CHROMDESIGN

#toolkit

Tangible Science Framework

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T-Sci A

How To Create Scientific Complexity Experiences
Based On Design Thinking Process

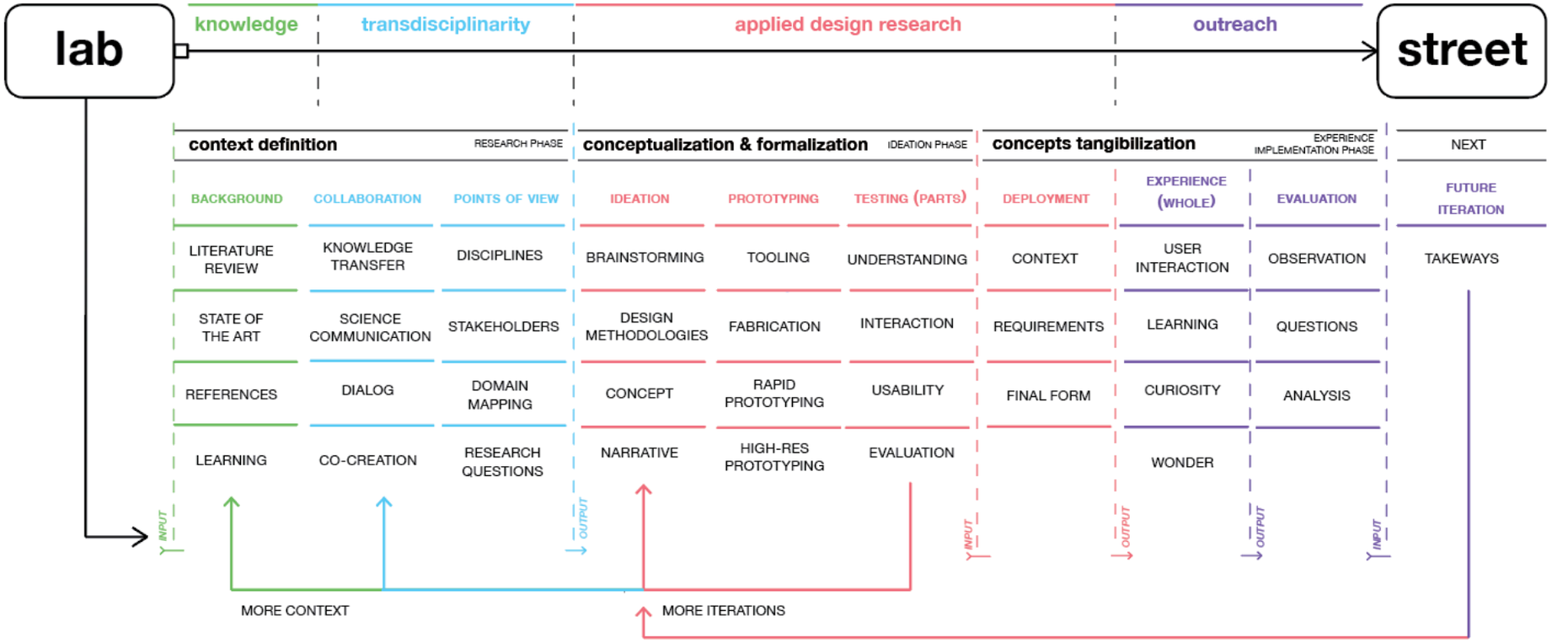
Carla Molins-Pitarch 2021

This framework, Tangible Science (T-Sci) is born to bring scientific complexity to the public and bring different research disciplines closer to collaborate and share knowledge and methodologies to achieve more meaningful goals.

Tangible Scientific Framework is a design process addressed to designers and other researchers willing to bridge the current gap between science and society. It will help foster collaborations. If you're unfamiliar with design methodologies, you might need to expand your knowledge phase to acquire those, but this is still for you. Let's start the journey from the lab to the street!


lab
street

Tangible Science Framework



lab knowledge

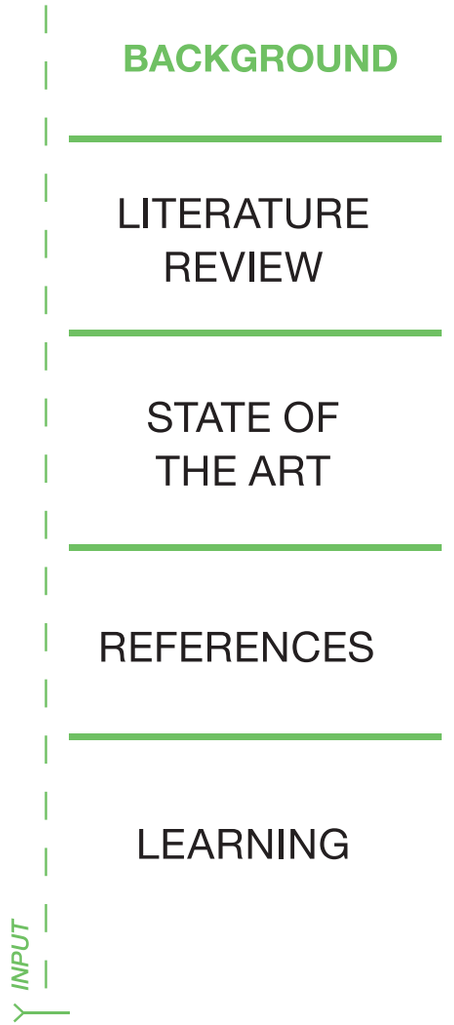
A new scientific domain
always comes with some
knowledge acquisition process

