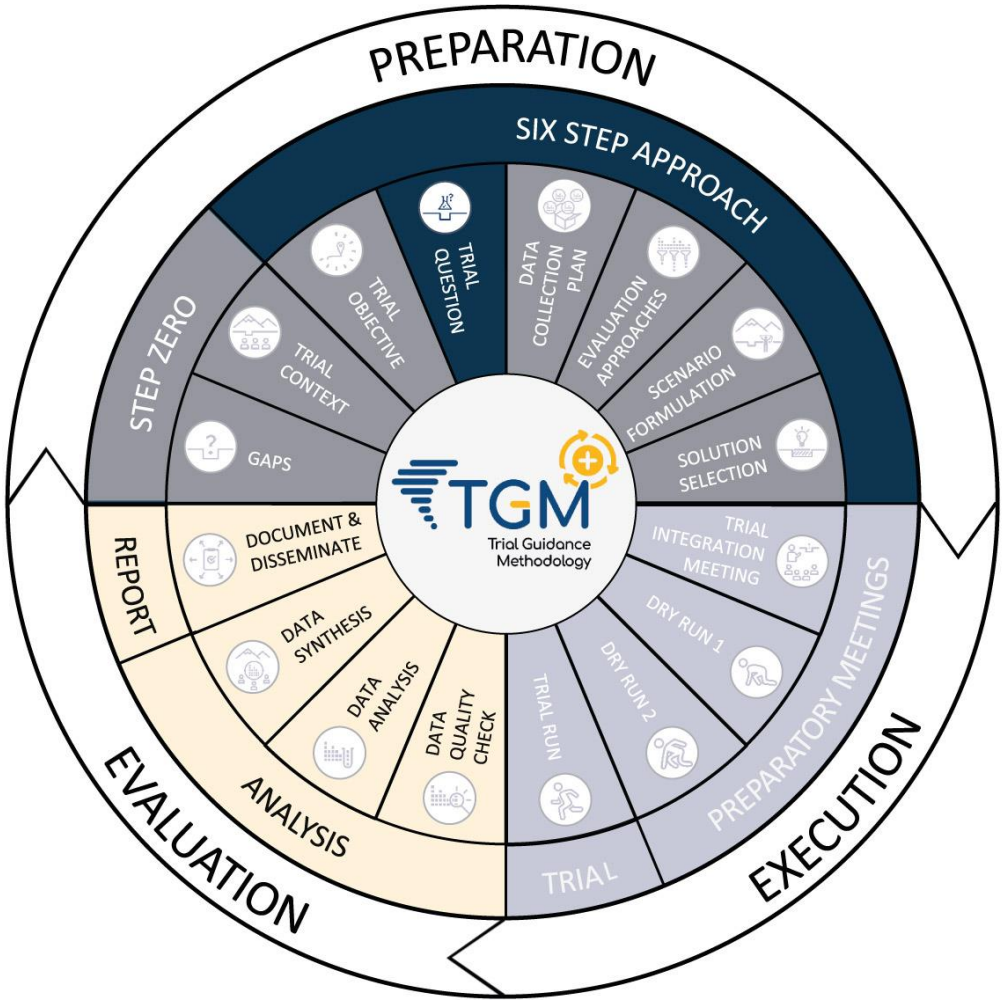
Inputs and Outputs

Trial context

CM gaps

SMART

Trial objective(s)



One or more research questions

ARTION

Useful Methods and tools

Workshop

Discussions

Societal impact assessment

Research ethics 3 dimensions & KPI’

Physical meeting

Teleconferences

Mind-maps

Pen & paper

Trial guidance tool

Trial action plan

Knowledge bas

Checklist

- Cross-checked whether every gap is covered by (at least one) research question
- Checked that each research question meets the above mentioned research question criteria
- Checked whether each research question is updated with the newest information (while following the iterative, co-creative six step approach)

TIP: Remember about 9 criteria to formulate a good research question.

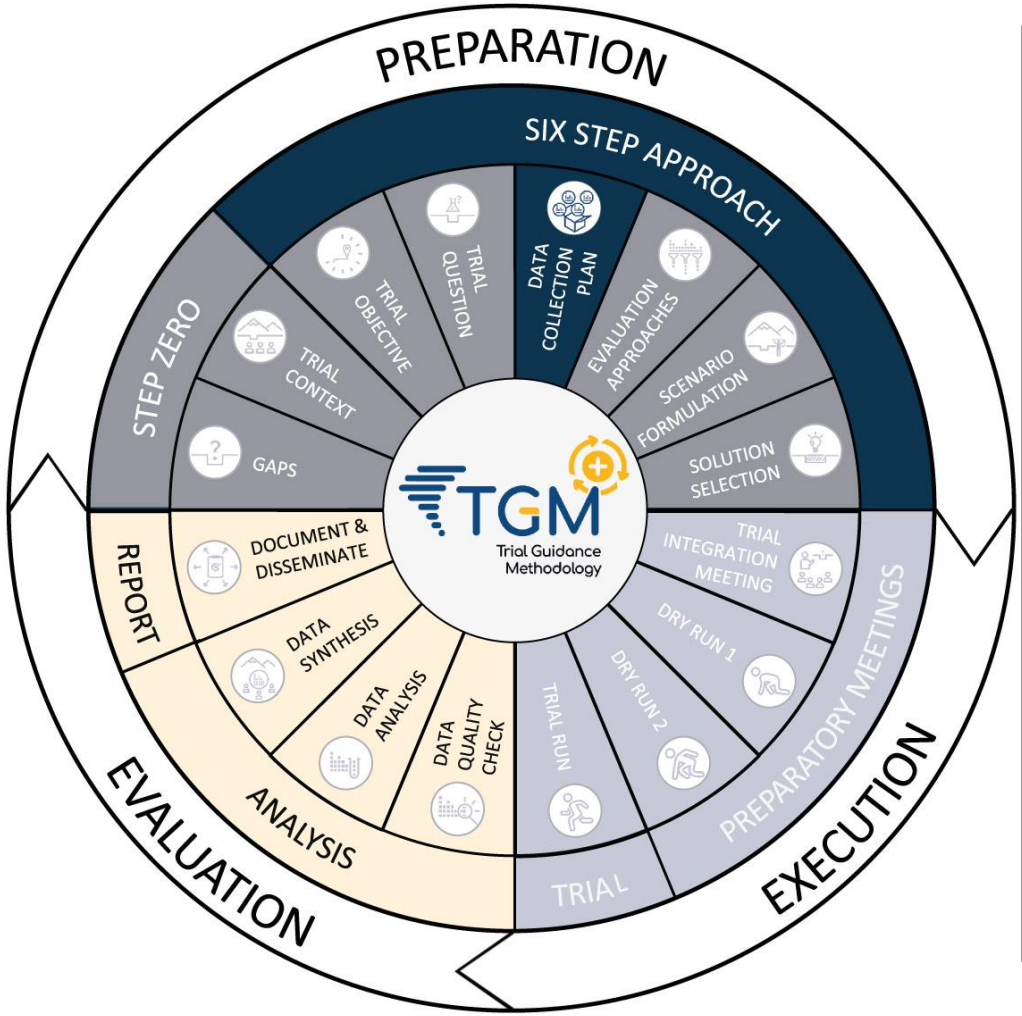
Inputs and Outputs

Trial objectives

Research questions

List of generic KPIs

Applied baseli



A structured data collection plan

Useful Methods and tools

Brainstorming

Process modeling

Baseline

Innovation line

Societal impact assessment

Research ethics

3 dimensions & KPI's

Excel, flow diagram, CM taxonomy, trial guidance tool, observer support tool, trial action plan, knowledge base, knowledge base, after-action review tool, observer support tool, extra developer too

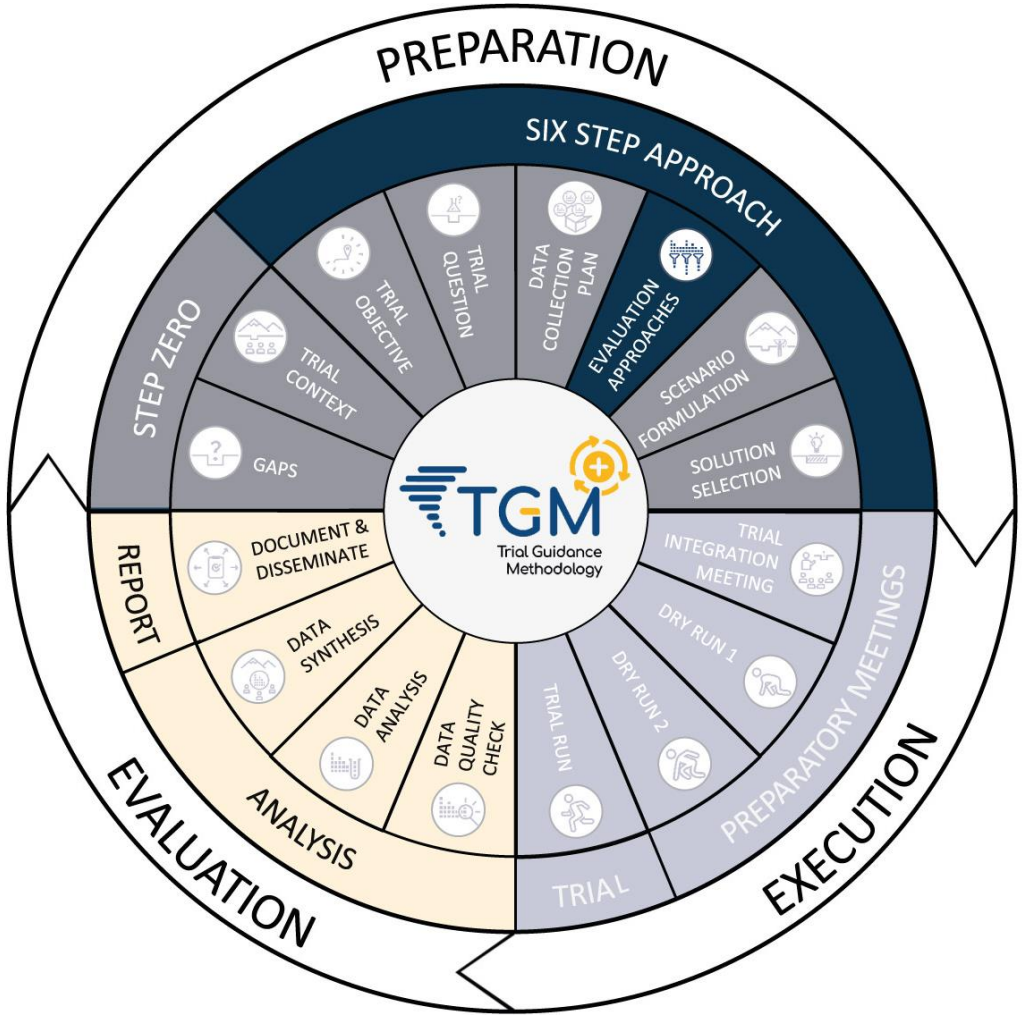
Checklist

- Determined what data is to be collected
- Determined measures and metrics (KPIs)
- Determined how data will be collected (e.g. self-report methods: questionnaire, interviews, observations)
- Determined who will be collecting, when, and if it is feasible to collect

TIP: Data collection can concern ethical and legal issues. Consider this, and prepare the relevant documents, such as informed consent sheets and non-disclosure agreement

Inputs and Outputs

Data collection plan



List of techniques and tools for evaluation

Useful Methods and tools

Brainstorming

Quantitative analysis techniques

Qualitative analysis techniques

Innovation line

Societal impact assessment

Research ethic

Trial guidance tool, CM taxonomy, lessons learnt library, trial action plan, knowledge base, knowledge base, after-action review tool, observer support tool, admin tool and security, extra developer tools

Checklist

- KPI's & metrics formulated
- Targets per KPI & metric
- Match data with a specific evaluation approach
- Reality check: are the evaluation approaches feasible?
- To analyse and disseminate data or results can include various ethical and/or legal challenges; identify these, e.g. via external consultations, and document how they are followed up

