Perception and Evaluation of Regional and Cohesion policies by Europeans and Identification with the Values of Europe

PERCEIVE

GA nr. 693529

D 7.3 ' DIGITAL SIMULATION INTERFACE '

Table of contents

Contact of the deliverable's lead beneficiary:

DAVIDE BARUZZI
BAM! STRATEGIE CULTURALI > davide@bamstrategieculturali.it
UNIBO HAS CONTRIBUTED TO THIS DELIVERABLE

Introduction: Task Reference

The main deliverable is the web application developed and shared online at the following url:

>> http://perceiveproject.eu/simulation

This document is meant to explain the process that led to its realization and it is composed by four different sections:

1. Rational and Dissemination: to describe structures and objectives behind the application, and to describe the kind of usage foreseen
2. Design: to describe user experience approach and interface components used to design the application
3. Development: to describe the process used to translate the mathematical language behind the PERCEIVE WP6 developed model and convert it into a web-usable application

This deliverable is composed as a result of the ongoing activity carried out as part of Task 7.6 "Development of the interactive web interface" (26-36) by BAM! Strategie Culturali which includes:

- Elaborations on the short contribution from WP6
- Assimilating results of the research
- Convert research parameters into software algorithm
- UX/UI design for the interface

This deliverable publishes and describes the Version 1.1 of the PERCEIVE Digital Simulation and required work and fine tuning for approximately 8 months FTE since September 2018. This effort calculation is for estimate sake and it is not to be summed up to project total effort.

PAR 1: 'Interface Rational and Dissemination'

PAR 1.1 From the mathematical model

The mathematical model developed within PERCEIVE project aims at building a correlation between the different variables and parameters that influence the performance and perception of Cohesion Policy in the analised regions.

The model has been built following the System Dynamics method, which is a methodology that provides systemic, holistic and high perspective analysis. Those analysis focus on capturing the states, rates, delays of a system and how those elements create an underlying structure based on feedback loops that determines the system behaviour over time. Therefore, the purpose of those models is usually to provide an explanation on the main on the causes and their interaction that lead a system to a certain performance.

The information to build this model were retrieved from scientific literature, technical reports, twelve interviews (with LMAs, researchers, beneficiaries, intermediary consultancy companies) and a six hours workshop (researchers and policymakers).

PAR 1.2 To the Simulation Tool

The need for this simulation tool is to try and make the knowledge developed within the WP6 engineered model more accessible.

Accessibility becomes really important in terms of dissemination, since it would be very difficult (if not impossible) for LMA staff and policy makers to actively use the forcasting model developed with the specific software as a practical tool.

The Digital Simulation Interface is thus a way to "filter and simplify" the most interesting interactions between contextual and management variables, setting a simulation environment in which it is possible to "play" with options and see how the impact on absorption rate and other key parameters.

PAR 1.3 Why and for whom?

As anticipated the main reason behind this task is to create a tool that could enable more accessibility of the PERCEIVE research.

The DSI should work as a bridge that makes PERCEIVE work not only more understandable, but also more usable by its main target: EU fund management professionals, LMAs and EU policy makers.

To put it simply: the DSI is conceived to translate the academic research structure to a more professionally usable output.

The DSI is not intended to be used by a general public at first. Its main target is composed by EU professionals and policy makers that are able to understand the logics behind policy implementation and communication.

DSI is a first attempt of simplification of a really complex model that takes into account more than 300 variables and reduce it to a 25-line tweakable sim-interface that could be used both in controlled environments and free individual sessions if possible.

DSI is then specifically target to people who know and understand the EU jargon and specificity of parameters and are interested in simulating decision making.

PAR 1.4 How will it be disseminated?