knowledge

content definition

RESEARCH PHASE

Each scientific discipline will provide a series of INPUTS to start our transdisciplinary design research. In the RESEARCH PHASE, we will approach the content definition of our future outcome: first from a theoretical perspective to later on building a network of concepts that will define our pathway to later phases of the project.



1 LITERATURE REVIEW

Like any other research phase, a literature review is needed to get an in-depth overview of the domains we're about to study.

While working with scientific complexity, the key is to include a wide range of literature typologies to find the connection to other disciplines that we are interested in further exploring.

The process can encompass multiple phases as new knowledge needs might arise later.

Tip

Your area of expertise might not be covered by many sources found. It is handy to keep an open-minded approach during this phase to keep track and catalog many resources you may or may not use in the end.

Time Frame *Start of the process until the end if needed*

Challenges *Acquiring domain-specific lexicon*

Needs *Access to a specialized library, journals, and databases*

Participants *You + people involved in some stages of the process*

2 STATE OF THE ART

Identifying those works that impact beyond the standard is key to gathering an exhaustive list of elements that will define a reference point for the following steps of your design process.

With many researchers approaching topics from different angles, two unknown people may be working with similar frameworks. Keep your eyes open to track relevant researchers' works.

Tip

For example, there are novel solutions regularly in the area of creative technology. Take into account that some new works might overlap with your current research. Compulsory to keep this section updated.

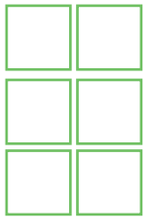
Time Frame *After the literature review + updating during the project duration*

Challenges *Finding some breakthroughs that are too niche*

Needs *Access to a specialized library, journals, and databases*

Participants *You*

3 REFERENCES



Having references for all aspects of the project is a must. This requirement shouldn't be new to a designer engaging in a design process. It is common to have an overflow of information, including visual and technical references. Regarding a scientific complexity design process, a taxonomical approach to references can be convenient for managing the visual information for your future self. Creating an organized system early on will save time and struggles!

Tip

Start with a simple tags' structure that will simplify your search later. You can expand with more categories or even subcategories as you go. There are services such as Evernote that make it easier.

Time Frame *Start of the process until the end if needed*

Challenges *Having an overflow of information, this process demands order*

Needs *Relevant sources to track during the project*

Participants *You + people involved in some stages of the process*

4 LEARNING

This chapter is a crucial milestone for a scientific complexity design project, as there will be many new concepts to learn. This kind of learning has quite a steep learning curve depending on the background and the discipline that one engages in. This step requires perseverance as it might not be a straightforward process. Some concepts will require revisiting and adding new layers of knowledge.

Tip

There are many great sources for learning as well as different types of learning. Often, the resources given might not suit your endeavors; try to find what works best for you.

Time Frame *Start of the process until the end if needed*

Challenges *Finding the right resources as there are way too many*

Needs *Access to learning resources: offline and online.*

Participants *You*

knowledge

transdis ciplinarity

Beyond standardized design
multidisciplinary collaborations

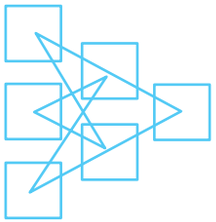
transdis ciplinarity

content definition

RESEARCH PHASE

Transdisciplinary collaborations won't spur unless all participants are given the tools to nurture the conversations, allowing going beyond the traditional means of collaboration. These blocks are a sample of decisive moments to achieve the sought transdisciplinarity across the project. The OUTPUT will build the foundations of the next phase.

1 KNOWLEDGE TRANSFER



After the knowledge acquisition that will ease the conversation between different disciplines, there is an opportunity to foster knowledge transfer between all participants. This stage will enrich and strengthen all communications moving forward with the project. It can happen on demand also during the duration of the project.

Tip

There needs to be a collective effort to identify the gaps of knowledge that could arise along the process to prevent an artificial knowledge transfer. It shouldn't be one-directional but reciprocal.