TIP: While you still don't have a precise idea of how the data will look like, you should start thinking of advantages and disadvantages of specific techniques and tools

Scenario formulation

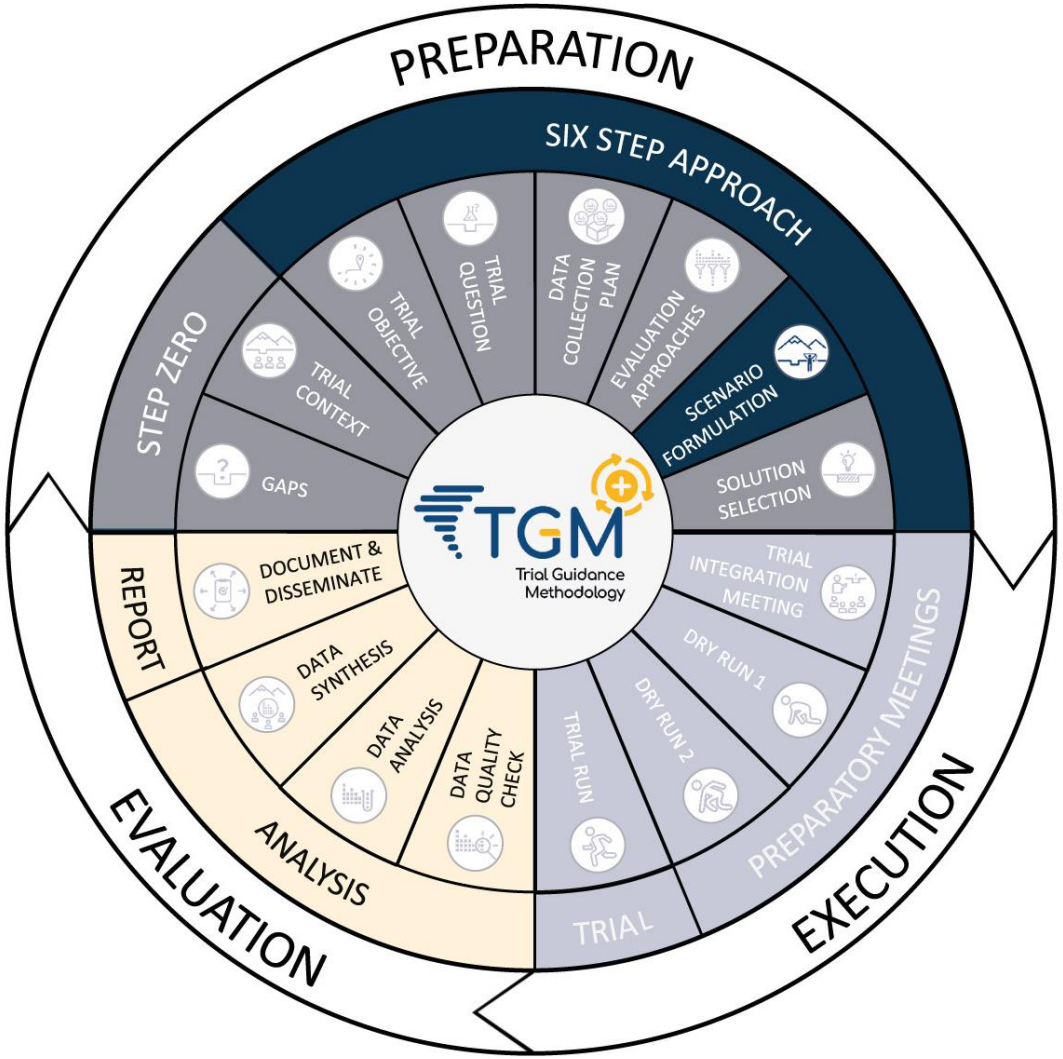
Inputs and Outputs

Trial context

Gaps

Research question

Data collection plan



Scenario script/storyboar

Useful Methods and tools

Brainstorming & screenplay writing

Baseline

Societal impact assessment

Research ethics

Trial guidance tool, whiteboard, sticky notes, trial management tool, trial action plan, knowledge base, portfolio of solutions

Checklist

- Key events to provoke a gap clearly stated
- Triggering conditions and injects per key event identified and written down
- Key events combined with a conclusive storyline
- Injects prepared to trigger the needed key events
- Consider if there are legal implications for the scenario chosen, or whether it can have negative societal impact

TIP: Your scenario might touch upon sensitive topics (e.g. CBRNe or triage). Look up and consult available ethics guidelines (e.g. for CBRNe security or data protection) and integrate ethical considerations into the scenario from the onset.

ARTION

Scenario =/= script

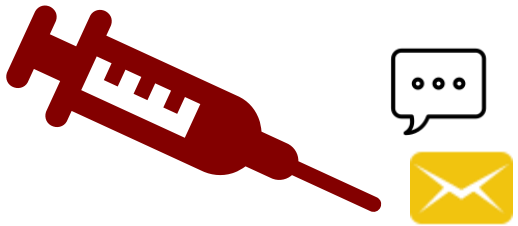
Scenario brings a general picture of a situation, in which appears the gap you want to bridge. It needs to be in line with reality and portray factual operational procedures, be reasonable and relevant.

Script is a specific tool that organisers follow to run a trial. It is basically a trial written step by step. It can, but doesn't have to, indicate as well what each step is for and highlight places where critical measurements of trialed solution are taken.

The trial script

Timetable / table of injects*

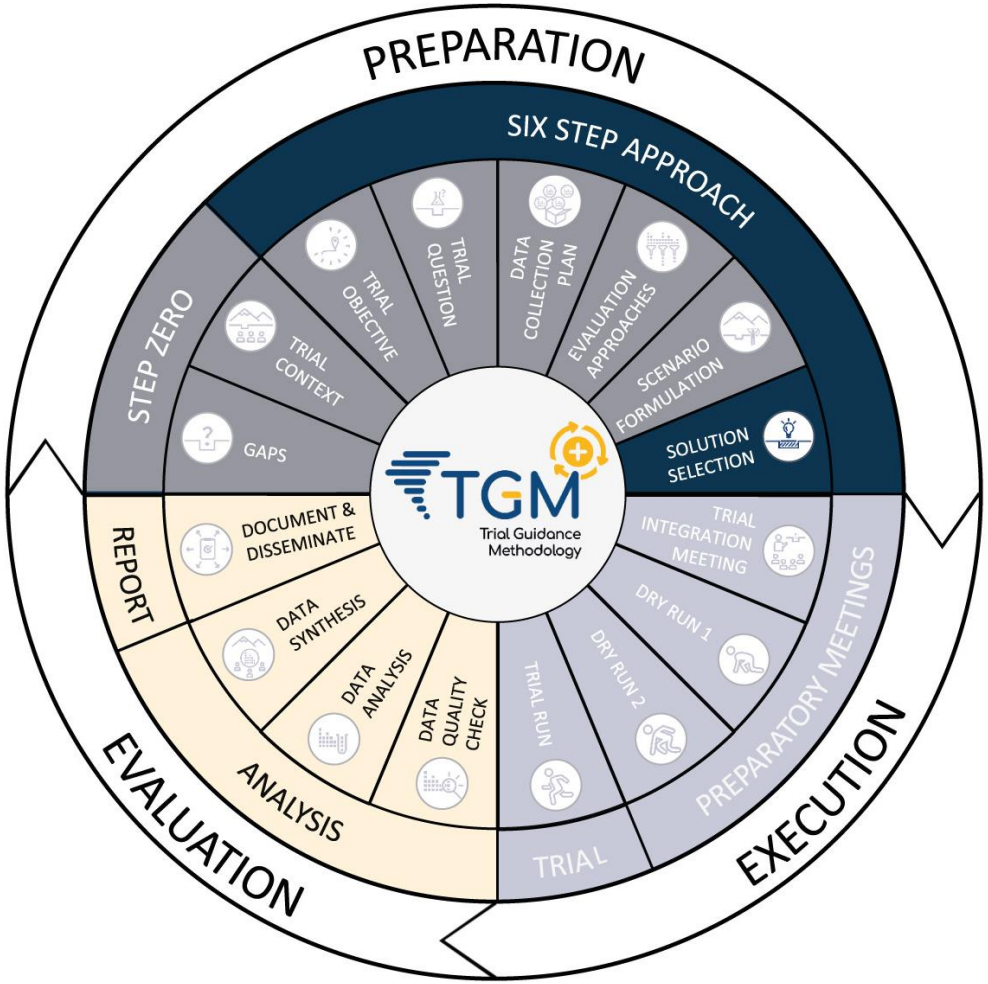
No	Process	Situation/action (location, actors and activities)	Concerned roles	Triggering point / inject	Final point of the process	Simulated elements	Legacy systems	Innovative solution use
1	Initial alert	Anonymous person A calling - Realizes the need of an ambulance.	The 112 caller	Starting point	Decision to dispatch the adapted means.	Phone call - Simulated caller by simulation team.	call centre, Phone, day log	The 112 application
2	Location	Anonymous person A calling - describes location	The 112 caller	Operator answers call	Indicated location	Phone call - Simulated caller by simulation team.	call centre, Phone, day log	The 112 application



* **Inject:** one portion of data (message, simulation, radio communication) provided by simulation team to participant(s)

Inputs and Outputs

Trial context & gap



List of selected solution(s) for the Trial

Useful Methods and tools

Solution selection process

Innovation line

Societal impact assessment

Research ethics

Website, physical meeting, solutions, trial host infrastructure (espcially wifi), CM taxonomy, trial action plan, trial guidance tool, knowledge base, portfolio of solution

Checklist

- Needed solution functionalities for closing the gap identified
- Solution selection process followed
- Solution review issued
- Preselection finalised
- Solution demonstration meeting held
- Solution selection agreed upon
- Agreed with solution provider on terms of participation in a trial
- Carry out a Societal Impact Assessment (SIA) on the chosen solutions. Identify and follow up on potential legal or ethics issues relating to the use of the solutions