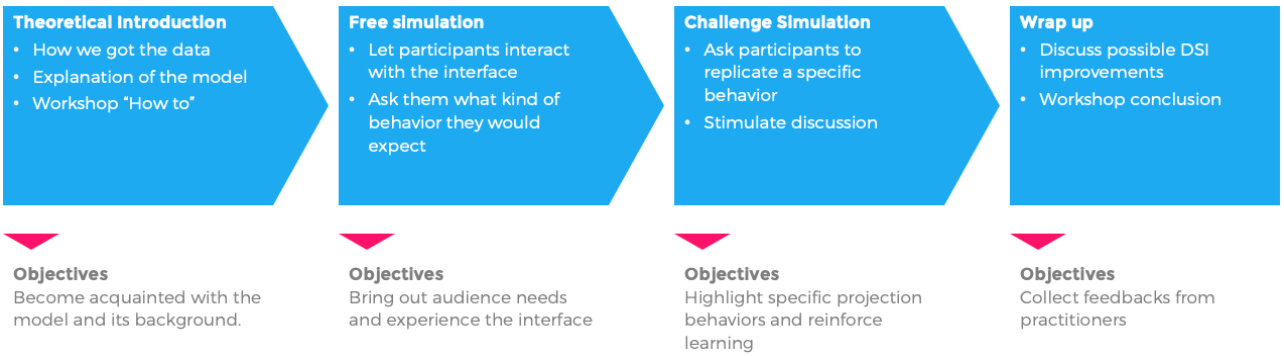
The following question would be “how does the project submit this piece of technology to its intended users?”.

PERCEIVE team has worked throughout the project to implement a Europe-wide list of contacts within LMAs and Brussels COR and DG Regio to directly target this specific audience.

While a confidential prototype:

In person

- A workshop is programmed to happen during PERCEIVE Final Conference on June 19 to engage directly with our audience.



Once publicly shareable:

Through the press

- Dedicated press releases (collaboration with Universities press offices)