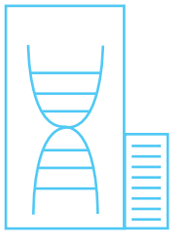
Time Frame *After the knowledge phase, along the process.*

Challenges *Missing gaps that will make difficult communication*

Needs *Keeping an open-minded attitude to maximize sharing/ learning*

Participants *You + people involved in some stages of the process*

2 SCIENCE COMMUNICATION



Suppose one takes science communication as a broad spectrum. In that case, a series of skills is necessary to ensure that scientific information gets to the right audience, whether an expert audience or a non-expert one.

All participants are highly encouraged to participate in training that will provide communication tools and engage in the design process, such as design methodologies.

Tip

Many skills can be covered in a science communication training, so tailoring it to the participants' profiles will make the most of it.

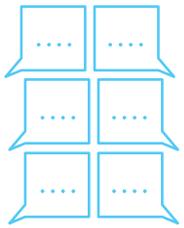
Time Frame *Early on in the project*

Challenges *Having multiple backgrounds with different needs*

Needs *A rich curriculum that suits participants' needs*

Participants *You + everyone involved in the process*

3 DIALOG



A grounded collaboration is built with the participation of as many perspectives as possible. Offering an open and safe dialogue space will be the first stone to a constant and enriching dialog. The process can include as many voices as possible with good communication and continuous discussion.

Tip

If there is a willingness to offer open dialog, a facilitator can help connect ideas from different agents, especially in scientific spaces.

Time Frame *Start of the process until the end*

Challenges *Keep the momentum of the conversation ongoing*

Needs *Constant conversation*

Participants *You + all participants*

4 CO-CREATION

Collaborative development is a requirement with hybridized projects where different disciplines work together to develop a project.

Different co-creation tools can support finding a shared path when involving people from various disciplines. Choose the tools accordingly to the profiles you're working with.

Tip

A co-creation session with participants unfamiliar with the methodology will be necessary to explain the framework and facilitate the session.

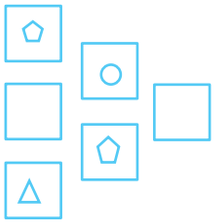
Time Frame *After the knowledge acquisition phase + any phase.*

Challenges *Having more participation of some people than others*

Needs *Materials + showing how the framework works*

Participants *You + all participants needed in that phase*

5 DISCIPLINES



Identifying additional disciplines that might be helpful to fill some of the gaps identified during previous steps is important to involve them early on in the process.

This early-on involvement will ease navigating some challenging aspects as multiple perspectives will be considered from the beginning, adding new information to the table.

Tip

It's ok to incorporate more disciplines/members later on in the process, but be mindful that the earlier steps might need to be covered to ensure understanding.

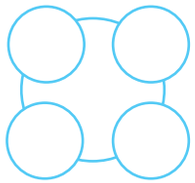
Time Frame *From the beginning*

Challenges *Identifying key disciplines "too late" in the process*

Needs *Proactivity to identify profiles that are relevant to the project*

Participants *You + people involved in stages of the process*

6 STAKEHOLDERS



As with any project, there is a need to identify who will be the agents in the particular domain of focus. However, in communicating scientific complexity, there might be a risk of aiming too broad without considering the needs and goals of different audiences. It is imperative to understand who we will involve and reach them from the very beginning.

Tip

You can use user personas to understand your target audience better and also, as much as you can engage and include those audiences in the process.

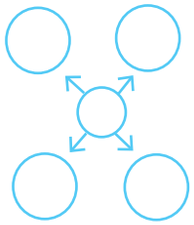
Time Frame *From the beginning*

Challenges *Defining groups that are too generic and far apart*

Needs *Focus and analysis*

Participants *You*

7 DOMAIN MAPPING



Domain mapping is a standard tool in design thinking processes. The importance of mind mapping links to the extent of relating different concepts and creating various clusters and networks of knowledge developed during the research phase. After a bombarding of new concepts, learnings, and ideas, some housekeeping needs to happen. As for today, many digital tools can assist in the process of mapping.

Tip

For this stage, use the tools you're the most comfortable with. If you don't know where to start, grab some post-its and pens and write what comes to mind. Later on, organize and go on.

Time Frame *After learning and starting to dig dipper in the topping*

Challenges *Too many different domains to start, go 1 by 1 and then look for connexions*

Needs *Tools to visualize ideas (digital) or analog (paper, pen, post-its)*

Participants *You*

8 RESEARCH QUESTIONS

After the profound process of organizing concepts and all the new knowledge acquired, plenty of questions will arise. Identifying those and creating a hierarchy among them will define the research questions that will make you jump to the next stage of the design process. Be aware that some questions might not be trivial, but you must keep track of them anyway. Some of those will trigger other questions that will help you move forward. If you have too general questions, try to ask a more specific one after and keep them both.

Tip

Keep those questions somewhere visible or available along the process. Checking and updating them once in a while will help ensure your project is on track.