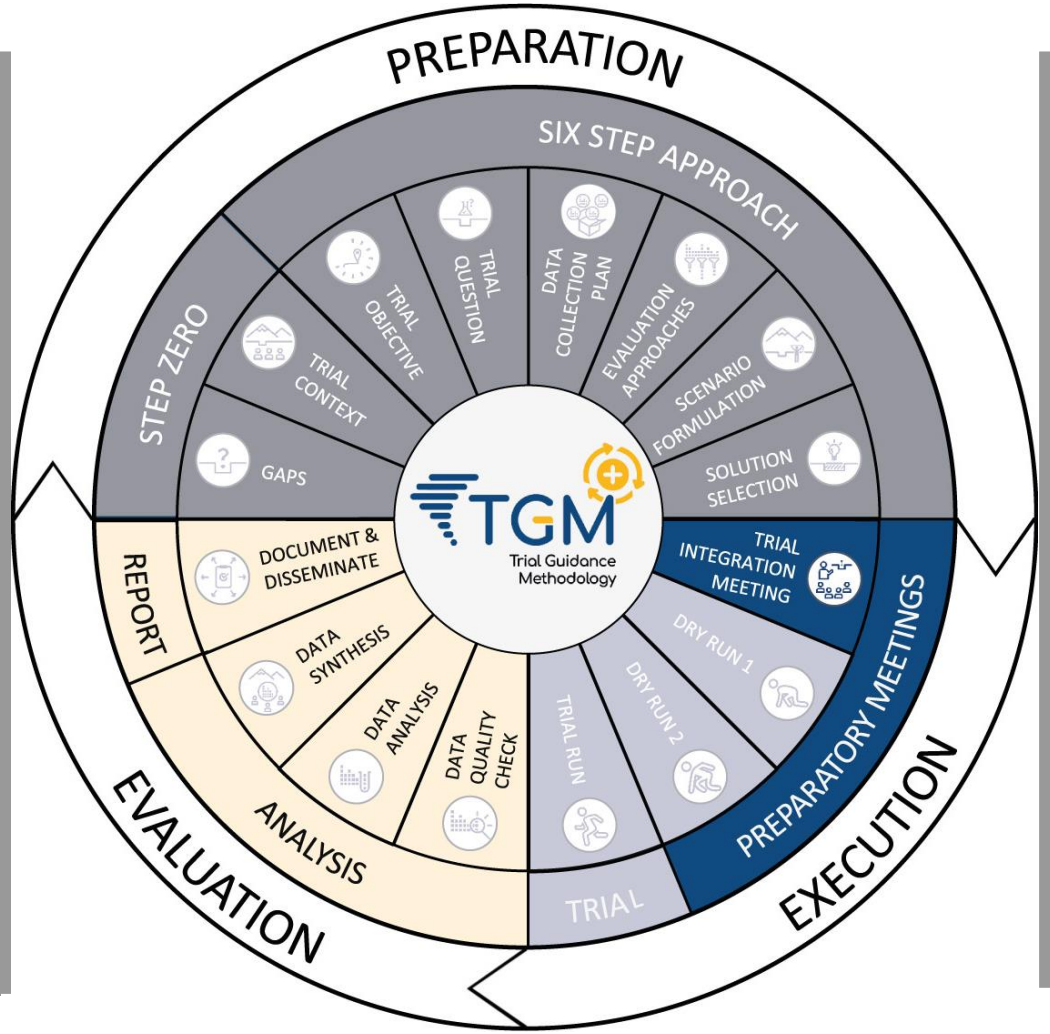
Inputs and Outputs

Trial context

Solution info

Base-line

Draft innovation-line



Clear definition of practitioner and solution needs

Innovation-line

Data Integration Plan

Scenario input

ARTION

Useful Methods and tools

Interviews

Discussion

Process mapping

Flow diagram

Whiteboard

Sticky notes

testing infrastrucutre

Solutions

Trial action plan

Checklist

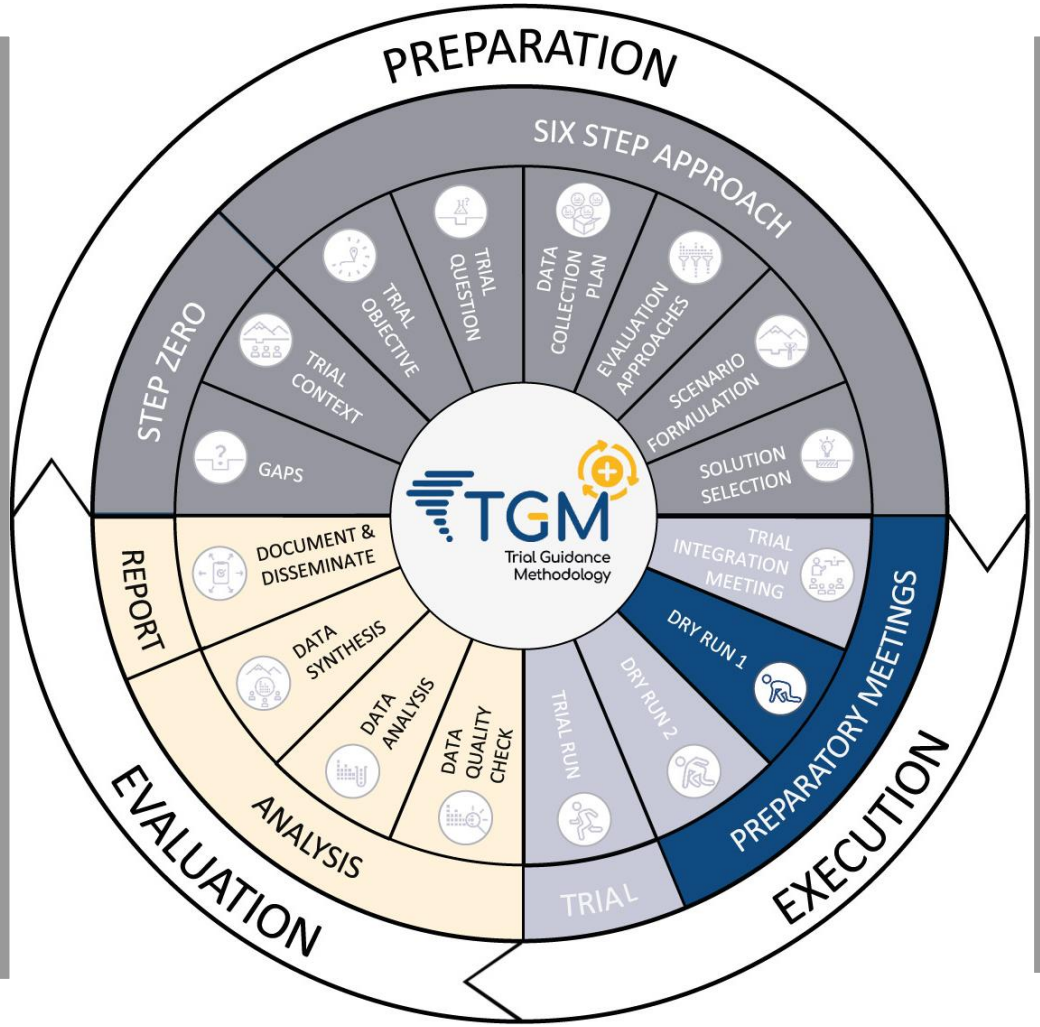
- Initial list of external stakeholders made
- Baseline ready
- Draft innovation-line prepared
- Draft data integration plan among solution providers and testing infrastructure personnel created
- Draft solution interaction plan created
- Use Cases per solution and key-event formulated
- Preliminary data collection plan and evaluation approach checked for feasibility

TIP: As this is the first physical working-meeting between solution providers and the Trial Committee, make sure legal issues relevant for the cooperation (e.g. NDA) are covered.

Inputs and Outputs

TIM output

detailed scenario



Concept of data collection

Concept of evaluation plan

To-Do list

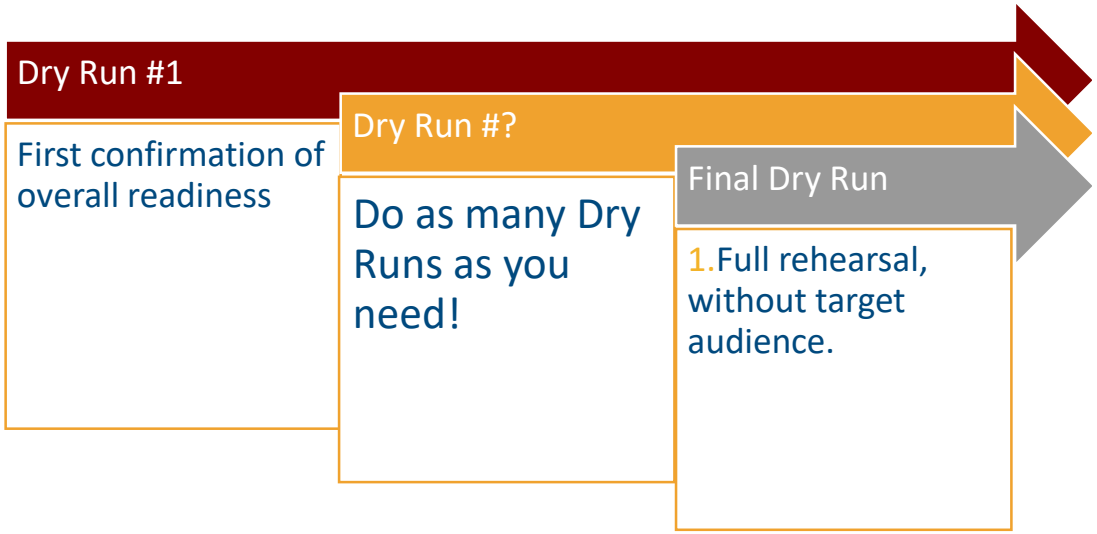
Common misconceptions about rehearsing – dry running:

Dry Run is not an initial technical integration.

Dry Run is not the first working meeting with solution providers.

Dry Run is not the first time to describe the scenario to the solution providers.

You don't write the scenario episodes during rehearsal.



What shoud you do during rehearsal?

+ You tailor the episodes and injects to perfectly fit the Trial
+ You integrate injects with data collection plan and test run it all together
+ **You review every element of the Trial and plan further basing on the review results**

Useful Methods and tools

Technical test

Role play

Solutions testing infrastrucutre

Observer Suport Tool

Trial Action Plan

Checklist

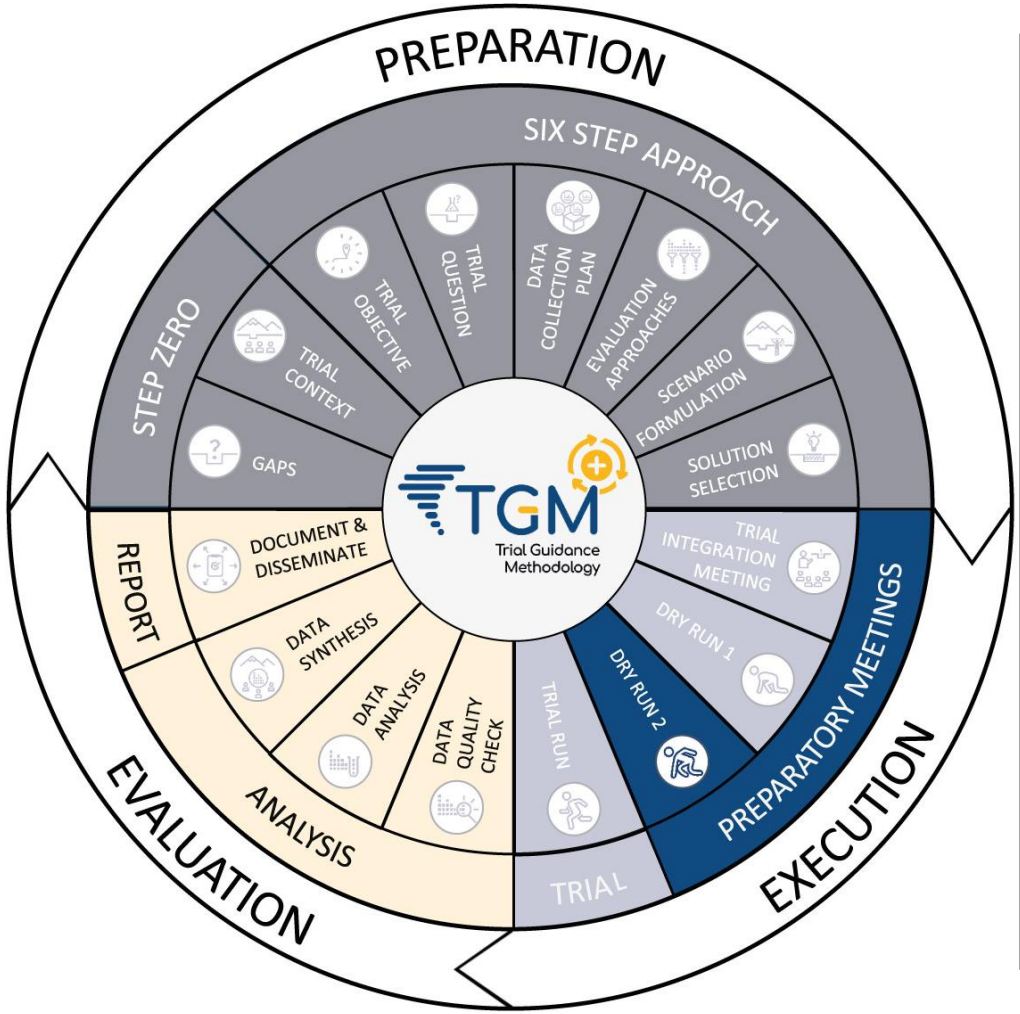
- Data Collection Plan & Evaluation Approach reviewed in practice
- Scenario and injects reviewed in practice
- Training on solutions tested
- Readiness review of solutions and technical integration conducted
- Local testing infrastrucutre adaptation reviewed
- Solutions approved
- Needed Roles reviewed in practice

TIP: Make sure legal (e.g. GDPR) and ethical issues (e.g. use of real Tweets) concerning the solutions are covered.