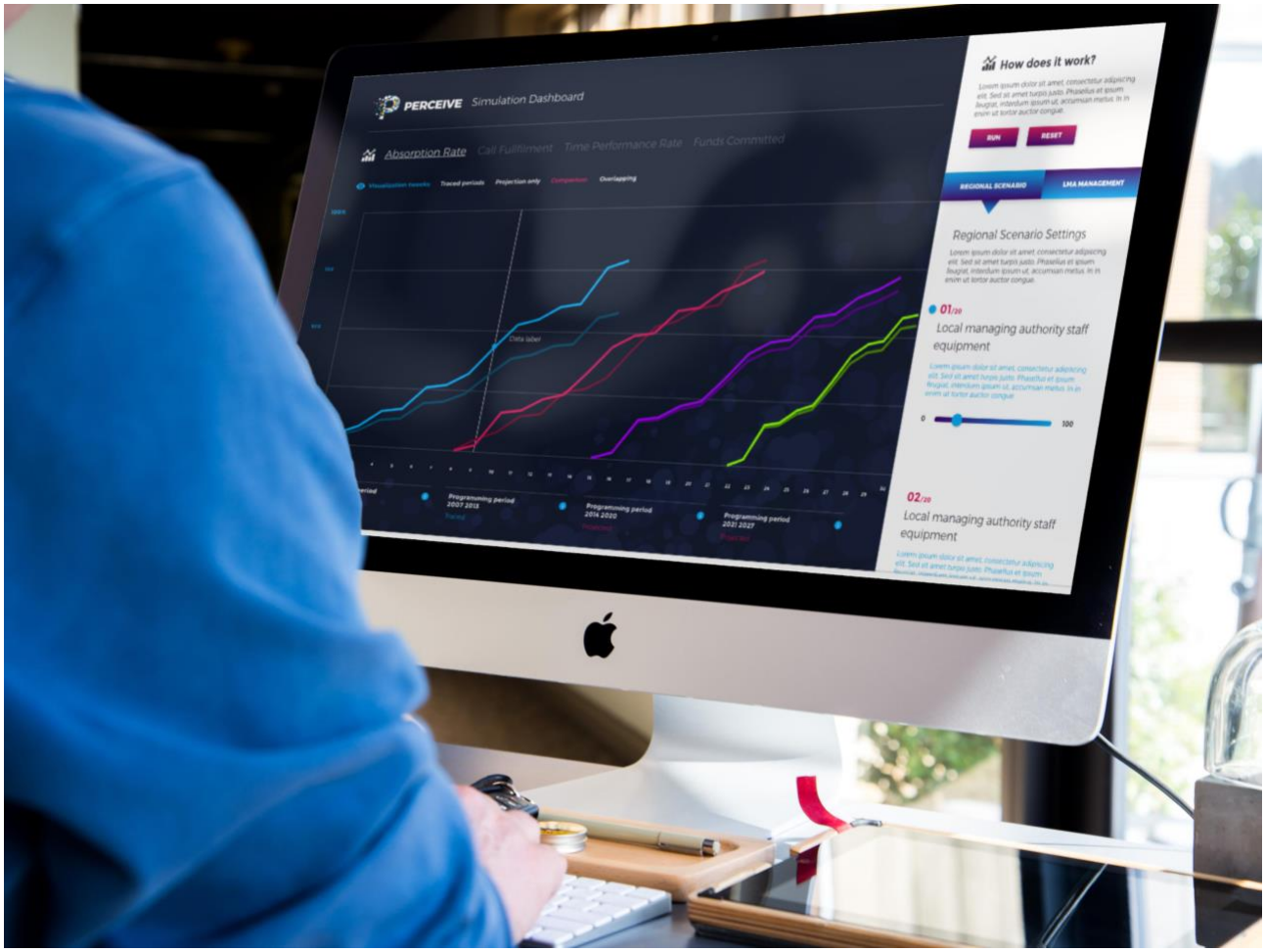
Digitally

- A specific Twitter list of professionals has been drafted to get in touch directly and suggest the tool
- A mailing list of EU wide LMAs will been used to share the tool once public

PAR 2 ‘ Inteface Design’

PAR 2.1 User Experience

As previously stated PERCEIVE’s DSI is conceived as an interaction tool for professionals, thus even if cleaned up from the more complex academic research background, still not for “everybody”.



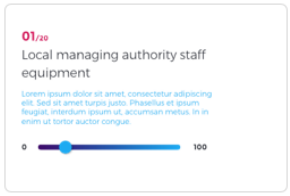
The user experience developed for this tool starts then from the same premises of an advanced automotive configurator or a role-playing video game, both examples being “knowledge-hungry” for the users.

It is a gamification of the research model, but the user still plays with numbers related to technical variables and the output itself is a graph that could represent different levels of insight about:

1. Absorption rate, as a main value
2. Call fullfilment
3. Time performance rate
4. Funds committed

PAR 2.2 User Interface Components and Composition

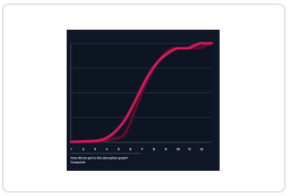
Core UI components take standard design approach to suggest user interaction.



Parameter tuning
To give users a measure of interactivity capability

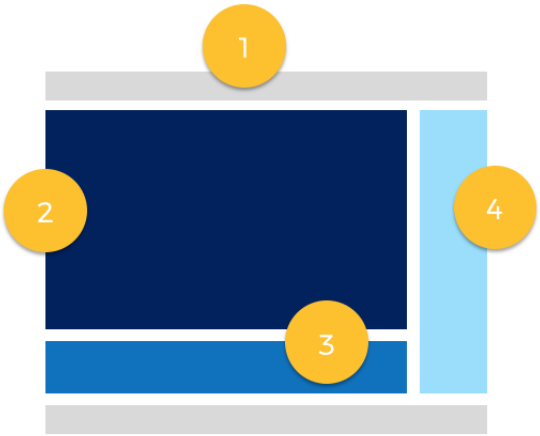
Token icons and buttons
To point to specific sections and highlight main actions

Microcopy
Text paragraphs as usability hints



Graph section
Where data is displayed and interaction rewarded

Components are then laid out into separate interaction areas.



Each area has different functions and meaning for the user, so that they learn to interact and focus their attention in dedicated zones:

1. Header and selection: where the main navigation happens, to reference the project and switch from application areas to descriptive pages
2. Graph area: where the main display of results happens, to compare different graphs and interaction visualization
3. Info area: where information about what is being displayed is located, to help the user understanding what they are watching
4. Interaction and tuning area: the main interaction area, where the user should focus its actions and understanding of variables.