Time Frame *After the domain mapping*

Challenges *Keeping too general questions + not narrowing it down*

Needs *Anything to write and to keep archived*

Participants *You*

transdis
ciplinarity

applied
design
research

Applying design methodologies
and processes to go from research
questions to something tangible

applied design research

conceptualization & formalization

IDEATION PHASE

If we take the OUTPUT from the RESEARCH PHASE as a starting point, the IDEATION PHASE is developed to go from the different ideas to concepts and its formalizations. **Applied design research** can take many routes; the steps displayed here are specifically designated to go from abstract and complex scientific ideas to tangible and accessible to the public experiences. As designers, one should bring its own processes in addition to the ones suggested as a base.

IDEATION

1 BRAINSTORMING

2 DESIGN METHODOLOGIES

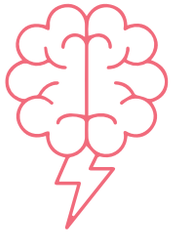
3 CONCEPT

4 NARRATIVE

PROTOTYPING

TESTING (PARTS)

1 BRAINSTORMING



Coming up with ground-breaking ideas is not a linear process that will happen out of the blue. That's why design thinking provides many tools to facilitate iterating over many varied ideas.
Brainstorming can be a collaborative process, but it can also be used individually to list different ideas and visualize them to create new ones.

Tip

Try to have as much space (physical or digital) as possible to spread your notes, for example, post-its, so you can categorize them later and cluster them comfortably.

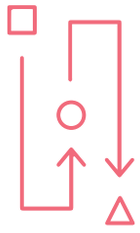
Time Frame *At the beginning of the ideation process. It can be repeated as many times as needed.*

Challenges *Being uncomfortable at the beginning with disconnected thoughts*

Needs *A canvas (Physical or digital like the app Miro) + post-its*

Participants *You + people involved in some stages of the process*

2 DESIGN METHODOLOGIES



There are many design methodologies that can be used to conceptualize and formalize a project. As each project will require tailored steps depending on what needs to be tackled at the time, if you're not familiar with those, take a look at the book *Universal Methods of Design: 125 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions.* You'll find out many ways to approach the same goal, and many different goals that you can achieve using different methodologies.

Tip

Some methodologies require practice to be adopted by a heterogeneous group of people and become part of the process. Let the most knowledgeable person in methodological terms facilitate while giving room to the others to try and fail.

Time Frame *After first brainstorming*

Challenges *Identifying the most suitable methodology. Multiple ways to get to a similar place, all of them equally valid.*

Needs *Check each methodology requirements*

Participants *You + people involved in some stages of the process*

3 CONCEPT

Grounding ideas to get to a concrete concept is needed to define the next steps. Usually, a concept comes when being able to summarize idea in one sentence. Being able to answer What, Why, Where, When, Who, and for Whom is also a good indicator that you are heading toward a clear concept. Is that immutable? not at all. You might need to revisit it if there's a significant change later on in the process.

Tip

Getting to one clear concept can be tricky if many "good" ideas are on the table. Try to keep them all and rule some of them out a bit later in the process. Incorporate other people to validate the concept or concepts.

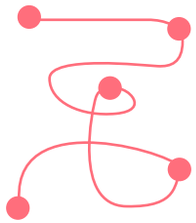
Time Frame *During the ideation process. Might need iteration*

Challenges *Having multiple viable concepts to move forward*

Needs *Whatever works for you to sketch + rule out ideas*

Participants *You + validation from other participants*

4 NARRATIVE



Every project needs a narrative. There is always a story behind it, built upon or about the project. It may seem secondary, but the narrative will drive your proposal to your audience. Without a good story, it will be difficult to emphasize and understand the message behind your project. A straightforward message will lead to a clear story to transmit to your audience. Work hard to define a simple message, as scientific complexity is not the easiest thing to do, but it will be worth it!

Tip

Try to have one underlying message for the whole story. Complementary messages are welcome unless those make an overly complicated narrative.

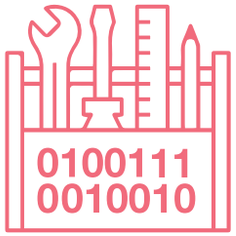
Time Frame *After defining the concept & the main message.*

Challenges *Leaving aside unnecessary and complicated details*

Needs *Storytelling + Writing tools (analog or digital)*

Participants *You*

5 TOOLING



Building your tooling is vital to navigating different phases of development. Each project will require various tools, some of them part of your current toolkit, others you'll need to learn them. Even if you're familiar with some tools, there's a chance you have to master one of them. Be ready to learn and incorporate new skills into your toolbox.

Tip

You don't need to learn everything related to your project; you can look for experts and ask other people for support with some technical aspects. The important part is to identify the need to be able to ask for help.