Inputs and Outputs

Trial script

Observer sheets



Approved script

Tested observations

Approved technical set-up

ARTION

Useful Methods and tools

Role play

Solutions

Testing infrastrucutre

Observer Suport Tool

Trial Action Plan

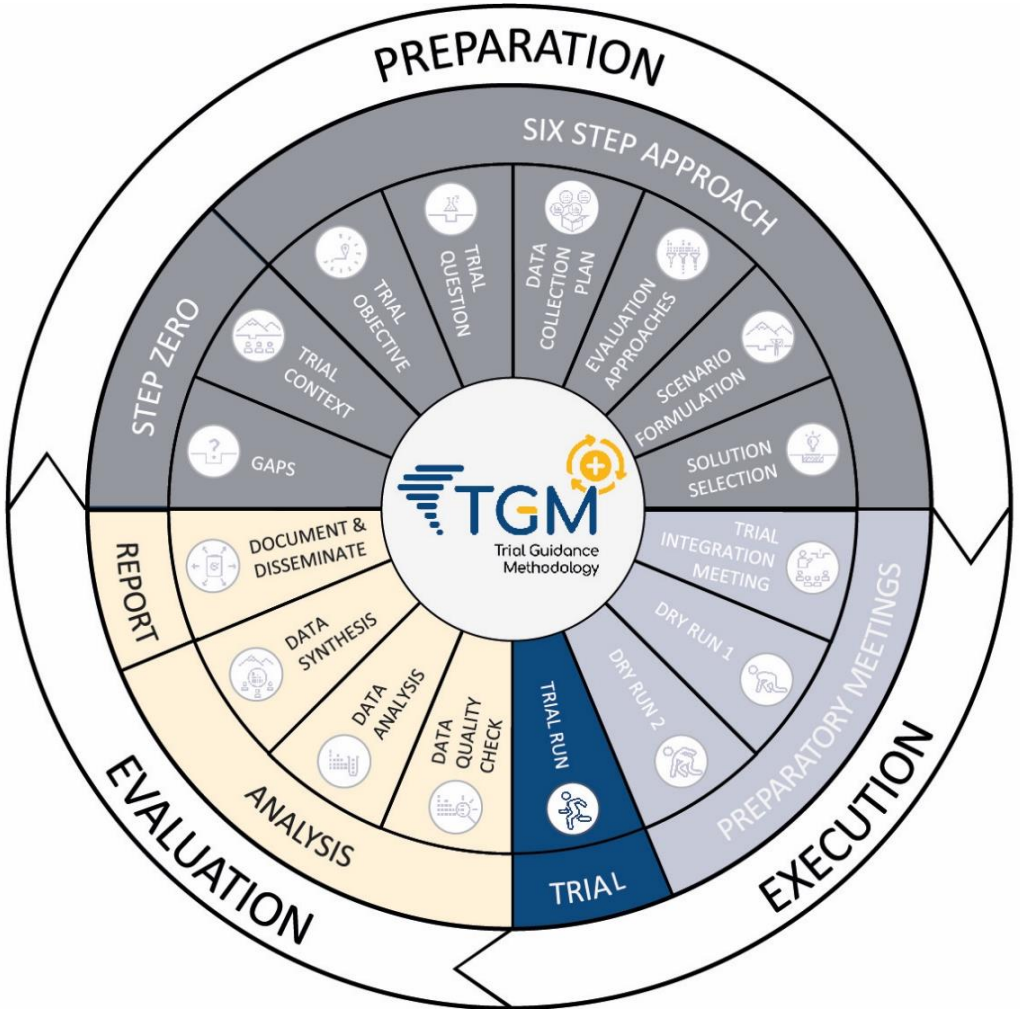
Checklist

- Data Collection Plan & Evaluation plan finally reviewed
- Scenario and injects finally reviewed
- Solution and technical integration confirmed
- Local adaptation of testing infrastructure confirmed
- Solutions approved for the Trial
- List of external stakeholders confirmed
- Dissemination and Communication activities conducted

TIP: Re-address any legal and ethical issues and investigate if new issues have emerged. As there are observers present, make sure to cover legal and ethical issues towards these (e.g. informed consent forms or NDAs). Follow up on potential societal impacts revealed during the solution selection .

Inputs and Outputs

Trial script



Raw data

ARTION

Useful Methods and tools

Data collection using different methods (qualitative and quantitative)

Solutions testing infrastrucutre

Observer Suport Tool

Trial Action Plan

Checklist

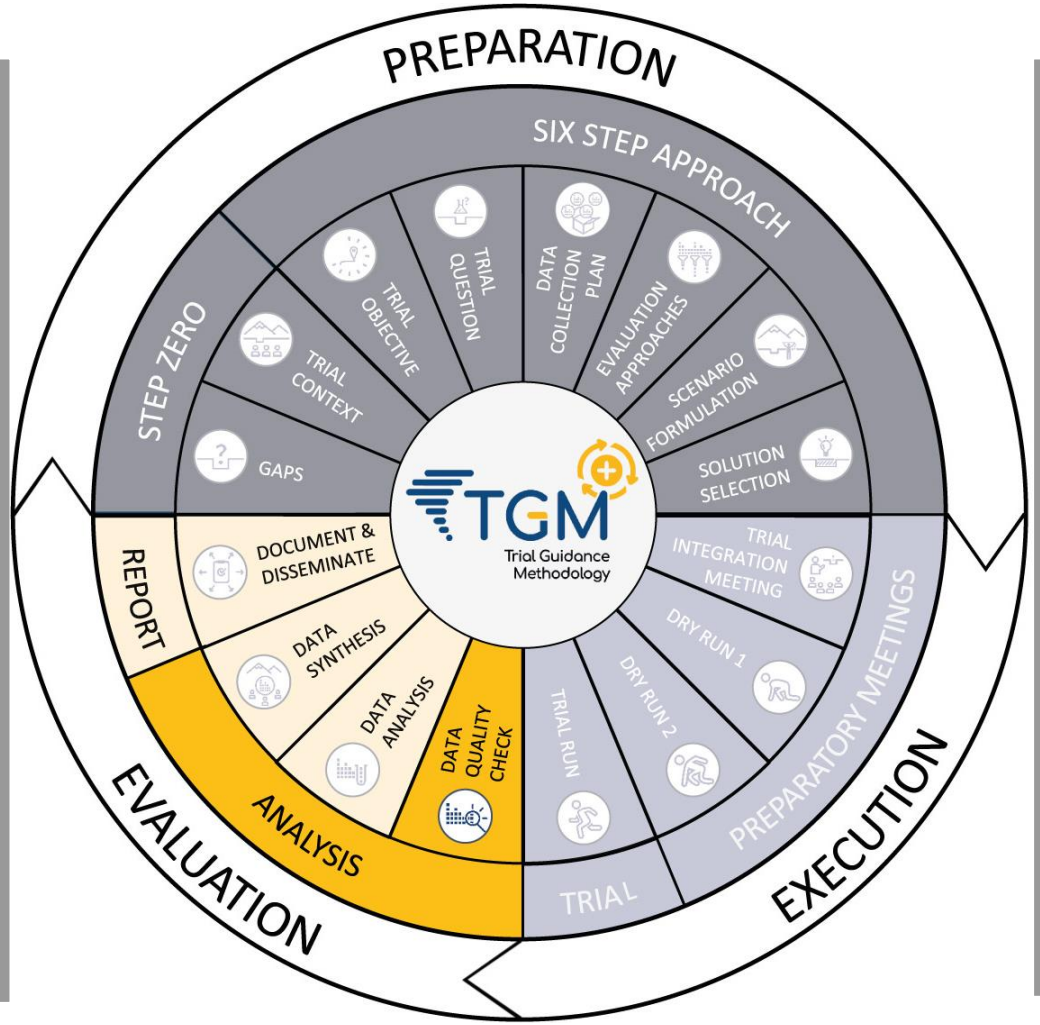
- All systems up and running
- Every kind of data collection tested and confirmed
- Solution Training conducted
- Trial material printed, distributed
- Observer briefing conducted
- Participants briefed

TIP: Make sure all forms and agreements regarding ethical or legal issues are in place (e.g. informed consent and GDPR issues). If R&D is concerned, make sure everyone has signed an NDA.

ARTION

Inputs and Outputs

Raw data



„Clean" data set

Useful Methods and tools

Structuring & organizing

Societal impact assessment

Research ethic

After action review tool

Observer support tool

Solutions

Excel

Admin tool and security

Extra developer tools

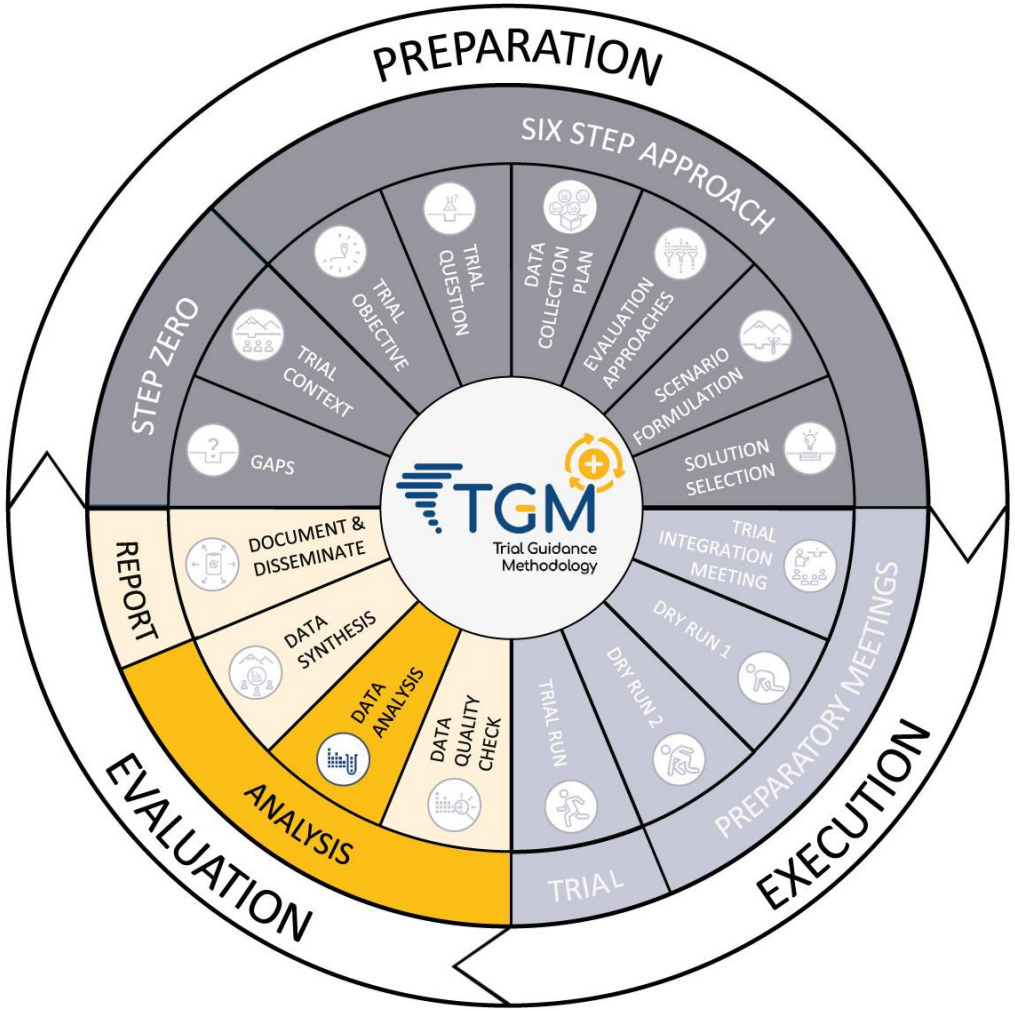
Checklist

- Data completeness checked
- Data quality checked
- Data verified
- Data structured in a preliminary way

TIP: Exclude irrelevant or poor quality data, but indicate that you have done that.