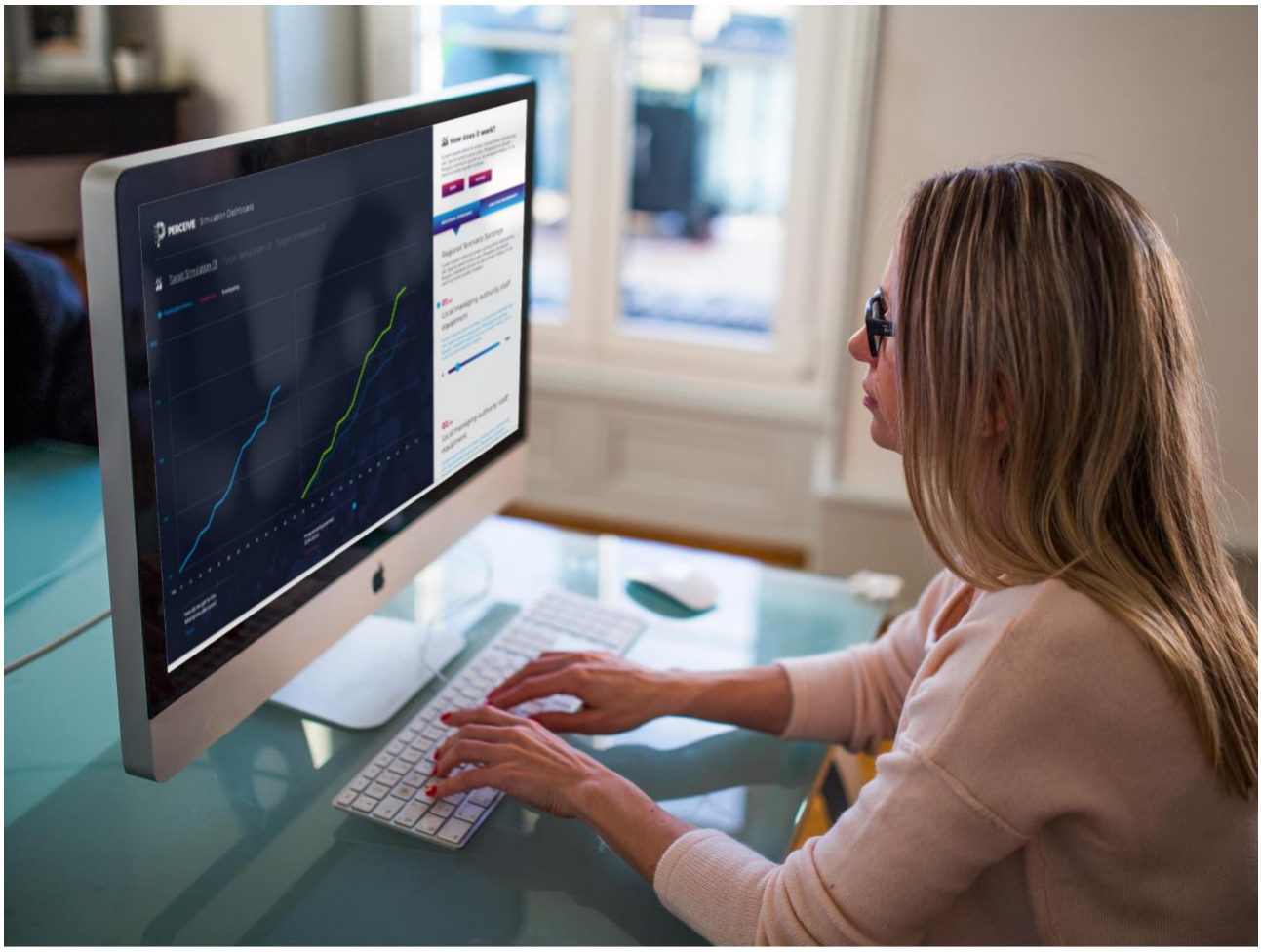
PAR 2.3 Interface Design

Component descriptions:

1. Data visualization switch
2. Graph design area
3. Additional time information
4. Quick info and “run/reset” buttons to visualize the results of parameter tweaking
5. Parameter type switch, to distinguish non manageable regional scenario elements from strictly LMA manageable ones.
6. Control and explanation of every parameter tuner

PAR 2.4 DSI Challenge Excercises

An interesting part of PERCEIVE DSI is specifically oriented to link interactivity with comprehension and understanding of key research findings.