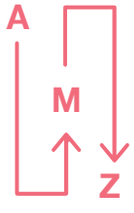
Time Frame *Beginning of the prototype development*

Challenges *Learning skills with a learning curve too steep*

Needs *Finding resources to learn the skills you need*

Participants *You*

6 FABRICATION PRODUCTION



Making your idea into reality will require multiple processes; how that is made will be essential as the chosen production processes will define specific parameters and capabilities that the end product will have. Even with digital products, there is a process of how to craft and produce interactions. When evaluating the different approaches, we will need will help us set up some prototypes that will ease the final production process and allow us to test multiple things we want to validate.

Tip

There are many ways to achieve a similar result, including different materials and budgets. Asses as many variables as possible and count on experts to rule out things you are not familiar with.

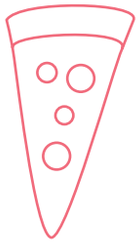
Time Frame *Evaluation before prototyping. Execution for the final piece*

Challenges *Underestimating the complexity of the processes*

Needs *Research on production methods.*

Participants *You + experts*

7 RAPID-PROTOTYPING



Rapid prototyping allows testing multiple features and kinds of aspects in a quick-iterative and inexpensive way. You first need to identify what you need to test: Is it a series of materials? Is it some kind of interaction? Is it a formal feature? There are many different types of prototypes that you can do: aesthetic prototype, paper prototype, and interaction prototype.... Choose the materials and dive into creating your prototype.

Tip

Each project will undoubtedly have different prototyping needs and be ready to evaluate it on an individual basis. Also, consider that some things might be testable in low resolution, but some might require a higher one.

Time Frame *First rounds of concept formalization*

Challenges *Not being able to identify a low-resolution feature to test*

Needs *Inexpensive materials such as cardboard, paper, and other office and craft supplies*

Participants *You*

8 HIGH-RES PROTOTYPING

Some prototyping stages might require a high-fidelity setup or a very detailed feature to be able to evaluate the suitability or usability of that component. This type of prototyping is very costly and requires planning and analysis not to overdo it. While rapid prototyping can be a super-fast iterative process, usually, what entitles higher-resolution prototyping might require a lot more time and resources. Choose what should and should not be tested wisely in this phase.

Tip

For high-resolution prototyping, sometimes you might need external providers and manufacturers. Besides the additional costs that can have, it's important to foresee the amount of extra time needed.

Time Frame *Later rounds of concept formalization*

Challenges *Production times being too long for the given scope*

Needs *Access to different fabrication and development processes*

Participants *You + providers*

9 UNDERSTANDING

When developing projects with scientific complexity, our goal is to the message we are trying to convey to our audiences. Testing the understanding of the message in the early prototyping stages can help us see if we're on the right way and identify new possible things that our users are interested in. Being in touch with our audiences is vital to not working on a separate parallel path.

Tip

Having a clear message will also help you identify the expected information that needs to be understood so you can evaluate it. If you're not sure how to proceed, ask for support from another researcher expert with evaluation methods.

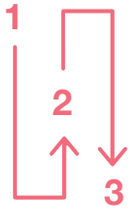
Time Frame *To start while developing prototypes*

Challenges *Creating misconceptions if not evaluating properly*

Needs *Evaluation Research Methods*

Participants *You + expert if required + users*

10 INTERACTION



We will define a series of stages to convey our message while offering a tangible or playful experience. The interaction needs to be precise; even if we aim for open exploration, we should contemplate different user flows to achieve various actions and acquire the correct information. In the case of scientific complexity objects, interaction, and understanding will go hand to hand, as poor interaction can lead to a poor understanding.

Tip

For evaluating interaction, observation methods are valuable, as well as having direct access to user testing to ask before and after questions.

Time Frame *To start while developing prototypes*

Challenges *Having overcomplicated or too predictable interactions*

Needs *User flow charts + evaluation system*

Participants *You + users*

11 USABILITY

Our developed user experience is the journey we are creating to bring scientific complexity to the general public. We need to ensure the usability of our design by identifying the potential usability pitfalls early on in the process. We can also test it as part of the interaction testing to ensure our experience is safe, effective, efficient, and usable. Accessibility is also essential at many levels; check your proposal complies with different accessibility rules.

Tip

There are many resources online to check usability and accessibility, but more complex cases might require ad-hoc solutions, which will mean getting advice from an expert in the field.

Time Frame *To start while developing prototypes*

Challenges *Not being able to accommodate all accessibility rules*

Needs *Research to provide a tailored solution*

Participants *You + experts*

12 EVALUATION

After gathering all the data during the different testing sessions, various steps for analysis will be needed before having an evaluation report. We need to identify all pieces of information from the questionnaires and observation forms, organize them, cluster them, and write different conclusions and takeaways based on the data analysis. We need to be neutral and support our statements with data and not jump to conclusions directly.

Tip

This stage can be very information-heavy. It can be helpful to lay the information out with post-its, large canvases, grids, or other ways of visually organizing the info while performing the analysis.