Inputs and Outputs

“Clean” data set + data collection plan



Valid information and conclusions

Useful Methods and tools

Data aggregation, visualisation, comparative analysis, if appropriate further specific qualitative and quantitative data analysis techniques, societal impact assessment, research ethics

Excel, after-action review tool, observer support tool, admin tool and security, extra developer tool

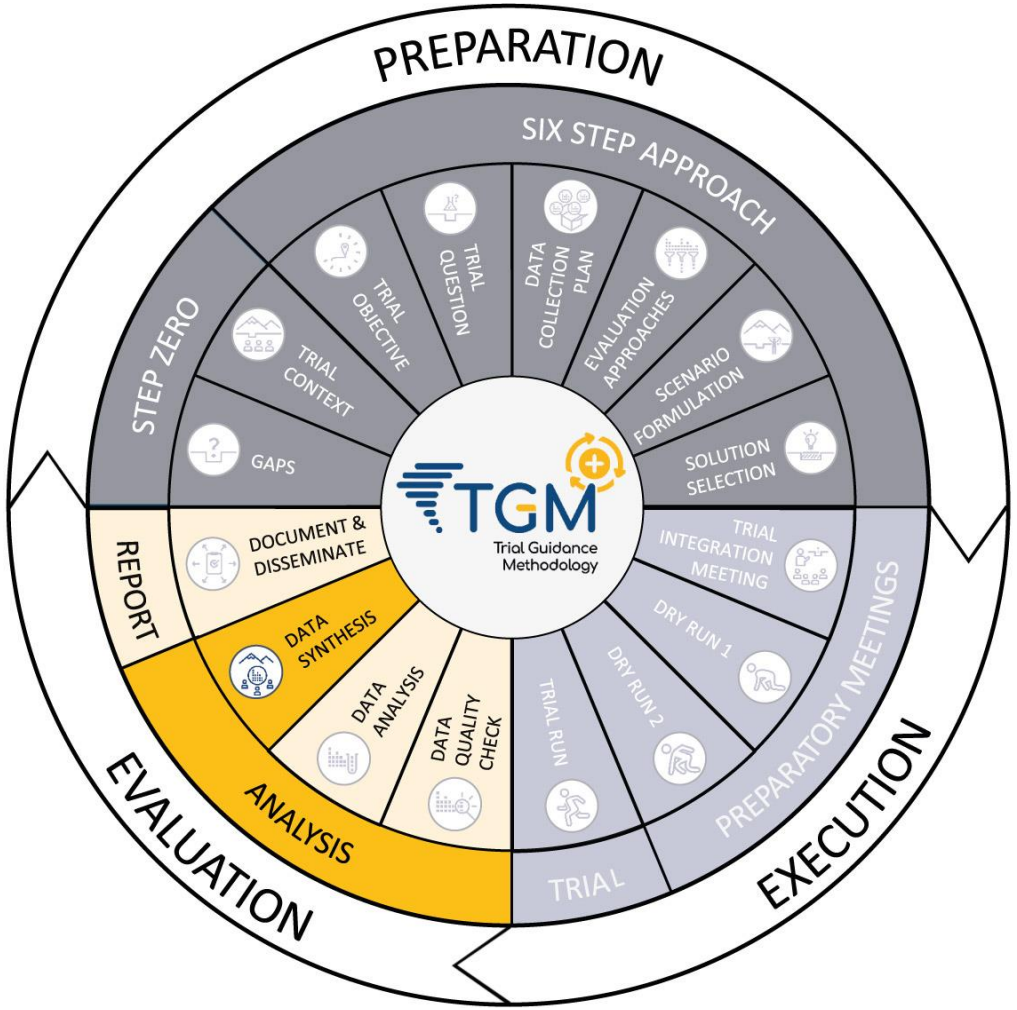
Checklist

- Data of each session structured according to the three dimensions
- Data related to KPIs and metrics
- Data visualized
- Preliminary pattern identification done

TIP: Make sure to process and store the data according to the predefined agreements (e.g. anonymisation etc.) as well as to the GDPR requirement.

Inputs and Outputs

Analysed data



Valid conclusions concerning your gaps, objectives etc.

Useful Methods and tools

Sense-making

Discussion

Physical meeting

Societal impact assessment

Research ethic

Excel

Checklist

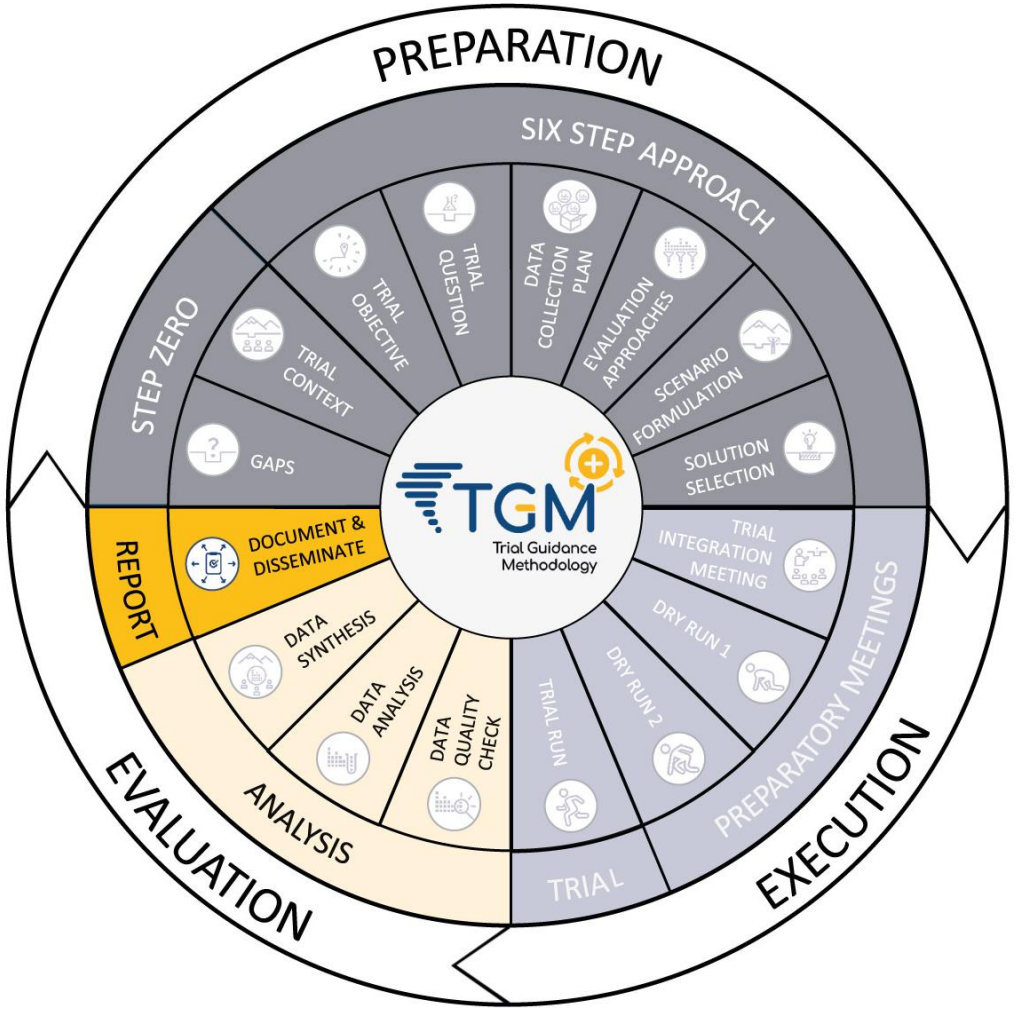
- Checked whether KPI/metric threshholds have been met
- Identified patterns and remarkable data
- Put those into context (checked the relation of every dimension towards this)
- Compared conclusions to gaps
- Formulated whether gap has been closed or not
- Review on solutions formulated and discussed with solution provider
- Take ethical and legal issues into account (e.g. anonymisation etc.)

ARTION

Disseminate results

Inputs and Outputs

Trial script



Raw data

Useful Methods and tools

Meeting

Social media

Website

Newspaper article

Conferences

Societal impact assessment

Research ethics

Lessons learnt framework

Portfolio of solutions

Trial guidance Tool (knowledge base)

Lesson learnt library

Checklist

- Lessons Learnt Library filled in
- Knowledge base updated
- Portfolio of Solutions updated
- Internal documentation done
- Internal dissemination done
- External documentation done
- External dissemination done

TIP: Consider legal restrictions or limitations with regards to the solutions when you communicate results. Always interpret and consider the evaluation results in the trial context.

ARTION

Trial Action Plan

The tool for upscaling

Trial Action Plan

Why would you want to use a TAP in your trial?

MAIN OBJECTIVE:
Comprehensive co-working template & checklist to plan and prepare a Trial. Records efforts, circulates decisions and aids assessing progress.

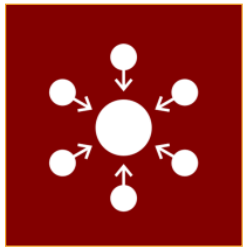
Target audience:
Trial Owner, Evaluation Coordinator, Practitioner Coordinator, Technical Coordinator, Trial host and staff in EXCON/DIREX/white cells.

Trial Action Plan

Trial Action Plan is created to serve as the main Trial preparatory document:

Defining the Trial Action Plan - a method for managing a trial

facilitating joint planning



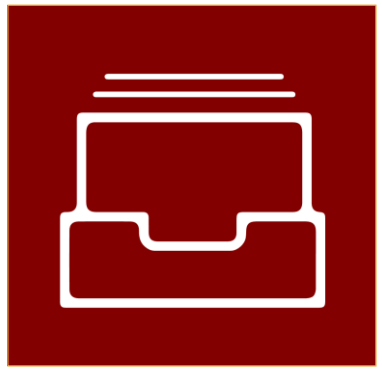
supporting collaborative execution

It is the complete Trial descriptor: it covers all areas related to the Trial organization

Trial Action Plan

Structured approach in order to systematically monitor the **preparation** and **execution** of trials

It is designed to be used to:



RECORD EFFORTS

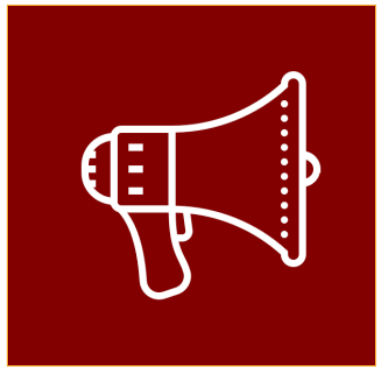
CIRCULATE DECISIONS

ASSESS PROGRESS

Trial Action Plan

Structured approach in order to systematically monitor the **preparation** and **execution** of trials

It is designed to be used to:



CIRCULATE DECISIONS

RECORD EFFORTS

ASSESS PROGRESS

ARTION

Trial Action Plan

Structured approach in order to systematically monitor the **preparation** and **execution** of trials

➔ **Be able to quickly track and decide on the work**

- ✓ Present progress and changes by displaying TAP chapters;
- ✓ Include short description and expand it in linked documents;
- ✓ Export relevant chapters and send it to external partners;
- ✓ All information is gathered in one place.