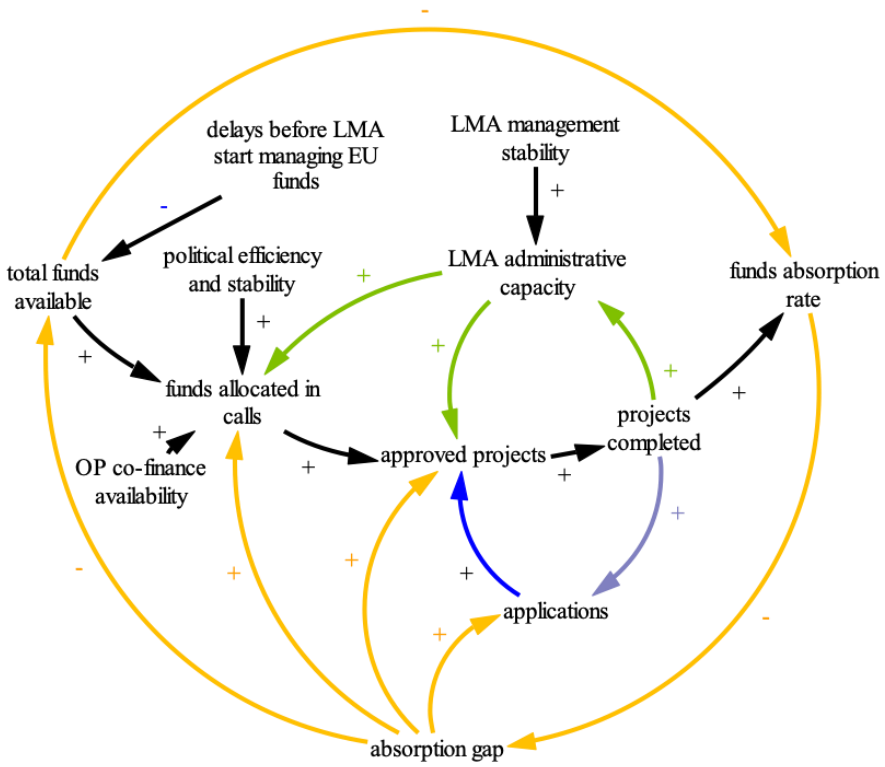
This section has been labelled “challenges” because users are presented with a specific result of a policy and the invited to replicate it tweaking the different switches.

They only have 5 attempts to try and at the end a quick “reason why” and learning outcome is shown to conclude the experience.

PAR 3 ‘ Interface Development ’

PAR 3.1 Original Modelling Software

The model has been built with Vensim® software. Vensim® is a technical software created with the only purpose of building system dynamics models.



It is an optimized software for the calculation of multiple differential equations, which allows to build huge models (with many variables and eventually clustered in arrays), perform the subsequent computation in a short and acceptable amounts of time, display the desired outputs in an over time fashion and make sensitivity analysis (e.g. Montecarlo simulations) to test variables impact on the system.

PAR 3.2 Destination Language

Our purpose was to make available the Vensim model to both local LMAs and PERCEIVE website visitors, also bypassing the requirement for a commercial version of the software, and providing a more readable interface to the user.

After selecting meaningful variables in the model, and grouping them by weight and "context", the model was converted in a web app based on the HTML5 stack. Such intent was achieved re-writing

PHP versions of Vensim functions used in the model and an interpreter able to convert the model from its original language to PHP, which has no built-in features to recreate the simulation's logic.

PAR 3.3 Final Version

The HTML5 application can be accessed from any (modern?) web browser, being built on widespread tecnologies. Its interface is simple and the user can start the simulation with no further information needed.

If needed, the simulator can be simplified, stripping extra informations not meaningful to non LMAs users, or enriched on the other hand, adding more charts and values to play with, or giving the opportunity to create yearly consecutive runs.

More expanding could be achieved by tracing user submitted datasets, providing research data.