Time Frame *During the testing phase. It will inform new prototypes*

Challenges *Having too much data to process*

Needs *A system to organize + analyze the information*

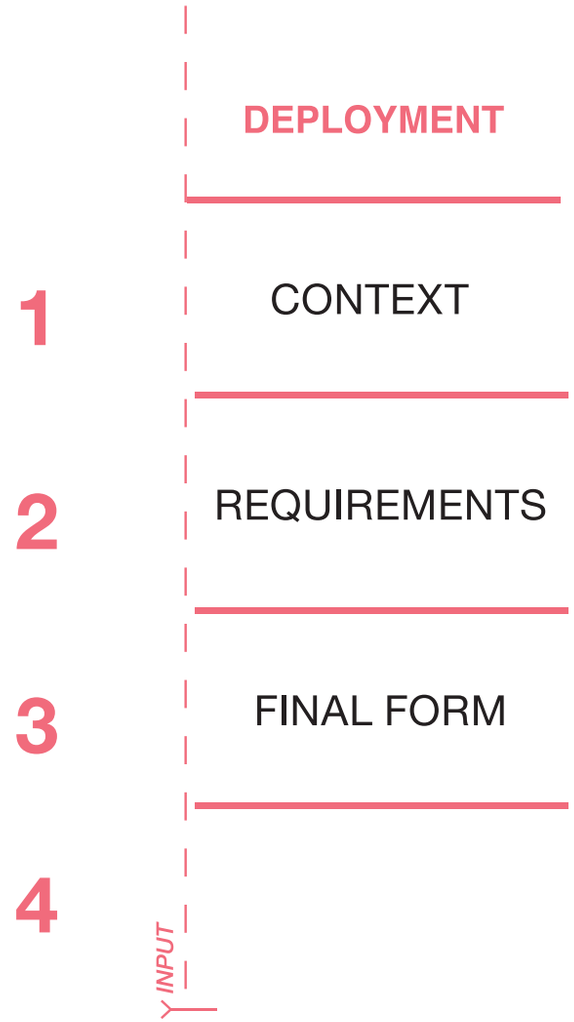
Participants *You*

applied design research

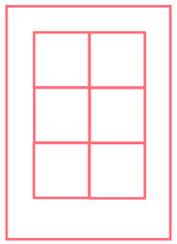
concepts tangibilization

EXPERIENCE IMPLEMENTATION PHASE

All prototyping & testing will provide us with the INPUTS to finish the development of our tangible instance of science. In the EXPERIENCE IMPLEMENTATION PHASE, we will reach the final form of our experience, the OUTPUT, and we'll bring it to the public.



1 CONTEXT



Like any story you can tell, you need an introduction to understand the background information. For users, this context is vital to frame the project to relate all the new information to something they are familiar with. The context should always be at the beginning of the project's user experience to bring this informative level first.

Tip

There are many ways and mediums to offer the context; you can have a placard, a large panel, a short explicative video, or animations,...
but it should be short, concise, and direct.

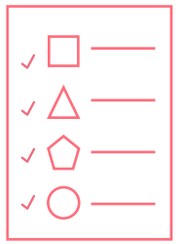
Time Frame *To develop in parallel to the prototype*

Challenges *Having to provide too much context at once*

Needs *Storytelling + Writing tools (analog or digital)*

Participants *You + people involved in stages of the process*

2 REQUIREMENTS



When getting to the final stages of the project development, checking the set of requirements defined at earlier stages of the project is needed. If a primary requirement is not met; then an earlier stage might need to be revisited. Some requirements might have evolved along the process for many reasons, such as budget, and production difficulties, among others, and that's ok as long as the main goals are preserved.

Tip

It can happen that some of the original requirements might not be realistic given the scope of the project. Those must be flagged early on and not wait until this phase, which will require going back again to iterate on some steps.

Time Frame *Since the beginning of the project, check at the end*

Challenges *Accommodating unrealistic goals for the project*

Needs *A checklist accessible at all times*

Participants *You*

3 FINAL FORM

This step is the climax of the concept tangibilization phase as it will materialize a long process into something that can be put into action. The last adjustments will be made after the testing rounds, and requirements check, meaning the show can start after this stage! There will be a time crunch to have everything ready, but it will be worth it.

ready for action

> ***Tip***
> This phase can be nerve-wracking as many minor adjustments are always to be done. At some point, it's ok to stop. There are always things that will remain ready for a future iteration!