ARTION

TAP completing schedule

Self-explanatory document

[Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore…]

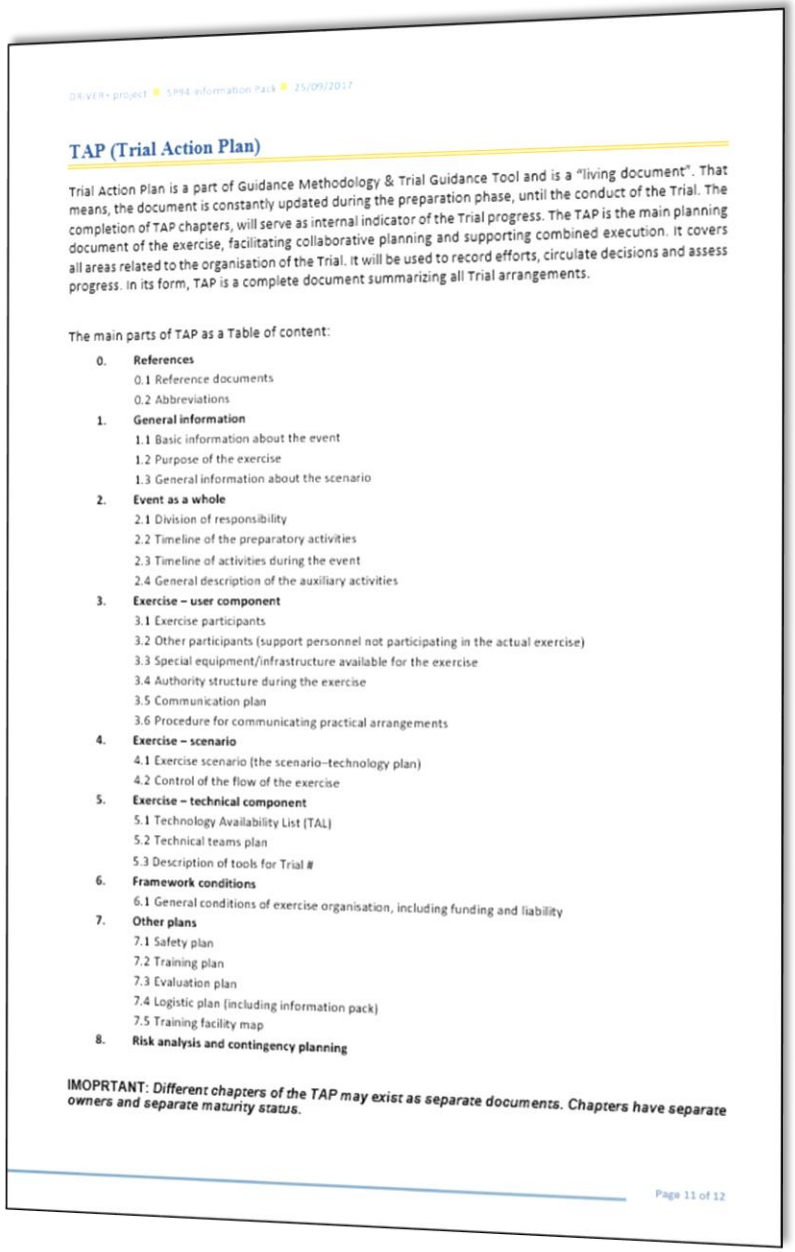
Each Trial Action Plan is defined by instructions marked by light blue italicised font that is captured between square brackets.

Chapter	Due Date	Description	Needed for
8.8	Before Workshop "0"	Solution documentation (presentation, 2-pager, case study)	Workshop "0"
Workshop "0"			
2.2	To be frozen during Workshop "0"	Research Questions - final confirmation	Baseline for Chapter 6 Trial Scenario development
5.1	Need to be frozen in first weeks of main phase	Solutions – Technology Availability List - confirmation	Solution assessment Scenario development
5.2	Need to be frozen in first weeks of main phase	Key Performance Indicators of solutions - selection	Solution assessment Scenario development
3.3	Need to be frozen in first weeks of main phase	Timeline of preparatory activities – detailing	Trial management
3.1.5	Need to be frozen in first weeks of main phase	Identification of external participants to the Trial	Involvement of external stakeholders

Additionally, TAP already has a suggested completion order. It can be found in the first chapter of the document.

TAP Chapters

1. Purpose and scope of the document
2. General information on the Trial
3. TGM application
4. Trial planning
5. Local Platform facilities
6. Solutions utilization and assessment
7. Trial scenario building
8. Organisation and logistics
9. Other organizational aspects



DRIVER+ project ■ SP84 information Pack ■ 25/09/2017

TAP (Trial Action Plan)

Trial Action Plan is a part of Guidance Methodology & Trial Guidance Tool and is a "living document". That means, the document is constantly updated during the preparation phase, until the conduct of the Trial. The completion of TAP chapters, will serve as internal indicator of the Trial progress. The TAP is the main planning document of the exercise, facilitating collaborative planning and supporting combined execution. It covers all areas related to the organisation of the Trial. It will be used to record efforts, circulate decisions and assess progress. In its form, TAP is a complete document summarizing all Trial arrangements.

The main parts of TAP as a Table of content:

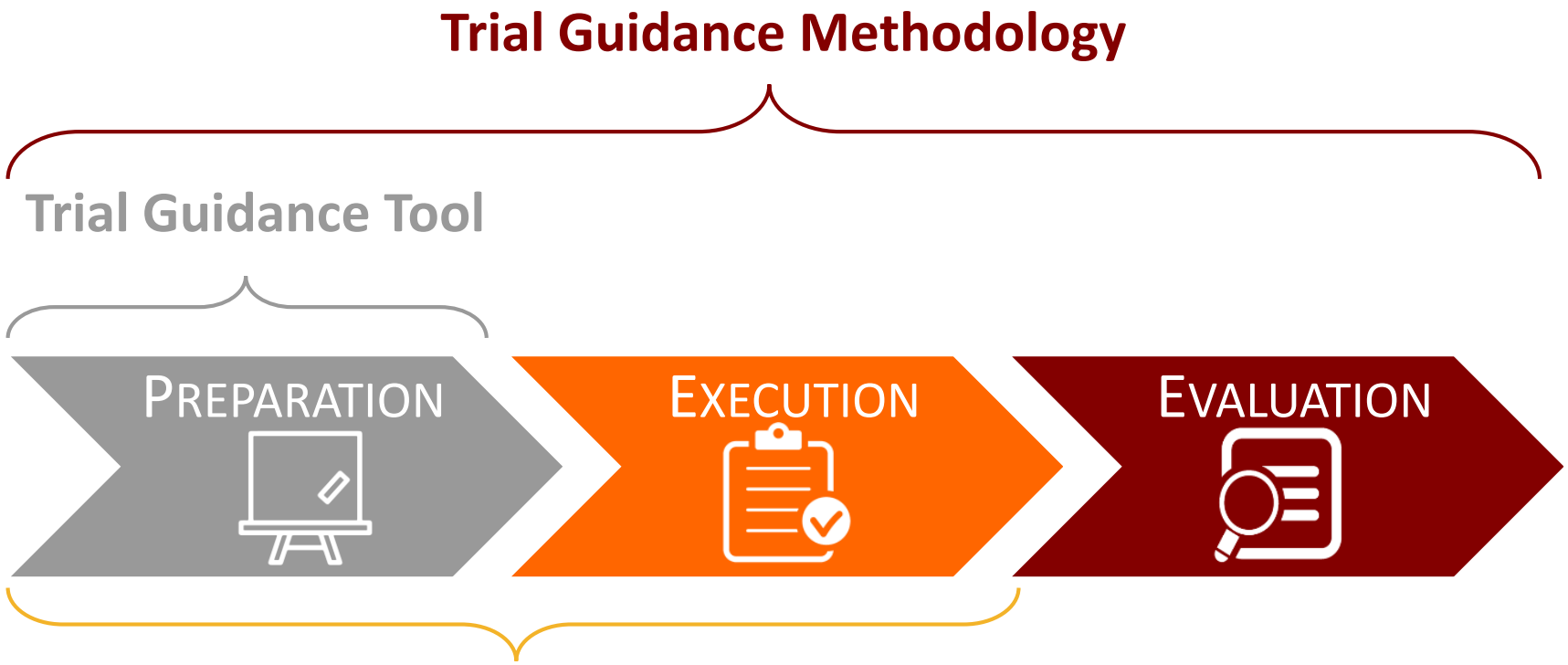
0. **References**
   - 0.1 Reference documents
   - 0.2 Abbreviations
1. **General information**
   - 1.1 Basic information about the event
   - 1.2 Purpose of the exercise
   - 1.3 General information about the scenario
2. **Event as a whole**
   - 2.1 Division of responsibility
   - 2.2 Timeline of the preparatory activities
   - 2.3 Timeline of activities during the event
   - 2.4 General description of the auxiliary activities
3. **Exercise – user component**
   - 3.1 Exercise participants
   - 3.2 Other participants (support personnel not participating in the actual exercise)
   - 3.3 Special equipment/infrastructure available for the exercise
   - 3.4 Authority structure during the exercise
   - 3.5 Communication plan
   - 3.6 Procedure for communicating practical arrangements
4. **Exercise – scenario**
   - 4.1 Exercise scenario (the scenario–technology plan)
   - 4.2 Control of the flow of the exercise
5. **Exercise – technical component**
   - 5.1 Technology Availability List (TAL)
   - 5.2 Technical teams plan
   - 5.3 Description of tools for Trial #
6. **Framework conditions**
   - 6.1 General conditions of exercise organisation, including funding and liability
7. **Other plans**
   - 7.1 Safety plan
   - 7.2 Training plan
   - 7.3 Evaluation plan
   - 7.4 Logistic plan (including information pack)
   - 7.5 Training facility map
8. **Risk analysis and contingency planning**

IMOPRTANT: *Different chapters of the TAP may exist as separate documents. Chapters have separate owners and separate maturity status.*