Time Frame *End of prototype development*

Challenges *Finishing everything on time*

Needs *Good project and time management*

Participants *You + people involved in stages of the process*

applied
design
research

outreach

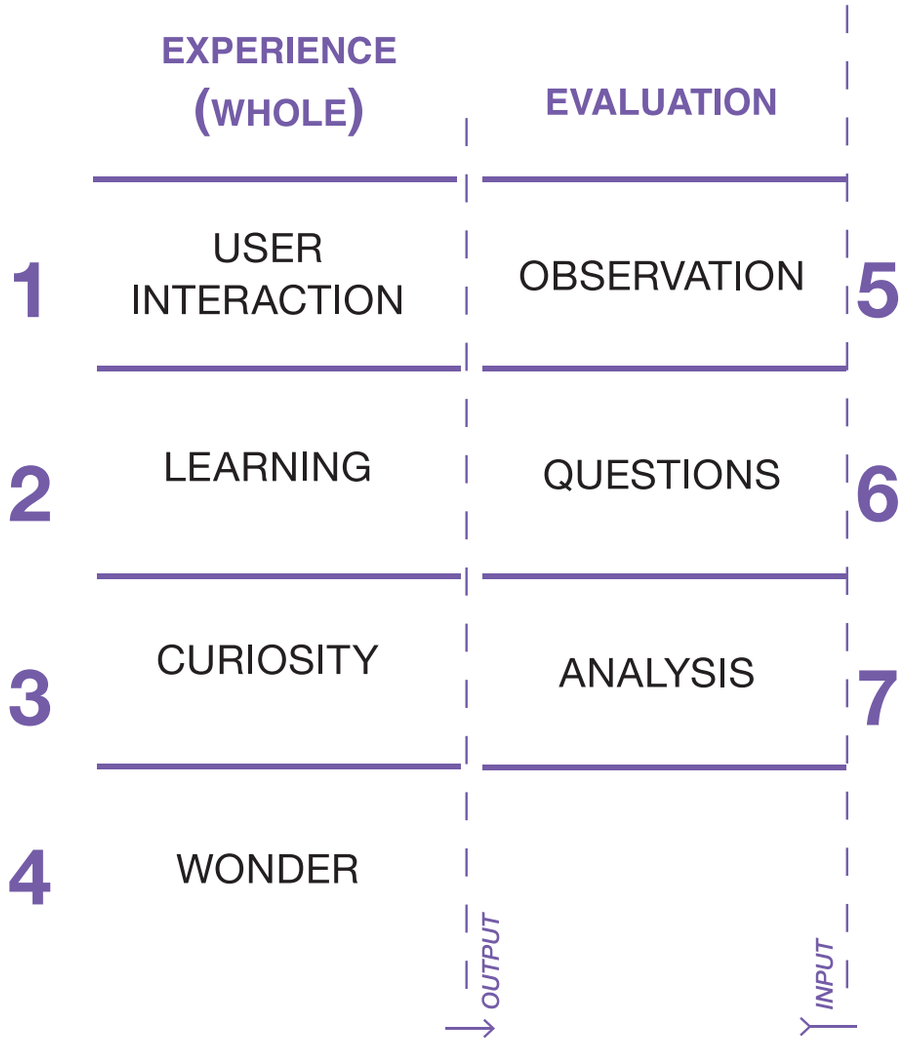
By developing the tangible instance of science, the chance to make it accessible to society gets closer.

outreach

concepts tangibilization

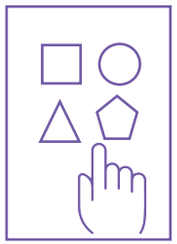
EXPERIENCE IMPLEMENTATION PHASE

The experience, which is the outreach OUTPUT is ready for evaluation and covers the users' thoughts on learning, curiosity, and wonder. The moment to see as well what worked best and what can be improved. The final evaluation will serve as INPUT for a future iteration and final thoughts.



concepts tangibilization
EXPERIENCE IMPLEMENTATION PHASE

1 USER INTERACTION



The user interaction will be the spine of the experience and the journey we've designed to bring scientific complexity closer to our audience. Having a seamless and exciting interaction will lead to a meaningful experience. If we don't offer a smooth interaction at this stage, the visitor's experience will be highly impacted. After different rounds of testing, this stage should be uneventful and should lead to our visitors' satisfaction.

Tip

There are many kinds of interactions and many types of users. You might find different levels of engagement regardless of the achieved level of seamlessness and flow of the interaction.

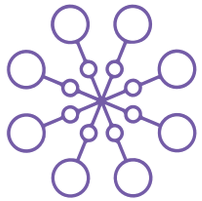
Time Frame *The final stage of the project in real context*

Challenges *Being able to meet most users expectations*

Needs *Keeping a critical angle to see if anything can be improved*

Participants *You + users*

2 LEARNING



Learning and understanding are the foundations of any experience meant to bring scientific complexity to the public. Some specific goals and messages have to be achieved, but of course, our users will understand more or less depending on their previous knowledge, for example. Being aware of this range is vital to evaluate our experience. All user testing sessions will support smoothing this part and helping us identify the critical points that could cause confusion and misunderstanding.

Tip

There are different kinds of learners, such as Visual, Auditory, and Kinesthetic, ... try to offer the main message in different ways and mediums if you want to ensure it gets to a broader range of visitors.

Time Frame *The final stage of the project in real context*

Challenges *Accommodating to most types of learners*

Needs *Evaluate what's working and what's not*

Participants *You + users*

3 CURIOSITY

Sparking curiosity is one of the main goals when approaching a topic that is unknown and tentatively complicated, as it can draw back some visitors. This curiosity drive will be part of the designed journey; otherwise, only knowledgeable visitors might engage with it. Also, having some element of surprise and reveal will awaken that thirst for curiosity to allow more open exploration and interaction with the offered experience.

Tip

If the experience can only have one user at a time, aim to allow observers to start being curious while waiting. Our potential visitors will engage even before beginning the journey.

Time Frame *The final stage of the project in real context*

Challenges *Struggling to achieve this stage*

Needs *Being open to visitors feedback to always ways to iterate and learn from the process*

Participants *You + users*

4 WONDER

Besides answers, we can pose open-ended questions that might create a sense of wonder when accompanied by the proper narrative and interactions. This sense of wonder makes the most sense when crafting abstract and scientific experiences with many unknowns. In parallel to an understandable explanation of what scientists know, this wonder can create an excellent framework for wanting to see more and learn more.

Tip

This sense of wonder might not fit all scientific environments as it often relies on analogies to talk about some things that are still relatively unknown. However, from the experience design point of view is a crucial ingredient.

Time Frame *The final stage of the project in real context*

Challenges *Creating wonder without leaving many scientific explanations that could bring to misunderstanding*

Needs *Being open to visitors feedback to always ways to iterate and learn from the process*

Participants *You + users*

5 OBSERVATION

Evaluation will always start with observation, in this case, as non-participant as possible, to not interfere with our users' actions. There will always be a structure and an organized way to observe and take notes so it can be evaluated later. Observation is supposed to be a passive and neutral process in the evaluation stage. Preparing this process thouroughly will ease the note-taking process and later on the analysis.

Tip

When pursuing the evaluation stage, it will be important to observe as many things and from many angles as possible. The recommendation is to bring multiple observers when possible.

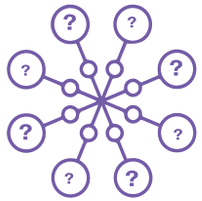
Time Frame *The final stage of the project in real context*

Challenges *Being able to observe and take notes without applying any personal biases*

Needs *Good visibility on users interacting + note-taking*

Participants *You + users*

6 QUESTIONS



To evaluate interaction, understanding, curiosity, and wonder, we need to interact with our visitors. That's why we need to elaborate a questionnaire to have some background information (nothing personal is required) and ask some questions about what they know before and after to compare the answers and see how the learning process went.

Tip

This process can be done in many ways; try to find the one that best suits your needs and the needs of your study. You can have a form that is part of the experience they can fill out or be there asking questions in person.

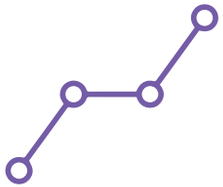
Time Frame *The final stage of the project in real context*

Challenges *Being able to observe and take notes without applying any personal biases*

Needs *Direct access to the users interacting + note-taking*

Participants *You + users*

7 ANALYSIS



All data needs to be processed, organized, and analyzed to get data-based takeaways on learning, interaction mainly, curiosity, and wonder on a secondary level. The analysis is a labor-intensive and patience-draining stage, though it will make a difference in your results and future projects how well you deliver at this stage. The final report can stay as an internal manual, but it will shape and feed future iterations of this project or others using the same development framework.

Tip

This phase might require particular skills depending on the amount and type of data we get. It might be helpful to reach an expert on data analysis and statistics if needed.

Time Frame *At the end of the evaluation process*

Challenges *Going from raw data into meaningful insights*

Needs *Frameworks to process and analyze data.*

Participants *You + expert if needed*

+ WHAT NEXT?

Once we have the final analysis output at hand, we could go back into the ideation process and iterate on a new experience that includes all the takeaways we've gathered along the process. Not all projects will have the chance to do a full round of iteration after implementation. Still, in case there is a new experience built from a fully-fletched one, this analysis can be a good starting point to improve our current design and offer something better that includes the public's thoughts.

NEXT

FUTURE ITERATION

TAKEWAYS

IDEATION PHASE


outreach
street


lab
street

If you got here, you're genuinely interested in onboarding the journey of creating tangible instances of scientific complexity. **The Tangible Science Framework** is a quite synthetic overview of a process that can last months and even years. This process provides a common framework to allow transdisciplinarity, sharing methodologies, lexicon, and checkpoints, and moving forward with other researchers from entirely different disciplines. Of course, each process can have subprocesses, and one might tailor them according to the project. Share the framework and start to bring science to the streets.

CHROMDESIGN

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