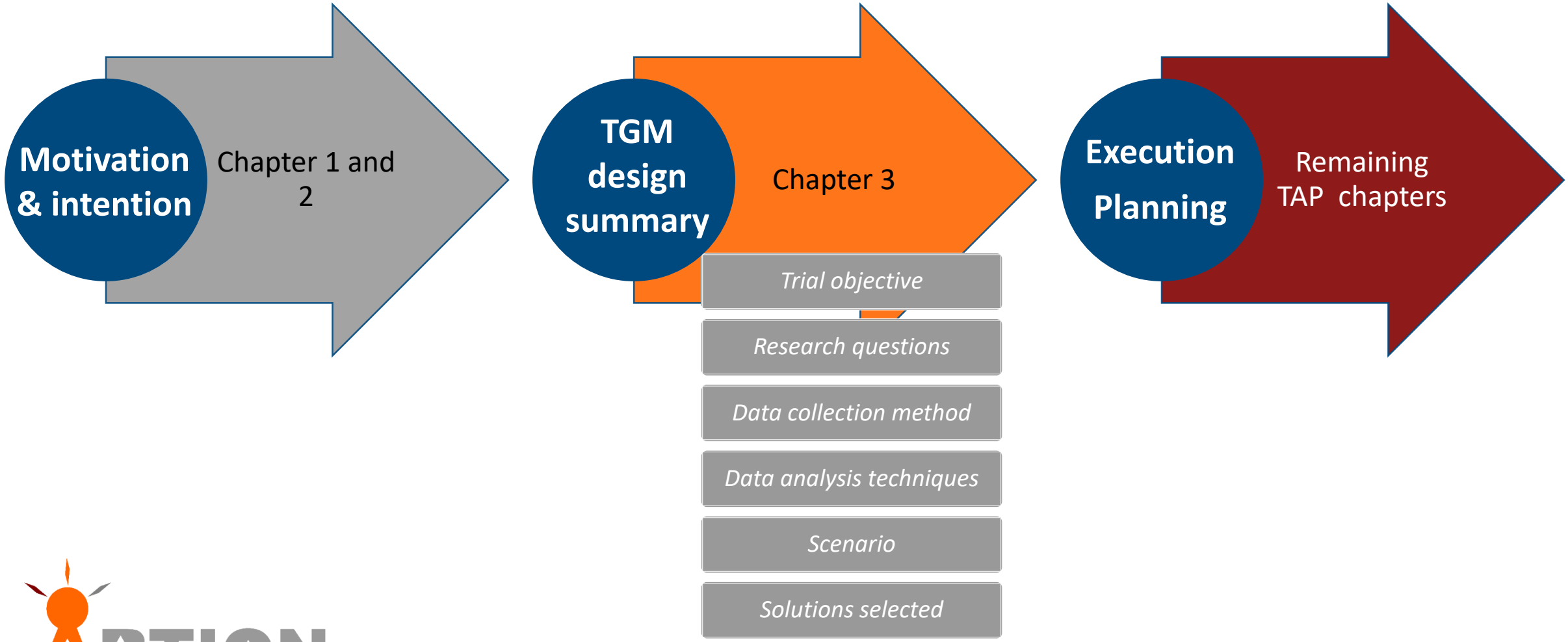
Page 11 of 12

TAP as supporting element of TGM

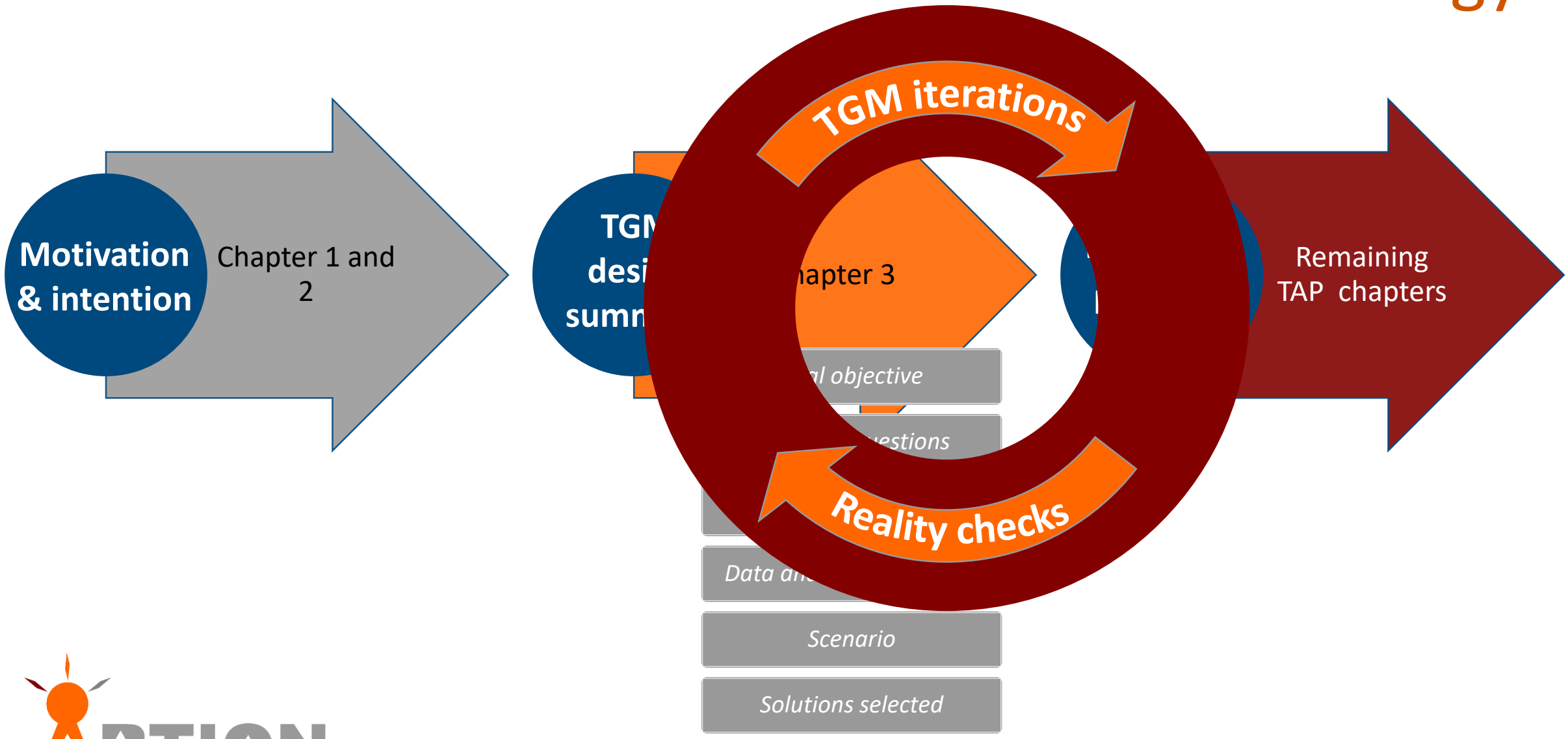
Trial Action Plan in Trial Guidance Methodology



Trial Action Plan vs. Trial Guidance Methodology

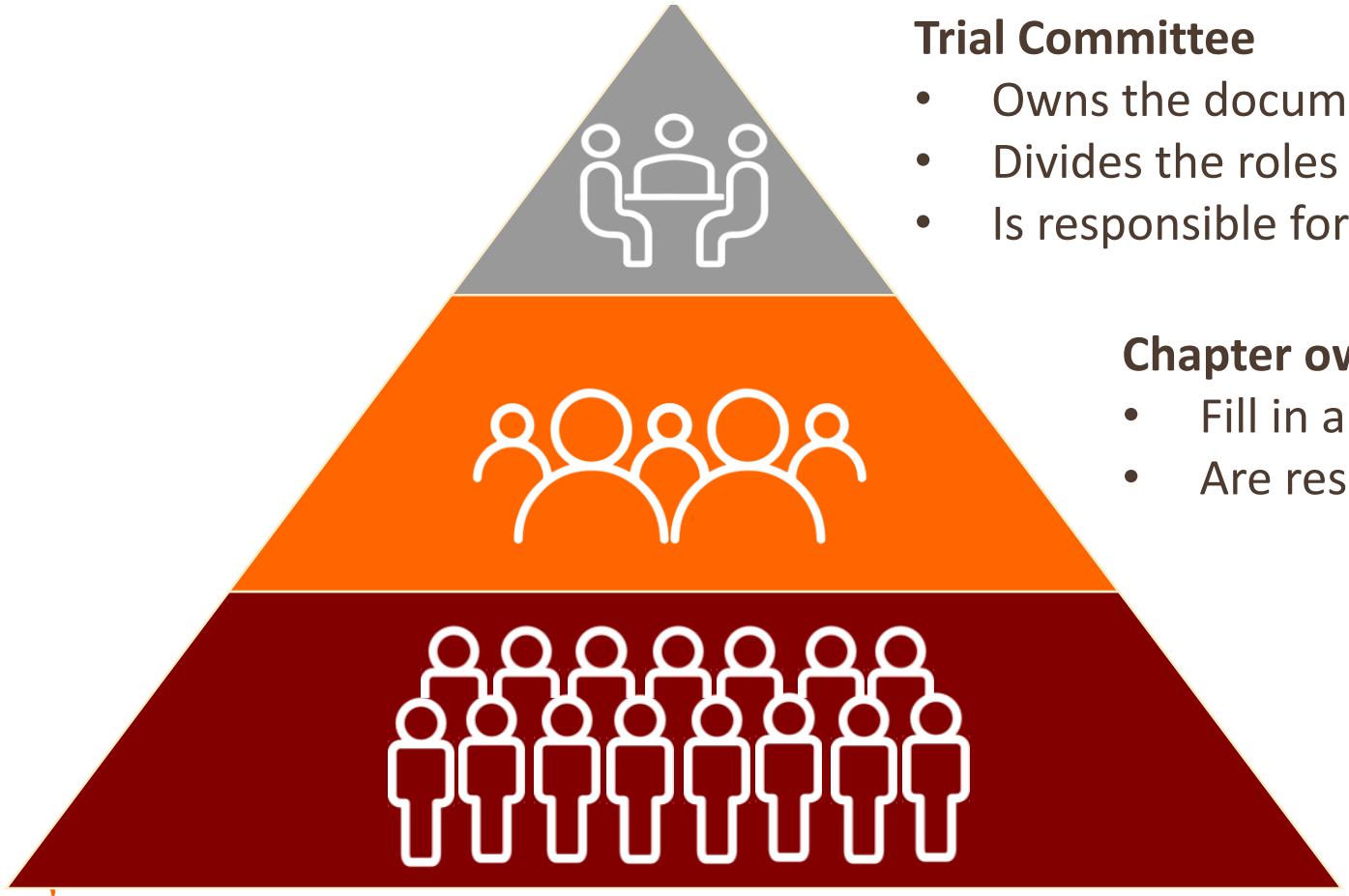


Trial Action Plan vs. Trial Guidance Methodology



How to use the Trial Action Plan

Who actually writes a TAP?



Trial Committee

- Owns the document as whole
- Divides the roles and responsibilities
- Is responsible for TAP completion

Chapter owners

- Fill in and update their parts of the document
- Are responsible for collection of relevant inputs

The Trial Team

- Has access to the document and uses it as a source of information
- May contribute if asked for by a chapter owner

Division of responsibilities

Binding chapters with writers

Every chapter has one owner that supervises it, nominates the authors and sets internal deadlines. He is also responsible for content completion and correctness.

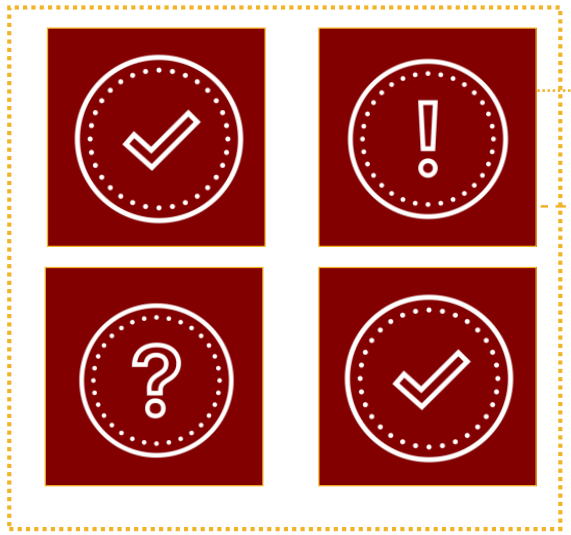
Trial Committee regularly reviews the TAP and its level of completion.

Chapter owner	Name	
	Function	
	e-mail	

Date	Changes	Author
<DD/MM/YYYY>	[Initial draft]	<First name, Last Name, Organisation>
<DD/MM/YYYY>	[Contribution to Section X.X]	
<DD/MM/YYYY>	[Updating the section X.X]	

Daily work with TAP

Which and how much information should TAP have?



Trial Action Plan v1

Lists:
- confirmed elements,
- options jet to be selected
- identified issues

Regularly archive TAP as subseqeuent TAP snapshots

All discarded options should be ereased

Discarding it from TAP

General conclusions in TAP

Links to other documents

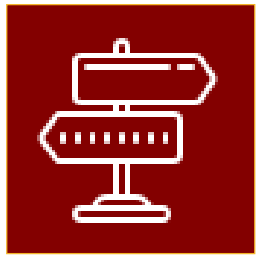
Information format

Which and how much information should TAP have?

- The TAP collects in one document **all key Trial-related information**.
- All results are documented in **respective chapters**.

- To avoid overfilling TAP with too detailed data, some parts should be **summarized into conclusions** and linked to full version.

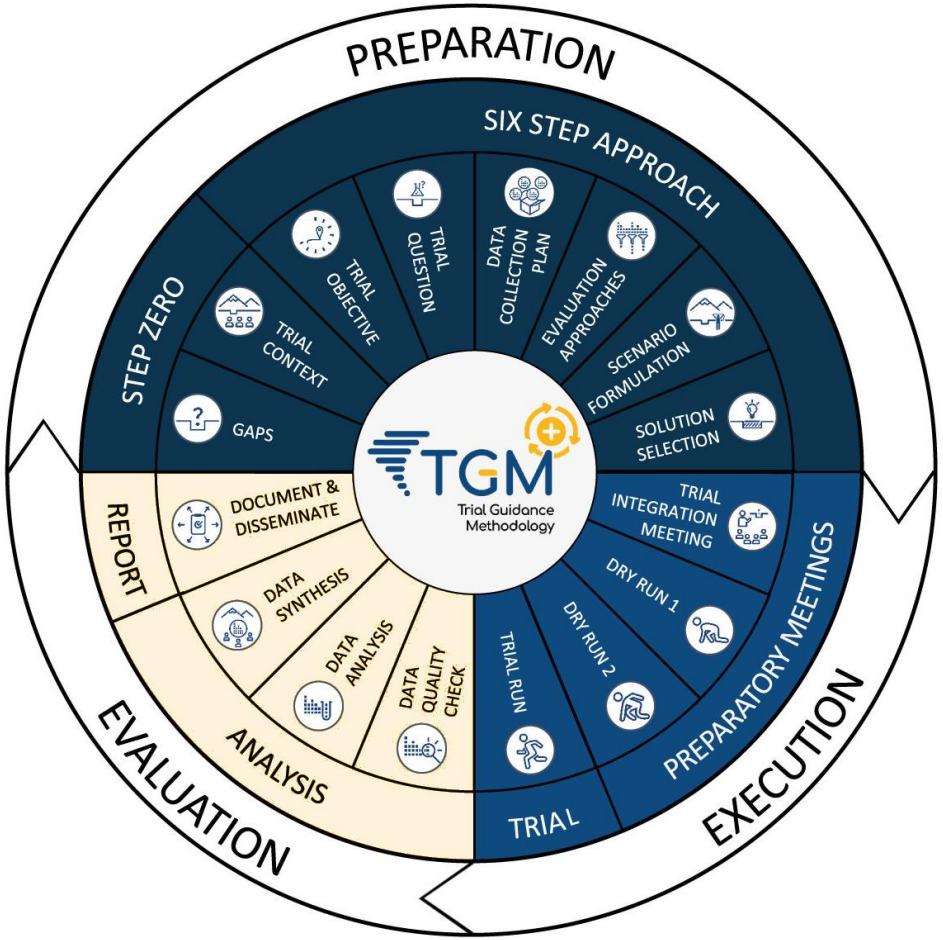
General conclusions in TAP



Links to other documents

Trial Action Plan

Document template



A template of the TAP is part of the TGT.
You can find the TGT here:

https://pos.driver-project.eu/en/gt/trial

Examples

Trial examples from DRIVER+

Trial examples from DRIVER+ project

DRIVER+ (Driving Innovation in Crisis Management for European Resilience) was a FP7 Crisis Management demonstration project aiming at improving the way capability development and innovation management is tackled.

Its leading objective was to create a pan-European test-bed for Crisis Management capability development.

The maturity of the project developed test-bed and the guidance methodology supporting it, was assured by running a set of 4 trials and 1 demonstration.

EXAMPLE TRIAL 1 – POLAND

Command Post Exercise (CPX) combined with field trials

The overall objective was to simulate coordinated actions at the local, regional, national and international level with the purpose of counteracting the effects of the disaster effects and to trial selected solutions for their applicability in addressing current crisis management gaps. The sub-objective relevant for this example is to improve the effectiveness of identifying the needs of affected people trapped in buildings in the chemical spill area through:

- Shortening the time to indicate/point on the map the location of the residents in need.
- Improving the accuracy of the identification of the type of needs.

Outcomes from Trial 1 helped to advance the guidance methodology and furthered the formulation of preparatory (processual) chapters of TGM.

Summary of Trial #1: https://www.driver-project.eu/wp-content/uploads/2020/03/Summary-Trial-1_final.pdf	More information about Trial #1: https://www.driver-project.eu/events-old/trials/trial-1/

EXAMPLE TRIAL 2 – FRANCE

Simulation-driven CPX with tabletop elements.

The aim of this Trial was to improve cooperation and coordination between different organisations and agencies from different countries using innovative solutions for large scale and complex multi-event crisis.

To reach this goal, the event was conducted to investigate innovative solutions on how they improve Crisis Management by developing interoperability and coordination in response operation, supporting a common understanding among the actors involved in the crisis.

Summary of Trial #2: https://www.driver-project.eu/wp-content/uploads/2020/03/Summary-Trial-2_final.pdf	More information about Trial #2: https://www.driver-project.eu/events-old/trials/trial-france/

EXAMPLE TRIAL 2 – FRANCE

Gap (example): Barriers in the capability to provide medical assistance to casualties by either transporting them to a safe place or bringing Emergency Medical Service to the scene (when medical care is not provided by fire-fighters).

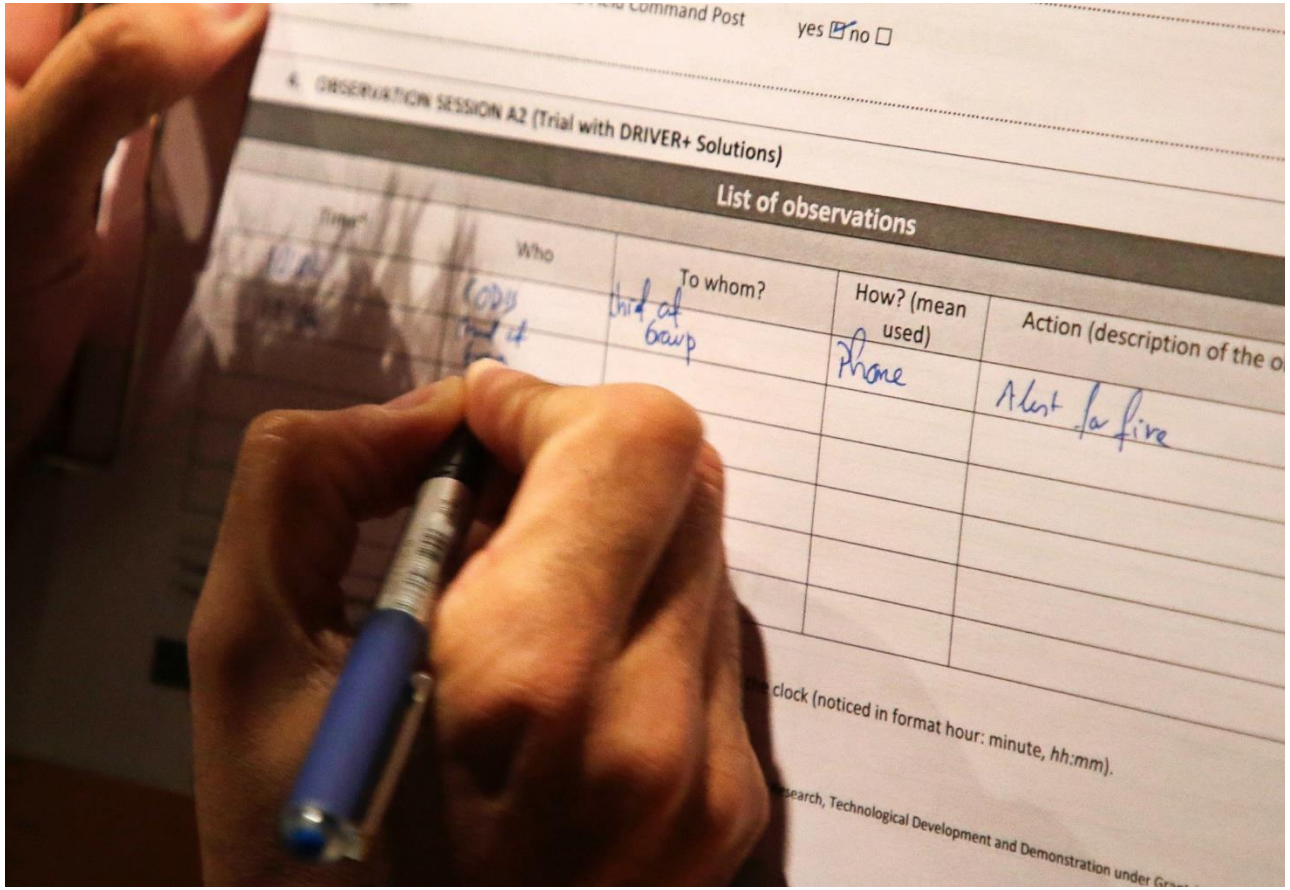
Main Research Question (example): How to improve the coordination of fire-fighters' response operations and Emergency Medical Service rescue operations during a large forest fire with casualties?

Solutions: In total 23 submissions were received from the Call for Applications for Trial and four solutions have been finally selected to be trialed.

EXAMPLE TRIAL 2 – FRANCE

Chosen solution: MDA Command & Control aims to create an integrated system that allows the dispatcher to manage the scene in the most efficient way. This solution is made of different modules and allows the dispatcher to receive a layout of all the critical information needed, for example, the patient's vital medical information or current traffic.

Answer to the research question (example): The sharing of a COP between the fire-fighters and the EMS supported a better situation assessment both concerning the crisis dynamics (fire contour visible for the EMS) and the dispatch of means (ambulances visible for the fire-fighters chain of command). However, it is believed that for such a socio-technical solution to completely pay off, a better understanding of the procedures and the organizational culture appears as a prerequisite.



EXAMPLE TRIAL 3 – AUSTRIA

A CPX and field episodes with volounteers run during IronOre2019 ModEx exercise

The DRIVER+ trial focused on a flash flood scenario simulating a lock breach caused by severe weather conditions. This resulted in the flooding of a large part of The Hague city centre, damaging infrastructure and threatening a large portion of the city's inhabitants.

Cascading effects included power outage, flooded roads and railway infrastructure, affecting the population living in those areas.

The aim of this tabletop trial was to improve current Crisis Management capabilities by identifying solutions that address potential shortcomings in the planning of resources for response during large scale and long-term crises, the ability to exchange crisis-related information between agencies and organisations as well as in the planning and management of large scale evacuations of population in urban areas

ARTION

Summary of Trial #3: https://www.driver-project.eu/wp-content/uploads/2020/03/Summary-Trial-3_final.pdf	More information about Trial #3: https://www.driver-project.eu/trial-austria-2/

EXAMPLE TRIAL 4 – THE NETHERLANDS

A CPX with table-top elements and flood dynamics modelling simulation

The scenario required decisions about the necessity for evacuation of inhabitants of the area afflicted by flooding.

A large amount of emergency workers and rescue equipment was needed to deal with the increasing number of exposed people and to manage aforementioned cascading effects. Thus, the situation could not be handled by Safety Region Haaglanden and regional crisis partners only, but required deployment of additional evacuation forces, volunteers and resources from national and potentially international networks.

ARTION

Summary of Trial #4: https://www.driver-project.eu/wp-content/uploads/2020/03/Summary-Trial-4_final.pdf

More information about Trial #4: https://www.driver-project.eu/events-old/trials/netherlands-trial/

EXAMPLE TRIAL 5 – POLAND

A CPX supplied with previously collected field data

The Final Demo was executed as a command-post (in-door) event run in parallel in three physically distant locations. It was focused on information exchanges between UCPM entities, therefore all activities below the Response Capacity commander level were simulated by the FD simulation team.

The scenario was created in the TTI and was administered semi-automatically via the Trial Management Tool (TMT). Actions were taken by the participants in a realistic information environment, based on currently available legacy tools and means, rescue procedures and good practices of the FD practitioners.

Scenario realism (and participants immersion) was facilitated by including as many as feasible realistic elements, such us reports from the field, ambient communication to support authenticity, the fire progress and crises development visualised on a map describing the whole fictional country Driverstan.

ARTION

Summary of Trial #4: https://www.driver-project.eu/wp-content/uploads/Summary-Final-Demo_final-1.pdf

More information about Trial #5: https://www.driver-project.eu/final-demonstration/

The list of our Trials

Trial	Official summary of Trial	More information about Trial
TRIAL 1 – POLAND	https://www.driver-project.eu/wp-content/uploads/2020/03/Summary-Trial-1_final.pdf	https://www.driver-project.eu/events-old/trials/trial-1/
TRIAL 2 – FRANCE	https://www.driver-project.eu/wp-content/uploads/2020/03/Summary-Trial-2_final.pdf	https://www.driver-project.eu/events-old/trials/trial-france/
TRIAL 3 – AUSTRIA	https://www.driver-project.eu/wp-content/uploads/2020/03/Summary-Trial-3_final.pdf	https://www.driver-project.eu/trial-austria-2/
TRIAL 4 – THE NETHERLANDS	https://www.driver-project.eu/wp-content/uploads/2020/03/Summary-Trial-4_final.pdf	https://www.driver-project.eu/events-old/trials/netherlands-trial/
TRIAL 5 – POLAND	https://www.driver-project.eu/wp-content/uploads/Summary-Final-Demo_final-1.pdf	https://www.driver-project.eu/final-demonstration/

ARTION

Thank you for your attention.